1.1.1 The institution ensures effective curriculum delivery through a well-planned system and documentation process.

ACADEMIC YEAR 2021-2022

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INSTITUTION ACADEMIC CALENDAR FOR THE ODD SEMESTER 2021 - 2022

DATE	DAY	PARTICULARS
01-Jun-21	Tuesday	
02-Jun-21	Wednesday	Commencement of Theory Examinations For IV Year
03-Jun-21	Thursday	
04-Jun-21	Friday	
05-Jun-21	Saturday	
06-Jun-21	Sunday	Holiday
07-Jun-21	Monday	
08-Jun-21	Tuesday	FDP - DAY 1 - IPR & FP
09-Jun-21	Wednesday	FDP - DAY 2 - IPR&FP
10-Jun-21	Thursday	FDP - DAY 3 - IPR&FP / IA – I (M.E – CSE)
11-Jun-21	Friday	IA – I (M.E – CSE)
12-Jun-21	Saturday	Holiday
13-Jun-21	Sunday	Holiday
14-Jun-21	Monday	IA – I (M.E – CSE)
15-Jun-21	Tuesday	
16-Jun-21	Wednesday	
17-Jun-21	Thursday	
18-Jun-21	Friday	
19-Jun-21	Saturday	
20-Jun-21	Sunday	Holiday
21-Jun-21	Monday	
22-Jun-21	Tuesday	
23-Jun-21	Wednesday	
24-Jun-21	Thursday	
25-Jun-21	Thursday	
26-Jun-21	Saturday	Holiday
27-Jun-21	Sunday	Holiday
28-Jun-21	Monday	
29-Jun-21	Tuesday	
30-Jun-21	Wednesday	
01-Jul-21	Thursday	
02-Jul-21	Friday	
03-Jul-21	Saturday	
04-Jul-21	Sunday	Holiday

DATE	DAY	PARTICULARS
05-Jul-21	Monday	
06-Jul-21	Tuesday	IA – II (M.E – CSE)
07-Jul-21	Wednesday	IA – II (M.E – CSE)
08-Jul-21	Thursday	IA –II (M.E – CSE)
09-Jul-21	Friday	
10-Jul-21	Saturday	Holiday
11-Jul-21	Sunday	Holiday
12-Jul-21	Monday	FDP - DAY 1 - RLTST
13-Jul-21	Tuesday	FDP-DAY 2 - RLTST
14-Jul-21	Wednesday	FDP-DAY 3 - RLTST
15-Jul-21	Thursday	FDP-DAY 4 - RLTST
16-Jul-21	Friday	FDP-DAY 5 - RLTST
17-Jul-21	Saturday	FDP-DAY 6 - RLTST
18-Jul-21	Sunday	Holiday
19-Jul-21	Monday	
20-Jul-21	Tuesday	
21-Jul-21	Wednesday	Holiday (Bakrid)
22-Jul-21	Thursday	
23-Jul-21	Friday	
24-Jul-21	Saturday	Holiday
25-Jul-21	Sunday	Holiday
26-Jul-21	Monday	
27-Jul-21	Tuesday	
28-Jul-21	Wednesday	
29-Jul-21	Thursday	
30-Jul-21	Friday	
31-Jul-21	Saturday	
01-Aug-21	Sunday	Holiday
02-Aug-21	Monday	IA – III (M.E – CSE) / FDP - DAY 1 - DSUP
03-Aug-21	Tuesday	FDP - DAY 2 - DSUP / IA – III (M.E – CSE)
04-Aug-21	Wednesday	FDP - DAY 3 - DSUP / IA – III (M.E – CSE)
05-Aug-21	Thursday	FDP - DAY 4 - DSUP
06-Aug-21	Friday	FDP - DAY 5 - DSUP / One Day International Conference On ETIAAE / Last Working Day For PG (MBA, M.E) I Year
07-Aug-21	Saturday	FDP - DAY 6 - DSUP / Holiday

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IA - INTERNAL ASSESSMENT
International Conference - Emerging Trends In Mechanical And Automobile Engineering

FDP - IPR&FP - IPR & Fundamentals of Patent Filling & Prosecution
FDP - RLTST - Remote Learning Through Spoken Tutorial
FDP -DSUP - Data Science Using Python

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DATE	DAY	PARTICULARS
08-Aug-21	Sunday	Holiday
09-Aug-21	Monday	Commencement of Practical Examinations For PG (MBA, M.E) I Year
10-Aug-21	Tuesday	
11-Aug-21	Wednesday	
12-Aug-21	Thursday	
13-Aug-21	Friday	Fit India Freedom Run
14-Aug-21	Saturday	
15-Aug-21	Sunday	Holiday
16-Aug-21	Monday	
17-Aug-21	Tuesday	
18-Aug-21	Wednesday	Commencement of ODD Semester Classes For UG (II , III & IV Year)
19-Aug-21	Thursday	
20-Aug-21	Friday	Holiday (Muharam)
21-Aug-21	Saturday	Holiday
22-Aug-21	Sunday	Holiday
23-Aug-21	Monday	Commencement of Theory Examinations For PG (MBA, M.E) I Year / FDP - DAY 1 - APTS
24-Aug-21	Tuesday	FDP - DAY 2- APTS
25-Aug-21	Wednesday	FDP - DAY 3- APTS
26-Aug-21	Thursday	FDP - DAY 4- APTS
27-Aug-21	Friday	FDP - DAY 5- APTS
28-Aug-21	Saturday	FDP - DAY 6- APTS

DATE	DAY	PARTICULARS
29-Aug-21	Sunday	FDP - DAY 7- APTS / Holiday
30-Aug-21	Monday	Holiday (Sri Krishna Jayanthi)
31-Aug-21	Tuesday	ADD ON PROGRAM - DAY 1 -FSWD
01-Sep-21	Wednesday	ADD ON PROGRAM - DAY 2 - FSWD/ ADD ON PROGRAM - DAY 1 -ES
02-Sep-21	Thursday	ADD ON PROGRAM - DAY 3 - FSWD / ADD ON PROGRAM - DAY 2 - ES/ Covid - 19 Vaccination Campaign - 1
03-Sep-21	Friday	ADD ON PROGRAM - DAY 4 - FSWD / ADD ON PROGRAM - DAY 3 - ES
04-Sep-21	Saturday	ADD ON PROGRAM - DAY 5 - FSWD/ ADD ON PROGRAM - DAY 4 - ES
05-Sep-21	Sunday	Holiday
06-Sep-21	Monday	ADD ON PROGRAM - DAY 6 - FSWD / ADD ON PROGRAM - DAY 5 - ES / ADD ON PROGRAM - DAY 1 - BPWDAWDF
07-Sep-21	Tuesday	ADD ON PROGRAM - DAY 6 - ES ADD ON PROGRAM - DAY 2 - BPWDAWDF
08-Sep-21	Wednesday	ADD ON PROGRAM - DAY 3 - BPWDAWDF
09-Sep-21	Thursday	ADD ON PROGRAM - DAY 4 - BPWDAWDF
10-Sep-21	Friday	Holiday (Vinayagar Chathurthi)
11-Sep-21	Saturday	ADD ON PROGRAM - DAY 5 - BPWDAWDF / Speech Competition Freedom Fighter Subramania Bharati - 100th Death Anniversary
12-Sep-21	Sunday	Holiday
13-Sep-21	Monday	ADD ON PROGRAM - DAY 6 - BPWDAWDF / FDP - DAY 1- CC / ADD ON PROGRAM - DAY 1 - AAT / ADD ON PROGRAM - DAY 1 - DVUT / COVID - 19 Awareness Programme
14-Sep-21	Tuesday	FDP - DAY 2 - CC / ADD ON PROGRAM - DAY 2 AAT / ADD ON PROGRAM - DAY 2 DVUT
15-Sep-21	Wednesday	FDP - DAY 3 - CC / ADD ON PROGRAM- DAY 3 AAT / ADD ON PROGRAM - DAY 3 DVUT
16-Sep-21	Thursday	FDP - DAY 4 - CC / ADD ON PROGRAM - DAY 4 AAT / ADD ON PROGRAM - DAY 4 DVUT
17-Sep-21	Friday	FDP - DAY 5 - CC / ADD ON PROGRAM - DAY 5 AAT / ADD ON PROGRAM - DAY 5 DVUT
18-Sep-21	Saturday	FDP - DAY 6 - CC / ADD ON PROGRAM - DAY 6 AAT / ADD ON PROGRAM - DAY 6 DVUT

FDP - APTS - Android Phone Troubleshooting And Servicing
FDP - CC - Cloud Computing
ADD ON PROGRAM - FSWD - Full Stack Web Development
ADD ON PROGRAM - BPWDAWDF - Building Python Web Development Apps With Django And Flask

IA - INTERNAL ASSESSMENT
ADD ON PROGRAM - ES - ETABS SOFTWARE
ADD ON PROGRAM - AAT - Advanced Automotive Technology
ADD ON PROGRAM - DVUT - Data Visualization Using Tableau

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INSTITUTION ACADEMIC CALENDAR FOR THE ODD SEMESTER 2021 - 2022

DATE	DAY	PARTICULARS
19-Sep-21	Sunday	Holiday
20-Sep-21	Monday	ADD ON PROGRAM - DAY 1 -AGD
21-Sep-21	Tuesday	ADD ON PROGRAM - DAY 2- AGD
22-Sep-21	Wednesday	ADD ON PROGRAM - DAY 3- AGD
23-Sep-21	Thursday	ADD ON PROGRAM - DAY 4- AGD
24-Sep-21	Friday	ADD ON PROGRAM - DAY 5- AGD
25-Sep-21	Saturday	ADD ON PROGRAM DAY 6 - AGD / COVID - 19 Vaccination Campaign - II
26-Sep-21	Sunday	Holiday
27-Sep-21	Monday	Commencement of ODD Semester Classes For PG (MBA,ME) II Year III Sem
28-Sep-21	Tuesday	
29-Sep-21	Wednesday	
30-Sep-21	Thursday	
01-Oct-21	Friday	One Day Workshop - DIGITAL MARKETING
02-Oct-21	Saturday	Holiday (Gandhi Jayanthi)
03-Oct-21	Sunday	Holiday
04-Oct-21	Monday	IA – I (II , III & IV Year) & PG (ME & MBA) / Commencement of ODD Semester Classes For PG (II Year III SEM MCA)
05-Oct-21	Tuesday	IA – I (II , III & IV Year) & PG (ME & MBA)
06-Oct-21	Wednesday	IA – I (II , III & IV Year) & PG (ME & MBA)
07-Oct-21	Thursday	
08-Oct-21	Friday	
09-Oct-21	Saturday	NSS - Swachh Bharat Abhiyan
10-Oct-21	Sunday	Holiday
11-Oct-21	Monday	Speech Competition - Freedom Fighter V.O.Chidambaram - 150th Birth Anniversary / one day Seminar on Entrepreneurship and Communication
12-Oct-21	Tuesday	
13-Oct-21	Wednesday	
14-Oct-21	Thursday	Holiday (Pooja)
15-Oct-21	Friday	Holiday (Pooja)
16-Oct-21	Saturday	Holiday (Pooja)
17-Oct-21	Sunday	Holiday
18-Oct-21	Monday	Holiday (Milad-un-nabi)
19-Oct-21	Tuesday	Holiday (Milad-un-nabi)
20-Oct-21	Wednesday	One Day Seminar of a Successful Entrepreneur
21-Oct-21	Thursday	
22-Oct-21	Friday	SSG 21 Android App Awareness Campaign
23-Oct-21	Saturday	ECO Club - Tree Plantation
24-Oct-21	Sunday	Holiday
25-Oct-21	Monday	
26-Oct-21	Tuesday	
27-Oct-21	Wednesday	
28-Oct-21	Thursday	
29-Oct-21	Friday	
30-Oct-21	Saturday	
31-Oct-21	Sunday	Holiday
01-Nov-21	Monday	IA – II (II , III & IV Year) & PG (ME & MBA)
02-Nov-21	Tuesday	IA – II (II , III & IV Year) & PG (ME & MBA)
03-Nov-21	Wednesday	IA – II (II , III & IV Year) & PG (ME & MBA)
04-Nov-21	Thursday	Holiday (Deepavali)
05-Nov-21	Friday	Holiday (Deepavali)
06-Nov-21	Saturday	Holiday (Deepavali)
07-Nov-21	Sunday	Holiday
08-Nov-21	Monday	
09-Nov-21	Tuesday	

IA - INTERNAL ASSESSMENT

ADD ON PROGRAM - AGD - Advanced Gas Dynamics

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DATE	DAY	PARTICULARS
10-Nov-21	Wednesday	
11-Nov-21	Thursday	IA – I PG ME & MBA II Year III SEM)
12-Nov-21	Friday	IA – I PG MBA, ME & MCA II Year III SEM)
13-Nov-21	Saturday	IA – I PG MBA, ME & MCA II Year III SEM) / COVID-19 Vaccination Campaign - III
14-Nov-21	Sunday	Holiday
15-Nov-21	Monday	IA – I PG MCA II Year III SEM) / Commencement of ODD Semester Classes For PG (I Year I Sem MBA)
16-Nov-21	Tuesday	
17-Nov-21	Wednesday	
18-Nov-21	Thursday	
19-Nov-21	Friday	
20-Nov-21	Saturday	
21-Nov-21	Sunday	Holiday
22-Nov-21	Monday	Commencement of ODD Semester Classes For UG (I Year I Sem) / ADD ON PROGRAM - DAY 1 - DM
23-Nov-21	Tuesday	ADD ON PROGRAM - DAY 2 - DM
24-Nov-21	Wednesday	ADD ON PROGRAM - DAY 3 - DM
25-Nov-21	Thursday	ADD ON PROGRAM - DAY 4 - DM / "INTERNATIONAL DAY FOR THE ELIMINATION OF VIOLENCE AGAINST WOMEN" By WEC CLUB MEMBERS
26-Nov-21	Friday	ADD ON PROGRAM - DAY 5 - DM / IA – III (II , III & IV Year) & PG (ME & MBA) / National Constitution Day
27-Nov-21	Saturday	ADD ON PROGRAM - DAY 6 - DM / IA – II (II , III & IV Year) & PG (ME & MBA)
28-Nov-21	Sunday	Holiday
29-Nov-21	Monday	IA – III (II , III & IV Year) & PG (ME & MBA)
30-Nov-21	Tuesday	
01-Dec-21	Wednesday	IA – II PG MBA & ME II Year III SEM) / AIDS Awareness Day
02-Dec-21	Thursday	IA – II PG MBA & ME II Year III SEM)

DATE	DAY	PARTICULARS
03-Dec-21	Friday	IA – II PG MBA & ME II Year III SEM)
04-Dec-21	Saturday	
05-Dec-21	Sunday	Holiday
06-Dec-21	Monday	IA – II PG MCA II Year III SEM)
07-Dec-21	Tuesday	IA – II PG MCA II Year III SEM)
08-Dec-21	Wednesday	covid19 vaccinaion camp / IA – II PG MCA II Year III SEM)
09-Dec-21	Thursday	AUTOMOBILE Students - Industrial Visit
10-Dec-21	Friday	COVID-19 Vaccination Campaign - IV
11-Dec-21	Saturday	
12-Dec-21	Sunday	Holiday
13-Dec-21	Monday	FDP - DAY 1- CEM / COVID-19 AWARENESS PROGRAMME
14-Dec-21	Tuesday	FDP - DAY 2- CEM
15-Dec-21	Wednesday	FDP - DAY 3- CEM
16-Dec-21	Thursday	FDP - DAY 4- CEM
17-Dec-21	Friday	FDP - DAY 5- CEM / MECHANICAL Students - Industrial Visit
18-Dec-21	Saturday	FDP - DAY 6- CEM
19-Dec-21	Sunday	FDP - DAY 7- CEM / Holiday
20-Dec-21	Monday	Commencement of ODD Semester Classes For PG (I Year I Sem MCA / ECE Department Students - Industrial Visit
21-Dec-21	Tuesday	
22-Dec-21	Wednesday	
23-Dec-21	Thursday	IA – III PG MBA & ME II Year III SEM)
24-Dec-21	Friday	IA – III PG MBA & ME II Year III SEM)
25-Dec-21	Saturday	Holiday (Christmas)

IA - INTERNAL ASSESSMENT
ADD ON PROGRAM - DM - Digital Marketing

FDP - CEM - Construction Engineering And Management

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DATE	DAY	PARTICULARS
26-Dec-21	Sunday	Holiday
27-Dec-21	Monday	IA – III PG MBA & ME II Year III SEM)
28-Dec-21	Tuesday	
29-Dec-21	Wednesday	IA – III PG MCA II Year III SEM)
30-Dec-21	Thursday	IA – III PG MCA II Year III SEM)
31-Dec-21	Friday	IA – III PG MCA II Year III SEM) / Last working Day for PG II Year III Sem MBA & ME
01-Jan-22	Saturday	Holiday (New Year)
02-Jan-22	Sunday	Holiday
03-Jan-22	Monday	IA – I UG I Year) / FDP - DAY 1- RFHSDR/ FDP - DAY 1 - CSBCT
04-Jan-22	Tuesday	FDP - DAY 2- RFHSDR / CSBCT / IA – I UG I Year)
05-Jan-22	Wednesday	FDP - DAY 3- RFHSDR / CSBCT / IA – I UG I Year)
06-Jan-22	Thursday	FDP - DAY 4- RFHSDR / CSBCT / IA – I UG I Year)
07-Jan-22	Friday	FDP - DAY 5- RFHSDR / CSBCT / IA – I UG I Year)
08-Jan-22	Saturday	FDP - DAY 6- RFHSDR / CSBCT
09-Jan-22	Sunday	Holiday

DATE	DAY	PARTICULARS
10-Jan-22	Monday	
11-Jan-22	Tuesday	
12-Jan-22	Wednesday	
13-Jan-22	Thursday	
14-Jan-22	Friday	Holiday (Pongal)
15-Jan-22	Saturday	Holiday (Pongal)
16-Jan-22	Sunday	Holiday
17-Jan-22	Monday	Holiday
18-Jan-22	Tuesday	Holiday (Thai Poosam)
19-Jan-22	Wednesday	
20-Jan-22	Thursday	
21-Jan-22	Friday	
22-Jan-22	Saturday	
23-Jan-22	Sunday	Holiday
24-Jan-22	Monday	

FDP- CSBCT - Cyber Security & Block Chain Technology

FDP - RFHSDR -RF Hacking With Software Defined Radio

IA - INTERNAL ASSESSMENT

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INSTITUTION ACADEMIC CALENDAR FOR THE EVEN SEMESTER 2021 - 2022

DATE	DAY	PARTICULARS
25-Jan-22	Tuesday	
26-Jan-22	Wednesday	Holiday (Republic Day)
27-Jan-22	Thursday	
28-Jan-22	Friday	
29-Jan-22	Saturday	
30-Jan-22	Sunday	Holiday
31-Jan-22	Monday	
01-Feb-22	Tuesday	
02-Feb-22	Wednesday	
03-Feb-22	Thursday	COVID-19 Vaccination Campaign - IV
04-Feb-22	Friday	IA – I (PG I Year I Sem MCA) / National Voters Day
05-Feb-22	Saturday	IA – I (PG I Year I Sem MCA)
06-Feb-22	Sunday	Holiday
07-Feb-22	Monday	IA – I (PG I Year I Sem MCA)
08-Feb-22	Tuesday	IA – I (PG I Year I Sem MCA)
09-Feb-22	Wednesday	IA – I (PG I Year I Sem MCA)
10-Feb-22	Thursday	IA – I (PG I Year I Sem MCA)
11-Feb-22	Friday	
12-Feb-22	Saturday	
13-Feb-22	Sunday	Holiday
14-Feb-22	Monday	
15-Feb-22	Tuesday	
16-Feb-22	Wednesday	
17-Feb-22	Thursday	
18-Feb-22	Friday	
19-Feb-22	Saturday	Holiday

DATE	DAY	PARTICULARS
20-Feb-22	Sunday	Holiday
21-Feb-22	Monday	
22-Feb-22	Tuesday	
23-Feb-22	Wednesday	
24-Feb-22	Thursday	
25-Feb-22	Friday	
26-Feb-22	Saturday	
27-Feb-22	Sunday	Holiday
28-Feb-22	Monday	
01-Mar-22	Tuesday	Last working Day for MBA I Year I Sem
02-Mar-22	Wednesday	
03-Mar-22	Thursday	Last working Day for UG I Year I Sem / World Hearing Day
04-Mar-22	Friday	
05-Mar-22	Saturday	
06-Mar-22	Sunday	Holiday
07-Mar-22	Monday	Commencement of EVEN Semester Classes For UG (II,III & IV Year) / One Week NSS Special Camp
08-Mar-22	Tuesday	
09-Mar-22	Wednesday	Commencement of Practical Examinations For UG (I YEAR I SEM) & PG (MBA) ODD Semester
10-Mar-22	Thursday	
11-Mar-22	Friday	
12-Mar-22	Saturday	
13-Mar-22	Sunday	Holiday
14-Mar-22	Monday	Commencement of Theory Examinations For UG & PG
15-Mar-22	Tuesday	One Day Seminar On HOW TO WRITE A TECHNICAL PAPER
16-Mar-22	Wednesday	IA – I (PG ME I Year I SEM)
17-Mar-22	Thursday	IA – I (PG ME I Year I SEM)

IA - INTERNAL ASSESSMENT

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DATE	DAY	PARTICULARS
18-Mar-22	Friday	IA – I (PG ME I Year I SEM)
19-Mar-22	Saturday	BLOOD DONATION CAMP / IA – I (PG ME I Year I SEM)
20-Mar-22	Sunday	Holiday
21-Mar-22	Monday	IA – I (PG ME I Year I SEM) / FDP - DAY 1 -ATIC/ Health Awareness Programme
22-Mar-22	Tuesday	FDP - DAY 2- ATIC / IA – I (PG ME I Year I SEM)
23-Mar-22	Wednesday	FDP - DAY 3- ATIC
24-Mar-22	Thursday	FDP - DAY 4- ATIC
25-Mar-22	Friday	FDP - DAY 5- ATIC / IA – I (PG I Year I Sem MCA)
26-Mar-22	Saturday	FDP - DAY 6- ATIC / IA – I (PG I Year I Sem MCA)
27-Mar-22	Sunday	Holiday
28-Mar-22	Monday	IA – I (PG I Year I Sem MCA)
29-Mar-22	Tuesday	SEMINAR - BOIPR / Swachh Bharat Abhiyan / IA – I (PG I Year I Sem MCA)
30-Mar-22	Wednesday	IA – I (PG I Year I Sem MCA)
31-Mar-22	Thursday	IA – I (PG I Year I Sem MCA)
01-Apr-22	Friday	Commencement of Practical Examinations For PG (ME) ODD Semester
02-Apr-22	Saturday	Holiday (Ugadi)
03-Apr-22	Sunday	Holiday
04-Apr-22	Monday	Commencement of EVEN Semester Classes For UG & PG (MBA,MCA) I Year II Sem / FDP - DAY 1 - AFCT
05-Apr-22	Tuesday	FDP - DAY 2 - AFCT / Last working Day for MCA I Year I Sem
06-Apr-22	Wednesday	FDP - DAY 2 - AFCT
07-Apr-22	Thursday	FDP - DAY 3 - AFCT/Commencement of Practical Examinations For PG (MCA) ODD Semester
08-Apr-22	Friday	FDP - DAY 4 - AFCT / one day workshop on Research Methodology and Current Research Trends in IoT
09-Apr-22	Saturday	FDP - DAY 5 - AFCT
10-Apr-22	Sunday	Holiday
11-Apr-22	Monday	
12-Apr-22	Tuesday	Seminar- Data Processing and Research Methodology

DATE	DAY	PARTICULARS
13-Apr-22	Wednesday	
14-Apr-22	Thursday	Holiday (Tamil New Year)
15-Apr-22	Friday	Holiday (Good Friday)
16-Apr-22	Saturday	
17-Apr-22	Sunday	Holiday
18-Apr-22	Monday	
19-Apr-22	Tuesday	
20-Apr-22	Wednesday	
21-Apr-22	Thursday	
22-Apr-22	Friday	Holiday
23-Apr-22	Saturday	Holiday
24-Apr-22	Sunday	Holiday
25-Apr-22	Monday	
26-Apr-22	Tuesday	
27-Apr-22	Wednesday	IA – I (II , III & IV Year)
28-Apr-22	Thursday	IA – I (II , III & IV Year)
29-Apr-22	Friday	IA – I (II , III & IV Year)
30-Apr-22	Saturday	Holiday
01-May-22	Sunday	Holiday
02-May-22	Monday	Holiday
03-May-22	Tuesday	Holiday (Ramzan)
04-May-22	Wednesday	IA – I (PG ME I Year I SEM)
05-May-22	Thursday	IA – I (PG ME I Year I SEM)
06-May-22	Friday	IA – I (PG ME I Year I SEM)
07-May-22	Saturday	IA – I (PG ME I Year I SEM)
08-May-22	Sunday	Holiday

PRINCIPAL

FDP - ATIC - Advanced Technology In IC Engines
FDP - AFCT - Advances in Fuel Cell Technology

IA - INTERNAL ASSESSMENT
SEMINAR - BOIPR - BASICS OF INTELLECTUAL PROPERTY RIGHTS

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INSTITUTION ACADEMIC CALENDAR FOR THE EVEN SEMESTER 2021 - 2022

DATE	DAY	PARTICULARS
09-May-22	Monday	IA – I (PG ME I Year I SEM) / FDP - DAY 1 - EVT/ EEE Department Went For Industrial Visit
10-May-22	Tuesday	FDP - DAY 2- EVT/ IA – I (PG ME I Year I SEM)
11-May-22	Wednesday	FDP - DAY 3- EVT
12-May-22	Thursday	FDP - DAY 4- EVT
13-May-22	Friday	FDP - DAY 5- EVT
14-May-22	Saturday	FDP - DAY 6- EVT
15-May-22	Sunday	FDP - DAY 7- EVT / Holiday
16-May-22	Monday	IA – I (UG I Year II SEM& PG (MCA, MBA & ME IV SEM) / Commencement of Practical Examinations For PG M.E ODD I - Semester / ADD ON PROGRAM - DAY 1 - BESS
17-May-22	Tuesday	ADD ON PROGRAM - DAY 2 BESS / IA – I (UG I Year II SEM & PG (MCA, MBA & ME IV SEM)
18-May-22	Wednesday	ADD ON PROGRAM - DAY 3 BESS / IA – I (UG I Year II SEM & PG (MCA, MBA & ME IV SEM)
19-May-22	Thursday	ADD ON PROGRAM - DAY 4 BESS
20-May-22	Friday	ADD ON PROGRAM - DAY 5 BESS
21-May-22	Saturday	ADD ON PROGRAM - DAY 6 BESS
22-May-22	Sunday	Holiday
23-May-22	Monday	IA – II (II , III & IV Year)
24-May-22	Tuesday	IA – II (II , III & IV Year)
25-May-22	Wednesday	IA – II (II , III & IV Year)
26-May-22	Thursday	Commencement of EVEN Semester Classes For PG (MCA) I Year II Sem
27-May-22	Friday	INTERNSHIP PROGRAMME - Day 1 - ATFSPSAT
28-May-22	Saturday	INTERNSHIP PROGRAMME - Day 2 - ATFSPSAT
29-May-22	Sunday	Holiday
30-May-22	Monday	NATIONAL LEVEL SEMINAR ON SCOPE OF NON DESTRUCTIVE TESTING
31-May-22	Tuesday	
01-Jun-22	Wednesday	
02-Jun-22	Thursday	

DATE	DAY	PARTICULARS
03-Jun-22	Friday	
04-Jun-22	Saturday	
05-Jun-22	Sunday	Holiday
06-Jun-22	Monday	
07-Jun-22	Tuesday	
08-Jun-22	Wednesday	
09-Jun-22	Thursday	IA – II (UG I Year & PG (MCA, MBA & ME IV SEM)
10-Jun-22	Friday	International Yoga Day 2022 conducted by EEE Department / IA – II (UG I Year & PG (MCA, MBA & ME IV SEM)
11-Jun-22	Saturday	IA – II (UG I Year & PG (MCA, MBA & ME IV SEM)
12-Jun-22	Sunday	Holiday
13-Jun-22	Monday	IA – III (II , III & IV Year)
14-Jun-22	Tuesday	IA – III (II , III & IV Year)
15-Jun-22	Wednesday	IA – III (II , III & IV Year)
16-Jun-22	Thursday	
17-Jun-22	Friday	Last Working Day For UG (II,III & IV Year)
18-Jun-22	Saturday	
19-Jun-22	Sunday	Holiday
20-Jun-22	Monday	
21-Jun-22	Tuesday	
22-Jun-22	Wednesday	Commencement of Practical Examinations For UG & PG EVEN Semester
23-Jun-22	Thursday	
24-Jun-22	Friday	
25-Jun-22	Saturday	
26-Jun-22	Sunday	Holiday
27-Jun-22	Monday	Commencement of EVEN Semester Classes For PG (ME) I Year II Sem

FDS - EVT - Electric Vehicle Technology

ADD ON PROGRAM - BESS - Battery Energy Storage System

IA - INTERNAL ASSESSMENT

INTERNSHIP PROGRAMME - Advanced Techniques For Smart Phone Service And Troubleshooting

PRINCIPAL
J.K.K. MUNIRAJAH COLLEGE OF TECHNOLOGY
T.N. PALAYAM (Po)-638 506.
GOBI (Tk), ERODE (Dt).

ANNA UNIVERSITY:: CHENNAI 600 025

Internal Assessment Schedule for Non Autonomous Affiliated Institutions

August - December 2021 - For all UG/PG - Programmes (ODD SEMESTER) – Except M.C.A 2 Years

Report No	Report Period	Test Period	Report Entry Period
I	18-08-2021 – 13-09-2021	----	13-09-2021 – 18-09-2021
II	14-09-2021 – 07-10-2021	01-10-2021 – 07-10-2021	07-10-2021 -- 13-10-2021
III	08-10-2021 – 05-11-2021	29-10-2021 – 05-11-2021	05-11-2021 --11-11-2021
IV	06-11-2021 – 30-11-2021	23-11-2021 – 30-11-2021	30-11-2021 -- 02-12-2021

Saturdays may be included as working days to make good the Shortages, if any.

07/09/2021

CONTROLLER OF EXAMINATIONS

01/09/2021 01-09-2021

Dr.K. SRIDHARAN
Principal
J.K.K. MUNIRAJAH COLLEGE OF TECHNOLOGY
T.N. PALAYAM (PO), GOBI (TK), ERODE (DT),
TAMILNADU, PIN : 638 506.

Date: 21.09.2021

CENTRE FOR ACADEMIC COURSES

ANNA UNIVERSITY: : CHENNAI – 600 025

ACADEMIC SCHEDULE FOR NON AUTONOMOUS AFFILIATED COLLEGES

September 2021 – December 2021 (ODD SEMESTER – III Semester)

PG (FT) Degree Programmes

Sl. No	Programme	Semester	Commencement of Classes	Last working day	Commencement of Practical Examinations	Commencement of End Semester Examinations
1.	M.B.A.(FT)	III	27.09.2021	31.12.2021**	03.01.2022	19.01.2022
2.	M.B.A. (5 Yrs-Integrated)	III				
3.	M.E. / M. Tech. / M. Arch.(FT)	III				

RE-OPENING DAY FOR THE NEXT SEMESTER: 14.02.2022 (Monday)

- Theory and Practical Examination schedules will be published in due course. (Practical Examinations will be conducted before the theory examinations).

**** In order to ensure minimum no. of working days, the following Saturdays are declared as working days.**

Sl. No.	Working Days (Saturdays)	Time Table of the Week Day to be Followed
1.	09.10.2021	Thursday
2.	23.10.2021	Friday
3.	30.10.2021	Tuesday
4.	06.11.2021	Thursday
5.	13.11.2021	Monday

Sl. No.	Working Days (Saturdays)	Time Table of the Week Day to be Followed
6.	20.11.2021	Tuesday
7.	27.11.2021	Wednesday
8.	04.12.2021	Thursday
9.	11.12.2021	Friday
10.	18.12.2021	Monday

Dr.K. SRIDHARAN
Principal
J.K.K. MUNIRAJAH COLLEGE OF TECHNOLOGY
T.N. PALAYAM (PO), GOBI (TK), ERODE (DT),
TAMILNADU, PIN : 638 506.

21.9.2021

DIRECTOR
ACADEMIC COURSES

DAC - SB

ANNA UNIVERSITY :: CHENNAI 600 025

Internal Assessment Schedule for Non Autonomous Affiliated Institutions

Period : November 2021 – March 2022 (ODD Semester – First Semester) Examinations

B.E./B.Tech – Full Time / Part Time Programmes (R-2021)

Report No	Report Period	Test Period	Report Entry Period
I	22-11-2021 – 12-01-2022	03-01-2022 – 12-01-2022	12-01-2022 -- 21-01-2022
II	13-01-2022 -- 08-03-2022	25-02-2022 – 08-03-2022	08-03-2022 -- 09-03-2022

Period : November 2021 – March 2022 (ODD Semester – First Semester) Examinations

B.Arch – Programme (R-2021)

Report No	Report Period	Test Period	Report Entry Period
I	29-11-2021 – 31-12-2021	21-12-2021 – 31-12-2021	31-12-2021 – 10-01-2022
II	03-01-2022 -- 09-02-2022	31-01-2022 – 09-02-2022	09-02-2022 – 18-02-2022
III	10-02-2022 -- 15-03-2022	07-03-2022 – 15-03-2022	15-03-2022 – 16-03-2022

Saturdays may be included as working days to make good the Shortages, if any.

27/12/21

CONTROLLER OF EXAMINATIONS

Dr.K. SRIDHARAN
Principal
S.K.K. MUNIRAJAH COLLEGE OF TECHNOLOGY
T.N. PALAYAM (PO), GOBI (TK), ERODE (DT),
TAMILNADU, PIN : 638 506.

Date: 04.10.2021

CENTRE FOR ACADEMIC COURSES

ANNA UNIVERSITY: : CHENNAI – 600 025

ACADEMIC SCHEDULE FOR NON AUTONOMOUS AFFILIATED COLLEGES

October 2021 – January 2022 (ODD SEMESTER –Semester III)

M.C.A. (FT) Degree Programmes

Sl. No	Programme	Semester	Commencement of Classes	Last working day	Commencement of Practical Examinations	Commencement of End Semester Examinations
1.	M.C.A (FT)	III	04.10.2021	06.01.2022**	08.01.2022	24.01.2022

RE-OPENING DAY FOR THE NEXT SEMESTER: 16.02.2022 (Wednesday)

- Theory and Practical Examination schedules will be published in due course. (Practical Examinations will be conducted before the theory examinations).

** In order to ensure minimum no. of working days, the following Saturdays are declared as working days.

Sl. No.	Working Days (Saturdays)	Time Table of the Week Day to be Followed
1.	09.10.2021	Thursday
2.	23.10.2021	Friday
3.	30.10.2021	Tuesday
4.	06.11.2021	Thursday
5.	13.11.2021	Monday

Sl. No.	Working Days (Saturdays)	Time Table of the Week Day to be Followed
6.	20.11.2021	Tuesday
7.	27.11.2021	Wednesday
8.	04.12.2021	Thursday
9.	11.12.2021	Friday
10.	18.12.2021	Monday

04.10.2021

DIRECTOR
ACADEMIC COURSES

Dr.K. SRIDHARAN
Principal
S.K.K. MUNIRAJAH COLLEGE OF TECHNOLOGY
T.N. PALAYAM (PO), GOBI (TK), ERODE (DT),
TAMILNADU, PIN : 638 506.

DAC - SB

Date: 25.10.2021

CENTRE FOR ACADEMIC COURSES

ANNA UNIVERSITY: : CHENNAI – 600 025

ACADEMIC SCHEDULE FOR NON-AUTONOMOUS AFFILIATED COLLEGES

November 2021 – March 2022 (SEMESTER I)

UG (FT) Degree Programmes

Sl. No.	Programme	Semester	Commencement of Induction Programme	Commencement of Classes	Last working day	Commencement of Practical Examinations	Commencement of End Semester Examinations
1.	B.E. / B.Tech. (Full Time)	I	08.11.2021	22.11.2021	08.03.2022	10.03.2022	21.03.2022

RE-OPENING DAY FOR THE NEXT SEMESTER: 18.04.2022 (Monday)

NOTE:

1. The Theory and Practical Examination schedules will be published in due course. (Practical Examinations will be conducted before the theory examinations).
2. If necessary, loss of classes due to various curricular / co-curricular activities of the department / college may be compensated by conducting classes on Saturdays.

DIRECTOR
ACADEMIC COURSES

Dr.K. SRIDHARAN
Principal
J.K.K. MUNIRAJAH COLLEGE OF TECHNOLOGY
T.N. PALAYAM (PO), GOBI (TK), ERODE (DT),
TAMILNADU, PIN : 638 506.

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ANNA UNIVERSITY:: CHENNAI 600 025

Internal Assessment Schedule for Non Autonomous Affiliated Institutions

November 2021 – March 2022 - (SEMESTER - I)

PG (FT) Degree Programmes - M.B.A. & M.B.A. (5 Yrs - Integrated)

Report No	Report Period	Test Period	Report Entry Period
I	15-11-2021 – 04-01-2022	27-12-2021 – 04-01-2022	14-02-2022 – 20-02-2022
II	05-01-2022 -- 01-03-2022	21-02-2022 -- 01-03-2022	01-03-2022 -- 02-03-2022

February 2022 – May 2022 - (SEMESTER - I)

PG (FT) Degree Programmes - M.E. / M.Tech. / M.Arch.

Report No	Report Period	Test Period	Report Entry Period
I	07-02-2022 – 24-03-2022	16-03-2022 – 24-03-2022	24-03-2022 – 31-03-2022
II	25-03-2022 -- 14-05-2022	04-05-2022 -- 14-05-2022	14-05-2022 -- 16-05-2022

Saturdays may be included as working days to make good the Shortages, if any.

14.02.2022

CONTROLLER OF EXAMINATIONS

14.02.2022

14/02/2022

Dr.K. SRIDHARAN
Principal
J.K.K. MUNIRAJAH COLLEGE OF TECHNOLOGY
T.N. PALAYAM (PO), GOBI (TK), ERODE (DT),
TAMILNADU, PIN : 638 506.

ANNA UNIVERSITY:: CHENNAI 600 025

Internal Assessment Schedule for Non Autonomous Affiliated Institutions

November 2021 – April 2022 - (SEMESTER - I)

PG (FT) Degree Programme - M.C.A.

Report No	Report Period	Test Period	Report Entry Period
I	20-12-2021 – 14-02-2022	04-02-2022 – 14-02-2022	14-02-2022 – 20-02-2022
II	15-02-2022 -- 05-04-2022	25-03-2022 -- 05-04-2022	05-04-2022 -- 06-04-2022

Attendance / Assessment Details for the Bridge Courses (if applicable) shall also be uploaded in the above mentioned report period.

Saturdays may be included as working days to make good the Shortages, if any.

14-02-2022

CONTROLLER OF EXAMINATIONS

14/02/2022

14-02-2022

Dr.K. SRIDHARAN
Principal
K.K. MUNIRAJAH COLLEGE OF TECHNOLOGY
T.N. PALAYAM (PO), GOBI (TK), ERODE (DT),
TAMILNADU, PIN : 638 506.

Date: 10.11.2021

CENTRE FOR ACADEMIC COURSES

ANNA UNIVERSITY: : CHENNAI – 600 025

ACADEMIC SCHEDULE FOR NON-AUTONOMOUS AFFILIATED COLLEGES

November 2021 – March 2022 (SEMESTER I)

PG (FT) Degree Programmes

Sl. No	Programme	Semester	Commencement of Classes	Last working day	Commencement of Practical Examinations	Commencement of End Semester Examinations
1.	M.B.A.	I	15.11.2021	01.03.2022	03.03.2022	14.03.2022
2.	M.B.A. (5 Yrs-Integrated)	I				

RE-OPENING DAY FOR THE NEXT SEMESTER: 06.04.2022 (Wednesday)

NOTE:

1. The Theory and Practical Examination schedules will be published in due course. (Practical Examinations will be conducted before the theory examinations).
2. If necessary, loss of classes due to various curricular / co-curricular activities of the department / college may be compensated by conducting classes on Saturdays.

10/11/2021

DIRECTOR
ACADEMIC COURSES

Dr.K. SRIDHARAN
Principal
K.K. MUNIRAJAH COLLEGE OF TECHNOLOGY
T.N. PALAYAM (PO), GOBI (TK), ERODE (DT),
TAMILNADU, PIN : 638 506.

DAC - SB

Date: 10.11.2021

CENTRE FOR ACADEMIC COURSES

ANNA UNIVERSITY: : CHENNAI – 600 025

ACADEMIC SCHEDULE FOR NON-AUTONOMOUS AFFILIATED COLLEGES

November 2021 – April 2022 (ODD SEMESTER –Semester I)

M.C.A. (FT) Degree Programme

Sl. No	Programme	Semester	Commencement of Regular MCA Classes (Students undergoing Bridge Courses)		Continuation of Classes (for both Regular and Students undergoing Bridge Courses)	Last working day	Commencement of Practical Examinations	Commencement of End Semester Examinations
			From	To				
1.	M.C.A (FT)	I	15.11.2021	17.12.2021	20.12.2021	05.04.2022	07.04.2022	21.04.2022

RE-OPENING DAY FOR THE NEXT SEMESTER: 16.05.2022 (Monday)

1. Theory and Practical Examination schedules will be published in due course. (Practical Examinations will be conducted before the theory examinations).
2. If necessary, loss of classes due to various curricular / co-curricular activities of the department / college may be compensated by conducting classes on Saturdays.

10/11/2021

DIRECTOR
ACADEMIC COURSES

Dr.K. SRIDHARAN
Principal
J.K.K. MUNIRAJAH COLLEGE OF TECHNOLOGY
T.N. PALAYAM (PO), GOBI (TK), ERODE (DT),
TAMILNADU, PIN : 638 506.

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ANNA UNIVERSITY:: CHENNAI 600 025

Internal Assessment Schedule for Non Autonomous Affiliated Institutions

October 2021 - January 2022 - (ODD SEMESTER) – III Semester

M.C.A. (FT) – Degree Programmes

Report No	Report Period	Test Period	Report Entry Period
I	04-10-2021 – 26-10-2021	----	26-10-2021 – 01-11-2021
II	27-10-2021 -- 16-11-2021	12-11-2021 -- 16-11-2021	16-11-2021 -- 22-11-2021
III	17-11-2021 -- 10-12-2021	03-12-2021 -- 10-12-2021	10-12-2021 --16-12-2021
IV	11-12-2021 -- 06-01-2022	29-12-2021 -- 06-01-2022	06-01-2022 -- 08-01-2022

Saturdays may be included as working days to make good the Shortages, if any.

16/10/2021

CONTROLLER OF EXAMINATIONS

13-10-2021

16/10/2021

Dr.K. SRIDHARAN
Principal
K.K. MUNIRAJAH COLLEGE OF TECHNOLOGY
T.N. PALAYAM (PO), GOBI (TK), ERODE (DT),
TAMILNADU, PIN : 638 506.

ANNA UNIVERSITY:: CHENNAI 600 025

Internal Assessment Schedule for Non Autonomous Affiliated Institutions

September - December 2021 - For PG (FT) - Programmes (ODD SEMESTER) – III Semester

M.B.A.(FT) / M.B.A. (5 Yrs-Integrated) / M.E./M.Tech./M.Arch.(FT)

Report No	Report Period	Test Period	Report Entry Period
I	27-09-2021 – 22-10-2021	----	22-10-2021 – 28-10-2021
II	23-10-2021 -- 15-11-2021	10-11-2021 -- 15-11-2021	15-11-2021 -- 22-11-2021
III	16-11-2021 -- 07-12-2021	02-12-2021 -- 07-12-2021	07-12-2021 --13-12-2021
IV	08-12-2021 -- 31-12-2021	24-12-2021 -- 31-12-2021	31-12-2021 -- 03-01-2022

Saturdays may be included as working days to make good the Shortages, if any.

16/10/2021

16-10-2021

16/10/2021

CONTROLLER OF EXAMINATIONS

Dr.K. SRIDHARAN
Principal
K.K. MUNIRAJAH COLLEGE OF TECHNOLOGY
T.N. PALAYAM (PO), GOBI (TK), ERODE (DT).
TAMILNADU. PIN : 638 506.

ANNA UNIVERSITY :: CHENNAI 600 025

Internal Assessment Schedule for Non Autonomous Affiliated Institutions

MARCH - JUNE 2022 - For all UG - Programmes (Even Semester – Except Semester II)

Report No	Report Period	Test Period	Report Entry Period
I	16-03-2022 -- 01-04-2022	----	21-04-2022 -- 25-04-2022
II	04-04-2022 -- 29-04-2022	25-04-2022 -- 29-04-2022	29-04-2022 -- 04-05-2022
III	30-04-2022 -- 24-05-2022	19-05-2022 -- 24-05-2022	24-05-2022 --28-05-2022
IV	25-05-2022 -- 16-06-2022	11-06-2022 -- 16-06-2022	16-06-2022 -- 17-06-2022

Saturdays may be included as working days to make good the Shortages, if any.

20.04.2022

CONTROLLER OF EXAMINATIONS

20/04/2022

20-04-22.

Dr.K. SRIDHARAN
Principal
K.K. MUNIRAJAH COLLEGE OF TECHNOLOGY
T.N. PALAYAM (PO), GOBI (TK), ERODE (DT).
TAMILNADU, PIN : 638 506.

Date: 02.05.2022

CENTRE FOR ACADEMIC COURSES

ANNA UNIVERSITY: : CHENNAI – 600 025

ACADEMIC SCHEDULE FOR NON-AUTONOMOUS AFFILIATED COLLEGES

May 2022 – September 2022 (EVEN SEMESTER –Semester II)

M.C.A. (FT) Degree Programme

Sl. No	Programme	Semester	Commencement of Regular MCA Classes (Students undergoing Bridge Courses)		Continuation of Classes (for both Regular and Students undergoing Bridge Courses)	Last working day	Commencement of Practical Examinations	Commencement of End Semester Examinations
			From	To				
1.	M.C.A (FT)	II	09.05.2022	25.05.2022	26.05.2022	24.08.2022	26.08.2022	07.09.2022

RE-OPENING DAY FOR THE NEXT SEMESTER: 28.09.2022 (Wednesday)

1. Theory and Practical Examination schedules will be published in due course. (Practical Examinations will be conducted before the theory examinations).
2. If necessary, loss of classes due to various curricular / co-curricular activities of the department / college may be compensated by conducting classes on Saturdays.

** In order to ensure minimum no. of working days, the following Saturdays are declared as working days.

Sl. No.	Working Days (Saturdays)	Time Table of the Week Day to be Followed
1.	28.05.2022	Thursday
2.	04.06.2022	Friday
3.	11.06.2022	Monday
4.	18.06.2022	Tuesday
5.	25.06.2022	Wednesday
6.	02.07.2022	Thursday

Sl. No.	Working Days (Saturdays)	Time Table of the Week Day to be Followed
7.	09.07.2022	Friday
8.	16.07.2022	Tuesday
9.	23.07.2022	Monday
10.	30.07.2022	Friday
11.	06.08.2022	Wednesday
12.	13.08.2022	Monday
13.	20.08.2022	Tuesday

Dr.K. SRIDHARAN
Principal
J.K.K. MUNIRAJAH COLLEGE OF TECHNOLOGY
T.N. PALAYAM (PO), GOBI (TK), ERODE (DT),
TAMILNADU, PIN : 638 506.

DIRECTOR
ACADEMIC COURSES

DAC - SB

Date: 18.06.2022

CENTRE FOR ACADEMIC COURSES

ANNA UNIVERSITY: : CHENNAI – 600 025

ACADEMIC SCHEDULE FOR NON-AUTONOMOUS AFFILIATED COLLEGES

June 2022 – October 2022 (Even Semester –Semester II)

PG (FT) Degree Programmes

Sl. No	Programme	Semester	Commencement of Classes	Last working day	Commencement of Practical Examinations	Commencement of End Semester Examinations
1.	M.E. / M. Tech. / M. Arch.(FT)	II	27.06.2022	30.09.2022**	06.10.2022	17.10.2022

RE-OPENING DAY FOR THE NEXT SEMESTER: 16.11.2022 (Wednesday)

1. Theory and Practical Examination schedules will be published in due course. (Practical Examinations will be conducted before the theory examinations).
2. If necessary, loss of classes due to various curricular / co-curricular activities of the department / college may be compensated by conducting classes on Saturdays.

** In order to ensure minimum no. of working days, the following Saturdays are declared as working days.

Sl. No.	Working Days (Saturdays)	Time Table of the Week Day to be Followed
1.	02.07.2022	Thursday
2.	16.07.2022	Tuesday
3.	30.07.2022	Friday
4.	13.08.2022	Monday
5.	27.08.2022	Tuesday

Sl. No.	Working Days (Saturdays)	Time Table of the Week Day to be Followed
6.	03.09.2022	Wednesday
7.	10.09.2022	Thursday
8.	17.09.2022	Friday
9.	24.09.2022	Monday

Dr.K. SRIDHARAN
Principal
J.K.K. MUNIRAJAH COLLEGE OF TECHNOLOGY
T.N. PALAYAM (PO), GOBI (TK), ERODE (DT),
TAMILNADU, PIN : 638 506.

18/06/2022
DIRECTOR
ACADEMIC COURSES

DAC - SB

ANNA UNIVERSITY:: CHENNAI 600 025

Internal Assessment Schedule for Non Autonomous Affiliated Institutions

April 2022 – July 2022 - (SEMESTER - II)

B.E./B.TECH.(FT/PT) Degree Programmes & M.B.A. (FT/PT/5 Yrs - Integrated) Degree Programmes

Report No	Report Period	Test Period
I	04-04-2022 -- 21-05-2022	16-05-2022 -- 21-05-2022
II	23-05-2022 -- 04-07-2022	28-06-2022 -- 04-07-2022

April 2022 – July 2022 - (SEMESTER - II)

B.ARCH.(FT) Degree Programme

Report No	Report Period	Test Period
I	04-04-2022 -- 06-05-2022	29-04-2022 -- 06-05-2022
II	07-05-2022 -- 04-06-2022	30-05-2022 -- 04-06-2022
III	06-06-2022 -- 04-07-2022	28-06-2022 -- 04-07-2022

Saturdays may be included as working days to make good the Shortages, if any.

Dr.K. SRIDHARAN
Principal
S.K.K. MUNIRAJAH COLLEGE OF TECHNOLOGY
T.N. PALAYAM (PO), GOBI (TK), ERODE (DT),
TAMILNADU, PIN : 638 506.

09/05/2022

09-05-2022

09.05.2022
CONTROLLER OF EXAMINATIONS (I/c)

ANNA UNIVERSITY:: CHENNAI 600 025

Internal Assessment Schedule for Non Autonomous Affiliated Institutions

May 2022 – September 2022 - (SEMESTER - II)

PG (FT) Degree Programme - M.C.A.

Report No	Report Period	Test Period
I	26-05-2022 -- 08-07-2022	02-07-2022 -- 08-07-2022
II	09-07-2022 -- 24-08-2022	17-08-2022 -- 24-08-2022

Attendance / Assessment Details for the Bridge Courses (if applicable) shall also be uploaded in the above mentioned report period.

Saturdays may be included as working days to make good the Shortages, if any.

09-05-2022

09/05/2022

09-05-2022

CONTROLLER OF EXAMINATIONS (I/c)

Dr.K. SRIDHARAN
Principal
J.K.K. MUNIRAJAH COLLEGE OF TECHNOLOGY
T.N.PALAYAM (PO), GOBI (TK), ERODE (DT).
TAMILNADU, PIN : 638 506.

ANNA UNIVERSITY:: CHENNAI 600 025

Internal Assessment Schedule for Non Autonomous Affiliated Institutions

April 2022 – July 2022 - (EVEN SEMESTER (IV,VI,VIII,X) – EXCEPT SEMESTER II)

M.E./M.Tech./M.Arch./M.C.A./M.B.A./M.Sc.(5 Yrs Integrated)/M.B.A. .(5 Yrs Integrated) (FT) – Degree Programmes

Report No	Report Period	Test Period	Report Entry Period
I	04-04-2022 -- 27-04-2022	----	20-05-2022 -- 23-05-2022
II	28-04-2022 -- 20-05-2022	16-05-2022 -- 20-05-2022	20-05-2022 -- 23-05-2022
III	21-05-2022 -- 11-06-2022	06-06-2022 -- 11-06-2022	11-06-2022 -- 14-06-2022
IV	13-06-2022 -- 04-07-2022	29-06-2022 -- 04-07-2022	04-07-2022 -- 05-07-2022

Saturdays may be included as working days to make good the Shortages, if any.

09.05.2022

CONTROLLER OF EXAMINATIONS (I/c)

09/05/2022

09-05-2022.

Dr.K. SRIDHARAN
Principal
K.K. MUNIRAJAH COLLEGE OF TECHNOLOGY
T.N. PALAYAM (PO), GOBI (TK), ERODE (DT),
TAMILNADU, PIN : 638 506.

J.K.K. MUNIRAJAH COLLEGE OF TECHNOLOGY
(Approved by AICTE & Affiliated to Anna University, Chennai)
T.N. PALAYAM, GOBI-638506
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
FACULTY WORKLOAD ACADEMIC YEAR:2021-2022 ODD SEMESTER
ELECTIVE OPTION

SEMESTER:07

SI.NO	REGISTER NO	NAME OF THE STUDENT	PROFESSIONAL ELECTIVE II							PROFESSIONAL ELECTIVE III								STUDENT SIGNATURE
			CS8091	CS8082	CS809	IT8075	CS8081	IT8074	GE8077	CS8083	CS8079	CS8073	CS8088	CS8071	GE8072	GE8074	GE807	
1	731218104002	ANGAMMAL S						✓			✓							
2	731218104004	BOOPATHI S						✓			✓							
3	731218104006	GEETHA R						✓			✓							
4	731218104008	IYYAPPAN L						✓			✓							
5	731218104010	JEEVABHARATHI M						✓			✓							
6	731218104011	JOTHIGA S						✓			✓							
7	731218104014	MANIKANDAN T						✓			✓							
8	731218104015	NIRANJANA M						✓			✓							
9	731218104016	NISHA S						✓			✓							
10	731218104017	RATHISH D						✓			✓							
11	731218104018	SARANYA M						✓			✓							
12	731218104019	SIBIN DASS S						✓			✓							
13	731218104020	SINDHU S						✓			✓							
14	731218104021	SINDHUJA V						✓			✓							
15	731218104023	SUBRAMANI N						✓			✓							
16	731218104024	THAMARAISELVI R						✓			✓							
17	731218104025	UMA D						✓			✓							
18	731218104026	VIJAYA KUMAR S						✓			✓							
19	731218104028	VINODH L						✓			✓							
20	731218104301	KAVIYARASAN.M						✓			✓							
21	731218104302	KIRUTHIKA.S						✓			✓							

ELECTIVE	COURSE CODE	COURSE NAME	NO OF STUDENTS SELECTED THIS COURSE	REASON FOR SELECTING THE COURSE
ELECTIVE II	IT8074	Service Oriented Architecture	21	To learn about Web Services.
ELECTIVE III	CS8079	Human Computer Interaction	21	To uncover new technologies

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
FACULTY WORKLOAD ACADEMIC YEAR:2021-2022 ODD SEMESTER
ELECTIVE OPTION

SEMESTER:07

S.NO	REGISTER NO	NAME OF THE STUDENT	OPEN ELECTIVE II																								STUDENT SIGNATURE
			OAI 751	OEE 751	OBM 751	OGI 751	OPY 751	OEC 751	OML 752	OCH 752	OCE 751	OGI 752	OEN 751	OBM 752	OEE 752	OBT 753	OMF 751	OAN 751	OEC 754	OEC 756	OBT 752	OCH 751	OIE 751	OEC 753	OM E752	OME 753	OTL 751	OCY 751	
1	731218104002	ANGAMMAL S																						✓			
2	731218104004	BOOPATHI S																						✓			
3	731218104006	GEETHA R																						✓			
4	731218104008	IYYAPPAN L																						✓			
5	731218104010	JEEVABHARATHI M																						✓			
6	731218104011	JOTHIGA S																						✓			
7	731218104014	MANIKANDAN T																						✓			
8	731218104015	NIRANJANA M																						✓			
9	731218104016	NISHA S																						✓			
10	731218104017	RATHISH D																						✓			
11	731218104018	SARANYA M																						✓			
12	731218104019	SIBIN DASS S																						✓			
13	731218104020	SINDHU S																						✓			
14	731218104021	SINDHUJA V																						✓			
15	731218104023	SUBRAMANI N																						✓			
16	731218104024	THAMARAISELVI R																						✓			
17	731218104025	UMA D																						✓			
18	731218104026	VIJAYA KUMAR S																						✓			
19	731218104028	VINODH L																						✓			
20	731218104301	KAVIYARASAN.M																						✓			
21	731218104302	KIRUTHIKA.S																						✓			

ELECTIVE	COURSE CODE	COURSE NAME	NO OF STUDENTS SELECTED THIS COURSE	REASON FOR SELECTING THE COURSE
OPEN ELECTIVE II	OME752	SUPPLY CHAIN MANAGEMENT	21	For Better understanding of the flow of production and Distribution

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T.N. PALAYAM, GOBI-638506
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

We Propose to opt the following Electives for COMPUTER SCIENCE AND ENGINEERING Students for the ODD Semester of 2021-2022

Semester	Elective Number	Course Code & Name	No of Students	Justification for Choosing
VII	PROFESSIONAL ELECTIVE II	IT8074 & Service Oriented Architecture	21	It helps the students to employ best practice Methology & empower decision Makers.
VII	PROFESSIONAL ELECTIVE III	CS8079 & Human Computer Interaction	21	It helps the students to learn how to do things better and shape their future.

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

We Propose to opt the following Electives for COMPUTER SCIENCE AND ENGINEERING Students for the ODD Semester of 2021-2022

Semester	Elective Number	Course Code & Name	No of Students	Justification for Choosing
V	OPEN ELECTIVE II	OME752 & SUPPLY CHAIN MANAGEMENT	21	It helps students to develop their analytical methods and technical skills.

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T.N. PALAYAM, GOBI-638506

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

FACULTY SUBJECT WILLINGNESS LIST

ACADEMIC YEAR 2021-2022

COURSE:B.E/M.E **SEMESTER :ODD**

S.NO	STAFF NAME	WORK LOAD	YEAR&BRANCH
1	Dr.N.SATHYABALAJI HOD/CSE	CS8791/CLOUD COMPUTING	IV-CSE
		CS8711/CLOUD COMPUTING LAB	IV-CSE
		CP5074/SOCIAL NETWORK ANALYSIS	II-M.E-CSE
		CP5005/SOFTWARE QUALITY ASSURANCE AND TESTING	II-M.E-CSE
		CP5311/PROJECT WORK PHASE-I	II-M.E
2	Mr.S.B.MANOOJKUMAAR AP/CSE	OME752/SUPPLY CHAIN MANAGEMENT	IV-CSE
		IT8074/SERVICE ORIENTED ARCHITECTURE	IV-CSE
		MG8591/PRINCIPLES OF MANAGEMENT	I-M.E-CSE
3	Mr.K.S.VINOTHAN AP/CSE	CS8392/OBJECT ORIENTED PROGRAMMING	II-CSE
		CS8383/OBJECT ORIENTED PROGRAMMING LAB	II-CSE
		CS8592/OBJECT ORIENTED ANALYSIS AND DESIGN	III-CSE
		CS8582/OBJECT ORIENTED ANALYSIS AND DESIGN LAB	III-CSE
4	Mrs.M.C.SAVITHRI AP/CSE	IT8074/SERVICE ORIENTED ARCHITECTURE	IV-CSE
		CP4151/ADVANCED DATA STRUCTURES AND ALGORITHMS	I-M.E-CSE
		CP4161/ADVANCED DATA STRUCTURES AND ALGORITHMS LAB	I-M.E-CSE
		CP4153/NETWORK TECHNOLOGIES	I-M.E-CSE
		CP5005/SOFTWARE QUALITY ASSURANCE AND TESTING	II-M.E-CSE
5	Mr.E.ANANTH AP/CSE	CS8592/OBJECT ORIENTED ANALYSIS AND DESIGN	III-CSE
		CS8582/OBJECT ORIENTED ANALYSIS AND DESIGN LAB	III-CSE
		CS8392/OBJECT ORIENTED PROGRAMMING	III-EEE
		CS8383/OBJECT ORIENTED PROGRAMMING LAB	III-EEE
		CS8501/THEORY OF COMPUTATION	III-CSE
		IT8074/SERVICE ORIENTED ARCHITECTURE	IV-CSE

6	Mrs.P.SASIREKA AP/CSE	CS8391/DATA STRUCTURES	II-CSE
		CS8381/DATA STRUCTURES LAB	II-CSE
		CS8591/COMPUTER NETWORKS	III-CSE
		EC8393/FUNDAMENTALS OF DATA STRUCTURES IN C	II-ECE
		EC8381/FUNDAMENTALS OF DATA STRUCTURES IN C LAB	II-ECE
		CS8392/OBJECT ORIENTED PROGRAMMING	III-EEE
		CS8383/OBJECT ORIENTED PROGRAMMING LAB	III-EEE
7	Mr.S.SATHEESH AP/CSE	OMD553/TELE HEALTH TECHNOLOGY	III-CSE
		CS8079/HUMAN COMPUTER INTERACTION	IV-CSE
		CS8792/CRYPTOGRAPHY AND NETWORK SECURITY	IV-CSE
		CP4154/PRINCIPLES OF PROGRAMMING LANGUAGES	I-M.E-CSE
8	Mr.S.DHARANITHARAN AP/CSE	MG8591/PRINCIPLES OF MANAGEMENT	IV-CSE
		CP4152/DATABASE PRACTICES	I-M.E-CSE
		CP4153/NETWORK TECHNOLOGIES	I-M.E-CSE
		CS8581/NETWORKS LAB	III-CSE
9	Mrs.L.POORNIMADEVI AP/CSE	CS8792/CRYPTOGRAPHY AND NETWORK SECURITY	IV-CSE
		IT8761/SECURITY LAB	IV-CSE
		CP4154/PRINCIPLES OF PROGRAMMING LANGUAGES	I-M.E-CSE
		CS8391/DATA STRUCTURES	II-CSE
		CP5005/SOFTWARE QUALITY ASSURANCE AND TESTING	II-M.E-CSE
10	Mrs.V.NIROSHA AP/CSE	CS8501/THEORY OF COMPUTATION	III-CSE
		CS8581/NETWORKS LAB	III-CSE
		CP4152/DATABASE PRACTICES	I-M.E-CSE
		CS8791/CLOUD COMPUTING	IV-CSE
		CS8711/CLOUD COMPUTING LAB	IV-CSE
11	Mr.R.GNANASEKAR AP/CSE	CP5005/SOFTWARE QUALITY ASSURANCE AND TESTING	II-M.E-CSE
		CP5097/MOBILE APPLICATION DEVELOPMENT	II-M.E-CSE
		CP4152/DATABASE PRACTICES	I-M.E-CSE
		CS8792/CRYPTOGRAPHY AND NETWORK SECURITY	IV-CSE

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T.N. PALAYAM, GOBI-638506

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

WORKLOAD DETAILS

ACADEMIC YEAR 2021-2022

COURSE:B.E/M.E **SEMESTER:ODD**

S.NO	NAME OF THE FACULTY	SUBJECT CODE&NAME	YEAR& BRANCH	TEACHING LOAD				DEPARTMENT WORK
				L	T	P	TOTAL	
1	Dr.N.SATHYABALAJI	CS8791/CLOUD COMPUTING	IV-CSE	3	0	0	22	HOD,NAAC CORODINATOR PG PROJECT GUIDE
		CS8711/CLOUD COMPUTING LAB	IV-CSE	0	0	4		
		CP5074/SOCIAL NETWORK ANALYSIS	II-M.E	3	0	0		
		CP5311/PROJECT WORK PHASE-I	II-M.E	0	0	12		
2	Mr.S.B.MANOOJKUMAAR	OME752/SUPPLY CHAIN MANAGEMENT	IV-CSE	3	0	0	3	EXAM CELL COORDINATOR
3	Mr.K.S.VINOTHAN	CS8392/OBJECT ORIENTED PROGRAMMING	II-CSE	3	0	0	7	DEPARTMENT PLACEMENT INCHARGE
		CS8383/OBJECT ORIENTED PROGRAMMING LAB	II-CSE	0	0	4		
4	Mrs.M.C.SAVITHRI	IT8074/SERVICE ORIENTED ARCHITECTURE	IV-CSE	3	0	0	10	I-M.E TUTOR, DEPARTMENT AICTE INCHARGE
		CP4151/ADVANCED DATA STRUCTURES AND ALGORITHMS	I-M.E	3	0	0		
		CP4161/ADVANCED DATA STRUCTURES AND ALGORITHMS LAB	I-M.E	0	0	4		
5	Mr.E.ANANTH	CS8592/OBJECT ORIENTED ANALYSIS AND DESIGN	III-CSE	3	0	0	14	III-CSE TUTOR DEPARTMENT EXAM CELL INCHARGE, CC3 LAB INCHARGE
		CS8582/OBJECT ORIENTED ANALYSIS AND DESIGN LAB	III-CSE	0	0	4		
		CS8392/OBJECT ORIENTED PROGRAMMING	III-EEE	3	0	0		

		CS8383/OBJECT ORIENTED PROGRAMMING LAB	III-EEE	0	0	4		
6	Mrs.P.SASIREKA	CS8391/DATA STRUCTURES	II-CSE	3	0	0	17	II-CSE TUTOR, DEPARTMENT TIMETABLE INCHARGE, CC1 LAB INCHARGE
		CS8381/DATA STRUCTURES LAB	II-CSE	0	0	4		
		CS8591/COMPUTER NETWORKS	III-CSE	3	0	0		
		EC8393/FUNDAMENTALS OF DATA STRUCTURES IN C	II-ECE	3	0	0		
		EC8381/FUNDAMENTALS OF DATA STRUCTURES IN C LAB	II-ECE	0	0	4		
7	Mr.S.SATHEESH	OMD553/TELE HEALTH TECHNOLOGY	III-CSE	3	0	0	6	CO-CURRICULAR ACTIVITIES INCHARGE
		CS8079/HUMAN COMPUTER INTERACTION	IV-CSE	3	0	0		
8	Mr.S.DHARANITHARAN	MG8591/PRINCIPLES OF MANAGEMENT	IV-CSE	3	0	0	6	ALUMNI INCHARGE
		CP4153/NETWORK TECHNOLOGIES	I-M.E	3	0	0		
9	Mrs.L.POORNIMADEVI	CS8792/CRYPTOGRAPHY AND NETWORK SECURITY	IV-CSE	3	0	0	10	DEPARTMENT LIBRARY INCHARGE
		IT8761/SECURITY LAB	IV-CSE	0	0	4		
		CP4154/PRINCIPLES OF PROGRAMMING LANGUAGES	I-M.E	3	0	0		
10	Mrs.V.NIROSHA	CS8501/THEORY OF COMPUTATION	III-CSE	3	0	0	12	IV-CSE TUTOR DEPARTMENT
		CS8581/NETWORKS LAB	III-CSE	0	0	4		

		CP4152/DATABASE PRACTICES	I-M.E	3	0	2		FILE MAINTENANC INCHARGE
11	Mr.R.GNANASEKAR	CP5005/SOFTWARE QUALITY ASSURANCE AND TESTING	II-M.E	3	0	0	6	II-M.E TUTOR,UG PROJECT GUIDE,DEPAR MENT STOCK MAINTENANC INCHARGE
		CP5097/MOBILE APPLICATION DEVELOPMENT	II-M.E	3	0	0		

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

MASTER TIME TABLE FOR ODD SEMESTER 2021-22

TIME	YEAR	9.15-10.00	10.00-10.45	10.45-11.00	11.00-11.45	11.45-12.30	12.30-1.10	1.20-2.00	2.00-2.40	2.40-2.55	2.55 - 3.35	3.35-4.15
Days/ Hr		1	2		3	4		5	6		7	8
MON	II	DS	CE		OOP	DPSD		DIGITAL LAB			DIGITAL LAB	DS
	III	TOC	THT		MPMC	CN		OOAD	LIBRARY		TOC	THT
	IV	CNS	CC		SOA	POM		SCM	SOA		LIBRARY	CNS
TUE	II	DPSD	OOP		CE	DS		DM			DPSD	DPSD
	III	CN	THT		TOC	ANT		OOAD LAB			OOAD LAB	CN
	IV	POM	SCM		PLACEMENT	SOA		CC	CNS		HCI	POM
WED	II	CE	DM		DS	OOP		IS/LS LAB			PLACEMENT	CE
	III	OOAD	THT		ANT	CN		NETWORKS LAB			NETWORKS LAB	OOAD
	IV	HCI	CC		CNS	SOA		CC LAB			CC LAB	HCI
THU	II	DM	DS		DPSD	LIBRARY		OOP LAB			OOP LAB	DM
	III	ANT	MPMC		CN	TOC		THT	OOAD		MPMC	ANT
	IV	CC	SCM		POM	NET LAB		SOA	HCI		LIBRARY	CC
FRI	II	OOP	DM		DPSD	CE		DS LAB			DS LAB	OOP
	III	MPMC	ANT		TOC	OOAD		MPMC LAB			MPMC LAB	MPMC
	IV	SCM	CNS		POM	HCI		SECURITY LAB			SECURITY LAB	SCM

BREAK | LUNCH | BREAK

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II YEAR		
S.NO	**SUBJECT TITLE**	**STAFF HANDLING**
1	MA8351 /DISCRETE MATHEMATICS	Ms.J.E.JEBITHA JOHNSY
2	CS8351/DIGITAL PRINCIPLES AND SYSTEM DESIGN	Mrs.M.SIVARANJANI
3	CS8391/DATA STRUCTURES	Mrs.P.SASIREKA
4	CS8392/OBJECT ORIENTED PROGRAMMING	Mr.K.S.VINOTHAN
5	EC8395/COMMUNICATION ENGINEERING	Mrs.S.KIRUTHIKA
6	CS8381/DATA STRUCTURES LABORATORY	Mrs.P.SASIREKA
7	CS8383/OBJECT ORIENTED PROGRAMMING LABORATORY	Mr.K.S.VINOTHAN
8	CS8382/DIGITAL SYSTEMS LABORATORY	Mrs.M.SIVARANJANI
9	HS8381/INTERPERSONAL SKILLS/LISTENING & SPEAKING	Mrs.S.POORNIMA
10	PLACEMENT	Mrs.P.SASIREKA

III YEAR		
S.NO	**SUBJECT TITLE**	**STAFF HANDLING**
1	CS8501/THEORY OF COMPUTATION(TOC)	Mrs.V.NIROSHA
2	CS8592/OBJECT ORIENTED ANALYSIS AND DESIGN(OOAD)	Mr.E.ANANTH
3	OMD553/TELE HEALTH TECHNOLOGY(THT)	Mr.S.SATHEESH
4	EC8691/MICRO PROCESSOR AND MICRO CONTROLLER(MPMC)	Mrs.S.KIRUTHIKA
5	CS8591/COMPUTER NETWORKS(CN)	Mrs.P.SASIREKA

6	MA8551/ALGEBRA AND NUMBER THEORY(ANT)	Ms.P.MAHASAKTHI
7	CS8582/OOAD LAB	Mr.E.ANANTH
8	CS8581/NETWORK LAB	Mrs.V.NIROSHA
9	EC8681/MPMC LAB	Mrs.S.KIRUTHIKA

IV YEAR

S.NO	SUBJECT TITLE	STAFF HANDLING
1	MG8591/PRINCIPLES OF MANAGEMENT(POM)	Mr.S.DHARANITHARAN
2	CS8792/CRYPTOGRAPHY AND NETWORK SECURITY(CNS)	Mrs.L.POORNIMA DEVI
3	CS8791/CLOUD COMPUTING(CC)	Dr.N.SATHYABALAJI
4	OME752/SUPPLY CHAIN MANAGEMENT(SCM)	Mr.S.B.MANOOJKUMAAR
5	IT8074/SERVICE ORIENTED ARCHITECTURE(SOA)	Mrs.M.C.SAVITHRI
6	CS8079/HUMAN COMPUTER INTERACTION(HCI)	Mr.S.SATHEESH
7	CS8711/CLOUD COMPUTING LABORATORY	Dr.N.SATHYABALAJI
8	IT8761/SECURITY LAB	Mrs.L.POORNIMA DEVI
9	PLACEMENT	Mr.R.GNANASEKAR

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

ACADEMIC YEAR:2021-2022

CLASS: IV - B.E. (CSE) VII SEMESTER

TIME	9.15-10.00	10.00-10.45	10.45-11.00	11.00-11.45	11.45-12.30	12.30-1.10	1.20-2.00	2.00-2.40	2.40-2.55	2.55-3.35	3.35-4.15
DAY/HR	1	2		3	4		5	6		7	8
MON	CNS	CC	BREAK	SOA	POM	LUNCH	SCM	SOA	BREAK	LIBRARY	CNS
TUE	POM	SCM		PLACEMENT	SOA		CC	CNS		HCI	POM
WED	HCI	CC		CNS	SOA		CC LAB			CC LAB	HCI
THU	CC	SCM		POM	NET LAB		SOA	HCI		LIBRARY	CC
FRI	SCM	CNS		POM	HCI		SECURITY LAB			SECURITY LAB	SCM

S.NO	SUBJECT TITLE	HOURS	STAFF HANDLING	DEPT.
1	MG8591/Principles of Management(POM)	5	Mr.S.DHARANITHARAN (TUTOR)	CSE
2	CS8792/Cryptography and Network Security(CNS)	5	Mrs.L.POORNIMA DEVI	CSE
3	CS8791/Cloud Computing(CC)	5	Dr.N.SATHYABALAJI	CSE
4	OME752/Supply Chain Management(SCM)	5	Mr.S.B.MANOOJKUMAAR	CSE
5	IT8074/Service Oriented Architecture(SOA)	5	Mrs.M.C.SAVITHRI	CSE
6	CS8079/Human Computer Interaction(HCI)	5	Mr.S.SATHEESH	CSE
7	CS8711/Cloud Computing Laboratory(CCL)	3	Dr.N.SATHYABALAJI	CSE
8	IT8761/Security Lab	3	Mrs.L.POORNIMA DEVI	CSE
9	Placement	1	Mr.R.GNANASEKAR	CSE

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
ACADEMIC YEAR:2021-2022
CLASS: III - B.E (CSE) V SEMESTER

TIME	9.15-10.00	10.00-10.45	10.45-11.00	11.00-11.45	11.45-12.30	12.30-1.10	1.20-2.00	2.00-2.40	2.40-2.55	2.55-3.35	3.35-4.15
Days/Hr	1	2		3	4		5	6		7	8
MON	TOC	THT	BREAK	MPMC	CN	LUNCH	OOAD	LIBRARY	BREAK	TOC	THT
TUE	CN	THT		TOC	ANT		OOAD LAB			OOAD LAB	CN
WED	OOAD	THT		ANT	CN		NETWORK LAB			NETWORK LAB	OOAD
THU	ANT	MPMC		CN	TOC		THT	OOAD		MPMC	ANT
FRI	MPMC	ANT		TOC	OOAD		MPMC LAB			MPMC LAB	MPMC

S.No	SUBJECT TITLE	HOURS	STAFF HANDLING	DEPT.
1	CS8501/THEORY OF COMPUTATION (TOC)	5	Mrs.V.NIROSHA	CSE
2	CS8592/OBJECT ORIENTED ANALYSIS AND DESIGN (OOAD)	5	Mr.E.ANANTH (TUTOR)	CSE
3	OMD553/TELEHEALTH TECHNOLOGY (THT)	5	Mr.S.SATHEESH	CSE
4	EC8691/MICROPROCESSOR AND MICROCONTROLLER(MPMC)	5	Mrs.S.KIRUTHIKA	ECE
5	CS8591/COMPUTER NETWORKS(CN)	5	Mrs.P.SASIREKA	CSE
6	MA8551/ALGEBRA AND NUMBER THEORY(ANT)	5	Ms.P.MAHASAKTHI	S&H
7	CS8582/OOAD LAB	3	Mr.E.ANANTH	CSE
8	CS8581/NETWORKS LAB	3	Mrs.V.NIROSHA	CSE
9	EC8681/MPMC LAB	3	Mrs.S.KIRUTHIKA	ECE

HOD

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J.K.K. MUNIRAJAH COLLEGE OF TECHNOLOGY

T.N. PALAYAM, GOBI-638506

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

ACADEMIC YEAR:2021-2022

CLASS: II - B.E (CSE) III SEMESTER

TIME	9.15-10.00	10.00-10.45	10.45-11.00	11.00-11.45	11.45-12.30	12.30-1.20	1.20-2.00	2.00-2.40	2.40-2.55	2.55-3.35	3.35-4.15
Days/Hr	1	2		3	4		5	6		7	8
MON	DS	CE	BREAK	OOP	DPSD	LUNCH	DIGITAL LAB		BREAK	DIGITAL LAB	DS
TUE	DPSD	OOP		CE	DS		DM			DPSD	DPSD
WED	CE	DM		DS	OOP		IS/LS LAB			PLACEMENT	CE
THU	DM	DS		DPSD	LIBRARY		OOP LAB			OOP LAB	DM
FRI	OOP	DM		DPSD	CE		DS LAB			DS LAB	OOP

S.NO	SUBJECT TITLE	HOURS	STAFF HANDLING	DEPT.
1	MA8351 /DISCRETE MATHEMATICS	6	Ms.J.E.JEBITHA JOHNSY	S&H
2	CS8351/DIGITAL PRINCIPLES AND SYSTEM DESIGN	6	Mrs.M.SIVARANJANI	ECE
3	CS8391/DATA STRUCTURES	5	Mrs.P.SASIREKA (TUTOR)	CSE
4	CS8392/OBJECT ORIENTED PROGRAMMING	5	Mr.K.S.VINOTHAN	CSE
5	EC8395/COMMUNICATION ENGINEERING	5	Mrs.S.KIRUTHIKA	ECE
6	CS8381/DATA STRUCTURES LABORATORY	3	Mrs.P.SASIREKA	CSE
7	CS8383/OBJECT ORIENTED PROGRAMMING LABORATORY	3	Mr.K.S.VINOTHAN	CSE
8	CS8382/DIGITAL SYSTEMS LABORATORY	3	Mrs.M.SIVARANJANI	ECE
9	HS8381/INTERPERSONAL SKILLS/LISTENING & SPEAKING	2	Mrs.S.POORNIMA	S&H
10	PLACEMENT	1	Mrs.P.SASIREKA	CSE

HOD

PRINCIPAL

COURSE FILE

SUBJECT CODE:IT8074

SUBJECT NAME: SERVICE ORIENTED ARCHITECTURE

CLASS : IV–CSE & IT

SEMESTER : VII

HANDLED BY : Mrs.M.C.SAVITHRIM.E.,AP/CSE

DEPARTMENT OF CSE & IT,

J.K.K.MUNIRAJAH COLLEGE OF TECHNOLOGY

CONTENTS

- INDIVIDUAL TIME TABLE
- SYLLABUS
- LESSON PLAN
- I-V UNITS NOTES
- QUESTION PAPERS
- INTERNAL ASSESSMENT MARK LIST

J.K.K. MUNIRAJAH COLLEGE OF TECHNOLOGY T.N. PALAYAM, GOBI-638506

DEPARTMENT OF CSE

NAME OF THE STAFF : Mrs.M.C.SAVITHRI

VII-SEMESTER /CSE

TIME	9.15-10.00	10.00-10.45	10.45-11.00	11.00-11.45	11.45-12.30	12.30-1.10	1.20-2.00	2.00-2.40	2.40-2.55	2.55-3.35	3.35-4.15
DAY/HR	1	2		3	4		5	6		7	8
MON				SOA				SOA			
TUE					SOA						
WED			BREAK		SOA	LUNCH			BREAK		
THU							SOA				
FRI											

Theory	SERVICE ORIENTED ARCHITECTURE	5 hrs
Total		5 hrs

IT8074 SERVICE ORIENTED ARCHITECTURE L T P C

3 0 0 3

OBJECTIVES:

- To learn fundamentals of XML
- To provide an overview of Service Oriented Architecture and Web services and theirimportance
- To learn web services standards and technologies
- To learn service oriented analysis and design for developing SOA based applications

UNIT I XML 9

XML document structure - Well-formed and valid documents - DTD - XML Schema - Parsing XML using DOM, SAX - XPath - XML Transformation and XSL - Xquery

UNIT II SERVICE ORIENTED ARCHITECTURE (SOA) BASICS 9

Characteristics of SOA, Benefits of SOA , Comparing SOA with Client-Server and Distributedarchitectures –- Principles of Service Orientation - Service layers

UNIT III WEB SERVICES (WS) AND STANDARDS 8

Web Services Platform - Service descriptions - WSDL - Messaging with SOAP - Service discovery - UDDI - Service-Level Interaction Patterns - Orchestration and Choreography

UNIT IV WEB SERVICES EXTENSIONS 8

WS-Addressing - WS-ReliableMessaging - WS-Policy - WS-Coordination -WS - Transactions -WS-Security - Examples

UNIT V SERVICE ORIENTED ANALYSIS AND DESIGN 11

SOA delivery strategies - Service oriented analysis - Service Modelling - Service oriented design - Standards and composition guidelines -- Service design - Business process design - CaseStudy

TOTAL: 45 PERIODS

TEXT BOOKS:

1. Thomas Erl, ¯Service Oriented Architecture: Concepts, Technology, and Design‖, PearsonEducation, 2005
2. Sandeep Chatterjee and James Webber, ¯Developing Enterprise Web Services: AnArchitect's Guide‖, Prentice Hall, 2004

REFERENCES:

1. James McGovern, Sameer Tyagi, Michael E Stevens, Sunil Mathew, ¯Java Web ServicesArchitecture‖, Elsevier, 2003.
2. Ron Schmelzer et al. ¯XML and Web Services‖, Pearson Education, 2002.
3. Frank P.Coyle, ¯XML, Web Services and the Data Revolution‖, Pearson Education,2002

UNIT - I

IT8074 - SERVICE ORIENTED ARCHITECTURE

XML

XML Document Structure.

- XML (Extensible Markup Language) is a markup language like HTML for storage or transmission of data.
- XML is widely used in web services to transport data over the network.
- XML is the Universal format for structuring documents and data on the web.
- XML is widely used in a SOA.
- XML files have the extension .XML.

Structure of an XML document.

1. A XML document contain exactly one root element which is the start tag of the XML document and it contains all other elements.

```
<root>
    <Sections>
        <Sub-Section>
        </Subsections>
    </Sections>
```

2. XML documents may begin with a Prolog that appears before the root element.

For example,

<?xml version="1.0" encoding = "UTF-8"?>

3. A tag in XML is a case-sensitive markup construct that begins with < and ends with >.

4. An element in XML is formed by characters between the start-tag and the end-tag.

5. XML elements can have attributes which exists within a start-tag or empty-element tag. An attribute consist of a name-value pair.

Syntax Rules.

1. Each start-tag in XML must have a matching end-tag and all tags should be properly nested, with none missing and none overlapping.

2. The characters < and & holds special meaning in XML.

3. An XML document cannot contain any whitespace before the XML declaration else it will be treated as a processing instruction by the parser.

4. Comments in XML begins with <!-- and ends with

XML Document Structure.

- XML declaration
- Document Type Declaration
- Element data
- Attribute data
- Character data or XML content.

XML Declaration.

1. XML declaration is optional.
2. XML declaration must be first line in XML document if we write declaration.
3. XML declaration tells that document written is in XML.
4. W3C recommends to include XML declaration.

The XML declaration consists of a number of components

Component	Description.
<?xml	Starts the beginning of the Processing Instruction.
Version = "xxx"	Describes the specific version of XML being used in the document
Standalone = "xxx"	Defines whether documents are allowed to contain external markup declarations. This can be

encoding = "xxx" Indicates the character encoding that the document uses.

Ex

<? XML version = "1.0" encoding = "UTF-8"

Standalone = "no" ?>

Document Type Declaration

- It is used to define XML document.
- DTD is used to Validate XML document
- DTD can be Internal or External.
- DTD rule tells which element is allowed to Nest inside Other element.

<! DOCTYPE document System "Person.dtd" >

The General form of DTD is

<! DOCTYPE NAME SYSTEM "file" >

The Components of DTD are

Component	Description
<	The Start of the XML tag
! DOCTYPE	The beginning of the Document Type Declaration.
Name	Specifies the name of the document type being defined.
SYSTEM	Specifies that the following System

	Identifier will be read and Processed.
"file"	Specifies the name of the file to be processed by the System.
[	Starts an internal DTD Subset
]	Ends
>	The end of the XML tag.

XML Elements.

- Each XML document must have One and Only One Root Element.
- Other XML elements must be Nested Inside Root Element.
- Opening tag of root element is the opening tag of document.
- Closing tag of root element is the closing tag of document.

Rules.

- An element name can contain any alphanumeric Characters. The only punctuation mark allowed in names are the hyphen (-), Under-Score (_) and Period (.).
- Names are case sensitive.
- Start and end tags of an element must be

Syntax

```
<element-name attribute1 attribute2>
... Content
</element-name>
```

Empty Element

Syntax

```
<name attribute1 attribute2 ... />
```

Example.

```
<Student>
    <Boy>
        <name> Rajesh </name>
        <marks> 90 </marks>
    </Boy>
</Student>
```

XML Attributes

- XML Attributes provides additional information about XML Element.
- Attributes consists of name/value pairs associated with an element.
- Attributes are attached to the start-tag and not to the end-tag.

Syntax.

```
<element-name attribute1 attribute2>
... Content
</element-name>
```

</element name>

Rules.

1. An attribute name must not appear more than once in the same start-tag or empty element tag.

2. An attribute must be declared in the Document Type Definition (DTD) using an Attribute-List Declaration.

3. Attribute values must not contain direct or indirect entity references to external entities.

Example.

```
<name nickname = "Micky">
  <first> John </first>
  <last> Smith </last>
</name>
```

Character Data [CDATA]

- CDATA is defined as blocks of text that are not passed by the parser, but are otherwise recognized as markup.

- The CDATA Section is used when the source code contains markup symbols as text. When such section is enclosed in CDATA the

Parser ignores the markup characters. The characters inside CDATA section is directly passed to the application.

Syntax.

<! [CDATA [characters with markup]] >

- CDATA Start Section - CDATA begins with the nine-characters delimiter <![CDATA[

- CDATA End Section - CDATA section ends with]]> delimiter

- CDATA Section - characters between these two enclosures are interpreted as characters, and not as markup.

Example.

```
<Script>
    <! [CDATA [ <message> Welcome </message>
]]>
</Script>.
```

Well-Formed and Valid Documents.

Well-Formed Documents.

- Each and every XML document should be validated. Each XML document should have proper syntax. XML document is said to "Well Formed

XML Document" If It has proper Syntax.

- Syntax Rules which must be satisfied in order to make well formed XML Document.

Rule No.	Explanation.
1.	XML Document must have single root element.
2.	XML Elements must have a closing tag.
3.	XML Tags are Case Sensitive.
4.	XML Elements must be properly nested.
5.	XML Attribute Value must be quoted

- An XML document is well formed If it follows all the preceding Syntax rules of XML.

Valid Documents.

- A Well-formed XML document is considered Valid only If it contains a proper Document Type Declaration and If the document obeys the Constraints of that declaration.

- Valid XML documents allow users to take advantage of Content management, business-to-business transactions, enterprise integration, and other processes that require the exchange

- Any document can be well formed, but only specific documents are valid when applied against a constraining DTD or Schema.

Document Type Definitions. (DTD).

- It is used to validate the XML documents.

- DTD specifies the structure of the XML document.

- DTD is part of the file or separate document file.

Syntax.

```
<!DOCTYPE element DTD identifier
[
    declaration1
    declaration2
    ...
]>
```

Types of DTD.

- Internal DTD.
- External DTD.

Internal DTD.

- Internal DTD is part of the document.
- The scope is limited to the document which

is created.

Syntax.

<! DOCTYPE root element [element and attribute declarations]>

- If the DTD is declared inside the XML file, it must be wrapped inside the <! DOCTYPE> definition.

Example.

```
<? XML version = "1.0" ?>
<! DOCTYPE note [
 <! ELEMENT note (to, from, heading, body)>
 <! ELEMENT to (#PCDATA)>
 <! ELEMENT from (#PCDATA>
 <! ELEMENT heading (#PCDATA)>
 <! ELEMENT body (#PCDATA)>
]>
<note>
 <to> Tove </to>
 <from> Jani </from>
 <heading> Reminder </heading>
 <body> Don't forget me </body>
</note>
```

External DTD.

- External DTD is a separate file.
- It is accessible across the multiple document

Syntax:

<! DOCTYPE rootelement [SYSTEM "path of the file" >

- If the DTD is declared in an external file, the <! DOCTYPE > definition must contain a reference to the DTD file.

Example:

```
<? xml version = "1.0" ?>
<! DOCTYPE Note SYSTEM "note.dtd" >
<note>
    <to> Tove </to>
    <from> Jani </from>
    <heading> Reminder </heading>
    <body> Don't forget me </body>
</note>
```

Note.dtd:

```
<! DOCTYPE Note
[
  <! ELEMENT Note (to, from, heading, body)>
  <! ELEMENT to (#PCDATA)>
  <! ELEMENT from (#PCDATA)>
  <! ELEMENT heading (#PCDATA)>
  <! ELEMENT body (#PCDATA)>
]>
```

DTD - Elements.

In a DTD, elements are declared with an ELEMENT declaration.

Declaring Elements.

Syntax.

<! ELEMENT element-name category >

Empty Elements.

<! ELEMENT element-name EMPTY>

Example.

<! ELEMENT br EMPTY>

ELEMENTS WITH PARSED CHARACTER DATA

<! ELEMENT element-name (#PCDATA)>

Example.

<! ELEMENT from (#PCDATA).

Elements with any Contents.

<! ELEMENT element-name ANY>

Example.

<! ELEMENT note ANY>

Elements with Children (Sequences)

<! ELEMENT element-name (child1, child2, ..)>

Example.

<! ELEMENT note (to, from, heading, body)>

DTD Element Rules.

Content Rules.

(1) The ANY Rule.

- The element may contain other elements and/or normal character data.

<! ELEMENT element-name ANY>

(2) The EMPTY Rule.

- An element that is defined with this rule will contain no data.

<! ELEMENT element-name EMPTY>

(3) The #PCDATA Rule.

- Parsed character data is data that may contain normal markup and will be interpreted and passed by any XML parser accessing the document.

<! ELEMENT element-name (#PCDATA)>

Structure Rules.

(1) The "Element Only" Rule

- This rule specifies that only elements may appear as children of the current element.

<! Element element-name (element1, element2)>

(2) The "Mixed" Rule.

The mixed rule is used to help define elements that may have both character data and child elements in the data they contain.

<! ELEMENT element-name (#PCDATA) | Child element1 /

Element Symbols.

- Element Symbols can be used to control the occurrence of data.

Symbol	Definition
Comma (,)	Provides separation of elements in a sequence. Ex <!ELEMENT address (street, city)>
Parenthesis [()]	Parantheses used to group a sequence, subsequence, or a set of alternatives.
Pipe (|)	Separates choices in a set of options.
Plus Sign (+)	Signifies that the data must appear one or more times.
Question mark (?)	Data will appear either zero times or one time in the element.
No Symbol	When no symbol is used, the data must appear one in the XML file.

DTD - Attributes.

In a DTD, attributes are declared with an ATTLIST declaration.

Declaring Attributes.

- Syntax

<!ATTLIST element-name attribute-name attribute-type
attribute-value>

Example.

<!ATTLIST payment type CDATA "Check">

The attribute-type can be one of the following.

Type	Description
CDATA	The value is character data
(en1|en2|..)	The value must be one from an enumerated list
ID	The value is a unique id
IDREF	The value is the id of another element
NMTOKEN	The value is a valid XML name.
ENTITY	The value is an entity.
XMI	The value is a predefined XML value.

The attribute-value can be one of the following.

Value	Explanation
value	The default value of the attribute
#REQUIRED	The attribute is required.
#IMPLIED	The attribute is optional.
#FIXED value	The attribute value is fixed.

DTD Entities.

- Entities are used to define shortcuts to Special Characters.

Entities can be declared Internal or external.

Internal Entity.

<! ENTITY entity-name "entity-value" >

Example.

<! ENTITY writer "Donald Duck" >

External Entity.

<! ENTITY entity-name SYSTEM "URI/URL" >

Example.

<! ENTITY writer SYSTEM "https://www.w3schools.com/entities.dtd" >

Predefined Entities.

- When an XML parser encounters these entities, they will automatically be replaced with the content they represent.

Entity	Content
&	&
<	<
>	>
"	"
'	'

XML Schema (XSD)

- The XML Schema defines the Shape, or Structure, of an XML document, along with rules for data content and Semantics such as what fields an element can contain, which sub elements it can contain and how many items can be present.

XML Schema Data Types.

1. Simple Type
2. Complex Type.

Simple Type.

The Simple type allows to have text-based elements. It contains less attributes, child elements, and cannot be left empty.

<xs: element name = "xxx" type = "yyy" />

XML Schema has a lot of built-in data types. The most common types are:

XS: String, XS: decimal; XS: Integer; XS: boolean; XS: date; XS: time.

Example.

<xs: element name = "Customer_dob" type = "xs: date" />

<xs: element name = "Customer_address" type = "xs: String" />

Complex Type.

The Complex type allows to hold multiple attributes and elements. It can contain additional sub elements and can be left empty.

```
<xs:element name="customer">
  <xs:complexType>
    <xs:sequence>
      <xs:element name="dob" type="xs:date" />
    </xs:sequence>
  </xs:complexType>
</xs:element>
```

Global Types.

- A xs:complexType can also defined globally and given a name.

- Looking at example again, it would make much more sense to have a single definition for "Address", which could then be used by both customer and Supplier. We can do this by defining a global (named) xs: complexType:

```
<xs: complexType  name = "AddressType">
    <xs: sequence>
        <xs: element  name = "line1"  type = "xs: string" />
        <xs: element  name = "line2"  type = "xs: string" />
    </xs: sequences>
</xs: complexType>
```

We have defined a <xs: complextype> that describes representation of an address,

```
<xs: element  name = "customer">
    <xs: complextype>
        <xs: sequence>
            <xs: element  name = "dob"  type = "xs: date" />
            <xs: element  name = "Address"  type = "AddressType" />
        </xs: sequences>
    </xs: complextype>
</xs: element>
```

Defining XML Attributes.

- An attribute provides extra information within an element.

Syntax.

```
< attribute
    default = string  fixed = string  form = qualified/
```

id = ID name = NCName ref = QName

type = QName use = optional / prohibited / required

any attributes >

(annotation ?, (simple type ?))

</ attribute >.

Example.

```
<xs: attribute name = "code" >
    <xs: simpleType>
        <xs: restriction base = "xs: string" >
            <xs: pattern value = "[A-Z] [A-Z]" />
    </xs: restriction>
</xs: simpleType>
</xs: attribute>
```

Compositors.

- Compositors provide rules that determine how and in what order there children can appear within XML document. There are three types of compositors.

  - <xs: sequence>
  - <xs: choice>
  - <xs: all>

Sequence.

The child elements in the XML document MUST appear in the order they are declared in the XSD Schema.

Choice

Only one of the child elements described in the XSD Schema can appear in the XML document.

All

The child elements described in the XSD Schema can appear in the XML document in any order.

Example.

```
<xs:element name = "person" >
  <xs:complexType>
    <xs:all>
      <xs:element name = "firstname" type = "xs:string"
      />
    </xs:all>
    <xs:choice>
      <xs:element name="employee" type="employee" />
      <xs:element name="member" type="member" />
    </xs:choice>
  </xs:complexType> </xs:element>
```

Passing XML Using DOM, SAX.

XML Parser.

- XML Parser provides a way to access or modify data in an XML document.

Passing XML using DOM.

- DOM stands for Document Object Model.
- Provides a way of representing an XML document in memory so that it can be manipulated by software.
- Standard API used to access elements and delete, add or edit content and attributes.
- DOM is a standard tree structure, where each node contains one of the components from an XML structure.

Need for DOM

- Create or Modify an XML document programmatically.
- Read an XML document
- Process the XML documents.

DOM levels.

→ Level 1

- Allows traversal of an XML document as well as the manipulation of the content in that

document.

Level 2.

- Extends level1 with the following additional features.
  - Namespace support
  - Events
  - Ranges.

Level 3

- Working draft

Steps to Using JDOM.

- Import XML-related packages.
- Create a DocBuilder
- Create a document from a file or Stream
- Extract the root element
- Examine attributes
- Examine sub-elements.

Import XML-related packages.

```
import org.w3c.dom.*;
import javax.xml.parsers.*;
import java.io.*;
```

Create a Document Builder.

```
DocumentBuilderFactory factory =
DocumentBuilderFactory.newInstance();
DocumentBuilder builder = factory.newDocumentBuilder();
```

Create a Document from a file or Stream.

```
StringBuilder XMLStringBuilder = new StringBuilder();
XMLStringBuilder.append("<?xml version="1.0"?>");
ByteArrayInputStream input = new ByteArrayInputStream
    XMLStringBuilder.toString().getBytes("UTF-8"));
Document doc = builder.parse(input);
```

Extract the root element

```
Element root = document.getDocumentElement();
```

Examine attributes

```
getAttribute("attributeName");
```

Examine sub-elements

```
getElementsByTagName("SubelementName");
```

Example.

Input XML file

```
<?xml version="1.0"?>
<class>
    <Student rollno = "124">
        <firstname> dinakar </firstname>
        <lastname> M </lastname>
        <marks> 80 </marks>
    </Student>
</class>
```

Demo ParserDemo.java.

```
Package com.tutorialspoint.xml;

import java.io.File;

import javax.xml.parsers.DocumentBuilderFactory;

import javax.xml.parsers.DocumentBuilder;

import org.w3c.dom.Document;

import org.w3c.dom.Node;

import org.w3c.dom.Element;

Public class DomParserDemo {

  Public static void main (String [] args) {

  try {

    File inputfile = new File ("input.txt");

    Document doc = dBuilder.parse (inputfile);

    doc.getDocumentElement ().normalize ();

  for (int temp = 0; temp < nList.getLength (); temp++)

  {

  Node nNode = nList.item (temp);

  If (nNode.getNodeType () == Node.ELEMENT_NODE)

  {

    Element eElement = (Element) nNode;

    System.out.println ("Student roll no: " + eElement.

      getAttribute ("rollno"));

    System.Out.println ("First Name:" + eElement.

      getElementsByTagName ("firstname").

        item (0).
```

```
getTextContent());
System.Out.Println("Last Name :"+eElement.get
    ElementsByTagName("lastname").Item(0).
    getTextContent());
System.Out.Println("Marks :"+eElement.getElement
    ByTagName("Marks").Item(0).getTextContent());
  }
 }
}catch (Exception e){
   e.printStackTrace();
  }
 }
}
```

DOM Traversal.

Traversal is a convenient way to walk through a DOM tree and select specific nodes.

Traversal Interfaces

Interface	Description
NodeIterator	Used to walk through nodes linearly
TreeWalker	Represents a subtree as a tree view.
NodeFilter	Can be used in conjunction with

NodeIterator and TreeWalker to select specific nodes.

DocumentTraversal — Contains methods to create NodeIterator and TreeWalker instances.

DOM Range.

Range Interfaces provide a convenient way to select, delete, extract and insert content.

Interface	Description
Range	This interface describes a range and contains methods to define, delete, insert content.
DocumentRange	This interface creates a range.

PARSING XML USING SAX.

- SAX (Simple API for XML) is an event-based parser for XML documents. A SAX parser creates no parse tree.

- SAX is a streaming interface for XML, which means that applications using SAX receive event notifications about the XML document being processed an element, and attribute, at a time in sequential order starting at the top of

the document, and ending with the closing of the ROOT element.

Using SAX Parser.

SAX Parser passes the XML line by line triggering different events as and when it encounters different elements like: opening tag, closing tag, character data, comments and so on.

Code.

```
import java.util.ArrayList;
import javax.xml.parsers.SAXParser;
import org.xml.sax.Attributes;
import org.xml.sax.helpers.DefaultHandler;

public class SAXParserDemo {
  Public static void main (String [] args) throws Exception
{
  SAXParser.Parser = ParserFactor.newSAXParser();
  SAXHandler handler = new SAXhandler();
  for (Employee emp : handler.empList)
  {
    System.Out.Println(emp);
  }
}
```

```
Class SAXHandler extends DefaultHandler{
List<Employee> empList = new ArrayList<>();
Employee emp = null;
String content = null;
@Override
Public Void StartElement (String uri, String localName,
                          String qName, Attributes attributes)
                          throws SAXException{
Switch (qName){
 case "employee":
     emp = new Employee();
     emp.id = attributes.getValue("id");
     break;
}
}
@Override
public void endElement (String uri, String localName,
                        String qname) throws SAXException{
Switch(qName){
 Case "employee":
     empList.add(emp);
     break;
```

```
case "firstName":
    emp.firstName = content;
    break;
case "lastName":
    emp.lastName = content;
    break;
  }
}
class Employee {
String id;
String firstName;
String lastName;
@Override
Public String toString() {
    return firstName + " " + lastName + "(" + id + ")" +
                                        location;
}
```

Error Handler Methods

Method	Description
error()	Receives notification of a recoverable error.
fatalError()	Receives notification of a nonrecoverable error.

XPATH.

- Xpath is a query language that is used for traversing through an XML document. It is used commonly to search particular elements or attributes with matching patterns.

- XPath is a major element in the XSLT Standard.

- XPath stands for XML Path Language.

- XPath uses "path like" syntax to identify and navigate nodes in an XML document.

- XPath contains over 200 built-in functions.

XPath Nodes.

In XPath, there are seven kinds of nodes:

- element
- attribute
- text
- namespace
- Processing-instruction
- Comment and
- document nodes.

XML documents are treated as trees of nodes.

- The topmost element of the tree is called the root element.

Example.

```
<?xml version = "1.0" encoding = "UTF-8" ?>
<bookstore>
  <book>
    <title lang = "en"> Harry </title>
    <author> J. Rowling </author>
    <year> 2021 </year>
  </book>
</bookstore>
```

Relationship of Nodes.

(1) Parent

Each element and attribute has one parent. The book element is the parent of the title, author, year and price.

(2) Children

Element nodes may have zero, one or more children.

- The title, author, year and price elements are all children of the book element.

(3) Siblings

- Nodes that have the same parent.

- The title, author, year and price elements are all siblings.

Ancestors.

A node's parent, parent's parent, etc.

- The ancestors of the title element are the book element and the bookstore element.

Descendants.

- A node's children, children's children, etc.

- descendants of the bookstore element are the book, title, author, year and price elements.

X-Path Expression

- Generally defines a pattern in order to select a set of nodes.

Expression	Description.
nodename	Selects all nodes with the name "nodename".
/	Selects from the root node.
//	Selection starts from the current node that match the selection.
.	Selects the current node.
..	Selects the parent of the current node.

XPath Functions.

- Node functions
- Numeric functions
- String functions
- Boolean functions.

Node Functions.

node() : function return node value.

text() : function return text value of specific node.

last() : function return size of total content in given content.

position() : function return the position of an element in the set.

Numeric functions.

count (node-expression):

function count number of element in a specified node.

Sum (node. expression) :

function return the sum of element value in a specified node.

number():

Xpath number function converting string to a number

String functions.

String(): Xpath string function converting number to a string.

Concat(string,..)

↳ concatenated number of arguments and return to a concatenated string.

Contains(string, string)

↳ Xpath contains function return True/false.

Boolean functions.

true(): returns true if passed string is a normal string.

false(): returns false if passed string is not a normal string.

XML Transformation and XSL

XSL - (eXtensible Style Sheet Language) is a styling language for XML.

XSLT - Stands for XSL Transformations.

- is a language for transforming XML documents.

- XSLT transforms an XML document into another XML document.

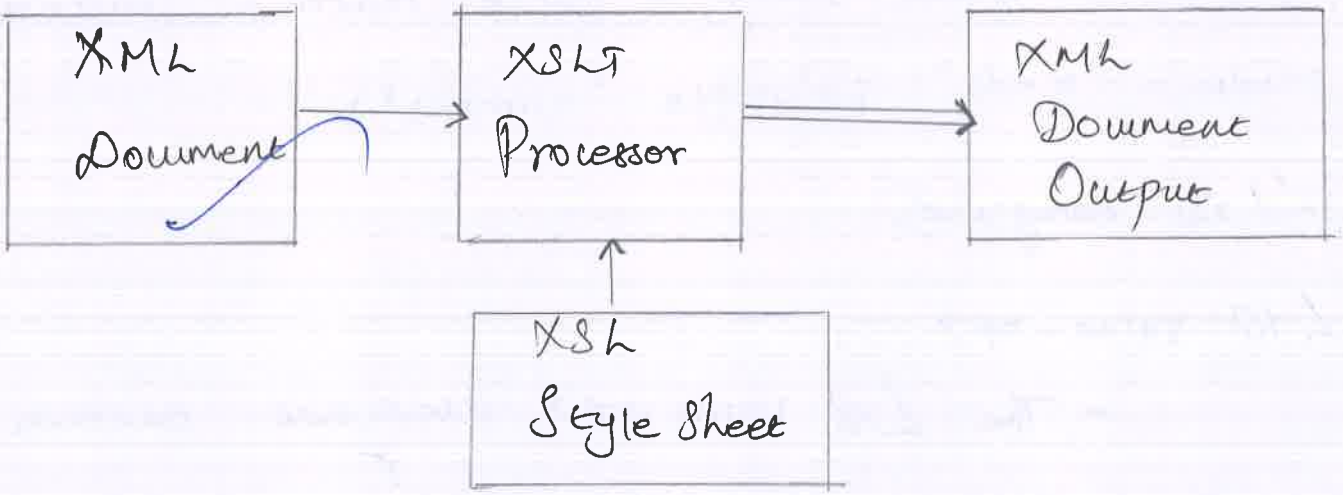
- XSLT is a W3C Recommendation.

Displaying XML using XSLT.

- XSLT provides the Mechanism for converting an XML document to another format. This is accomplished by applying an XSLT Style Sheet to the XML document.

- The Style Sheet contains conversion rules for accessing and transforming the Input XML document to a different Output format.

- An XSLT processor is responsible for applying the rules defined in the Style Sheet to the Input XML document.



XSLT Elements.

Syntax.

```
<XSL:StyleSheet id = "name" version = "version"
extension-element-prefixes = "list"
```

exclude-result-prefixes = "list" >

</xsl:stylesheet>

<xsl:template>

- The <xsl:template> element contains rules to apply when a specified node is matched.

- The match attribute can also be used to define a template for a whole branch of the XML document. (i.e. match = "/" defines the whole document).

<xsl:template> is a top-level element.

Syntax.

<xsl:template name = "name" match = "pattern" mode = "mode" priority = "number" >

</xsl:template>

<xsl:value-of>

- The <xsl:value-of> element extracts the value of a selected node.

- The <xsl:value-of> element can be used to select the value of an XML element and add it to the output.

Syntax.

<xsl:value-of Select = "expression" disable_Output-escaping = "Yes/no" />

<Sxl:for-each>

- The <xsl:for-each> element loops through each node in a Specified node set.

Syntax.

<xsl:for-each Select = "expression">

...

</xsl:for-each>

<xsl:sort>

- The <xsl:sort> element is used to sort the Output.

Example.

<? xml version = "1.0" encoding = "UTF-8" ?>

<xsl:stylesheet version = "1.0"

xmlns:xsl = "http://www.w3.org/1999/XSL/Transform">

<xsl:template match = "/">

<html>

<body>

<h2> My CD Collection </h2>

```
<table border = "1">
    <tr bgcolor = "#9acd32">
        <th> Title </th>
        <th> Artist </th>
    </tr>
<xsl: for-each select = "catalog/cd">
 <xsl: sort select = "artist" />
 <tr>
    <td> <xsl: value-of select = "title" /> </td>
    <td> <xsl: value-of select = "artist" /> </td>
 </tr>
</xsl: for-each>
</table>
</body>
</html>
</xsl: template>
</xsl: stylesheet>
```

XSL-FO XSL Formatting Objects.

- XSL-FO was designed to assist with the Printing and displaying of XML data.

- The main emphasis is on the document layout and structure. This includes the dimensions

of the output document, including page headers, footers and margins.

- XSL-FO also allows the developer to define the formatting rules for the content, such as font, style, color and positioning.

Basic Document Structure.

- An XSL-FO document can contain the following components.
  - Page Master
  - Page Master Set
  - Page Sequences.

Page Master : <fo : page-master>

- The page master describes the page size and layout. The page master contains the dimensions for a page, including width, height and margins.

Example.

```
<fo: simple-page-master master-name = "simple"
    page-height = "11in"
    page-width = "8.5in"
    margin-top = "1in"
    margin-bottom = "1in"
```

margin-left = "1.25in"

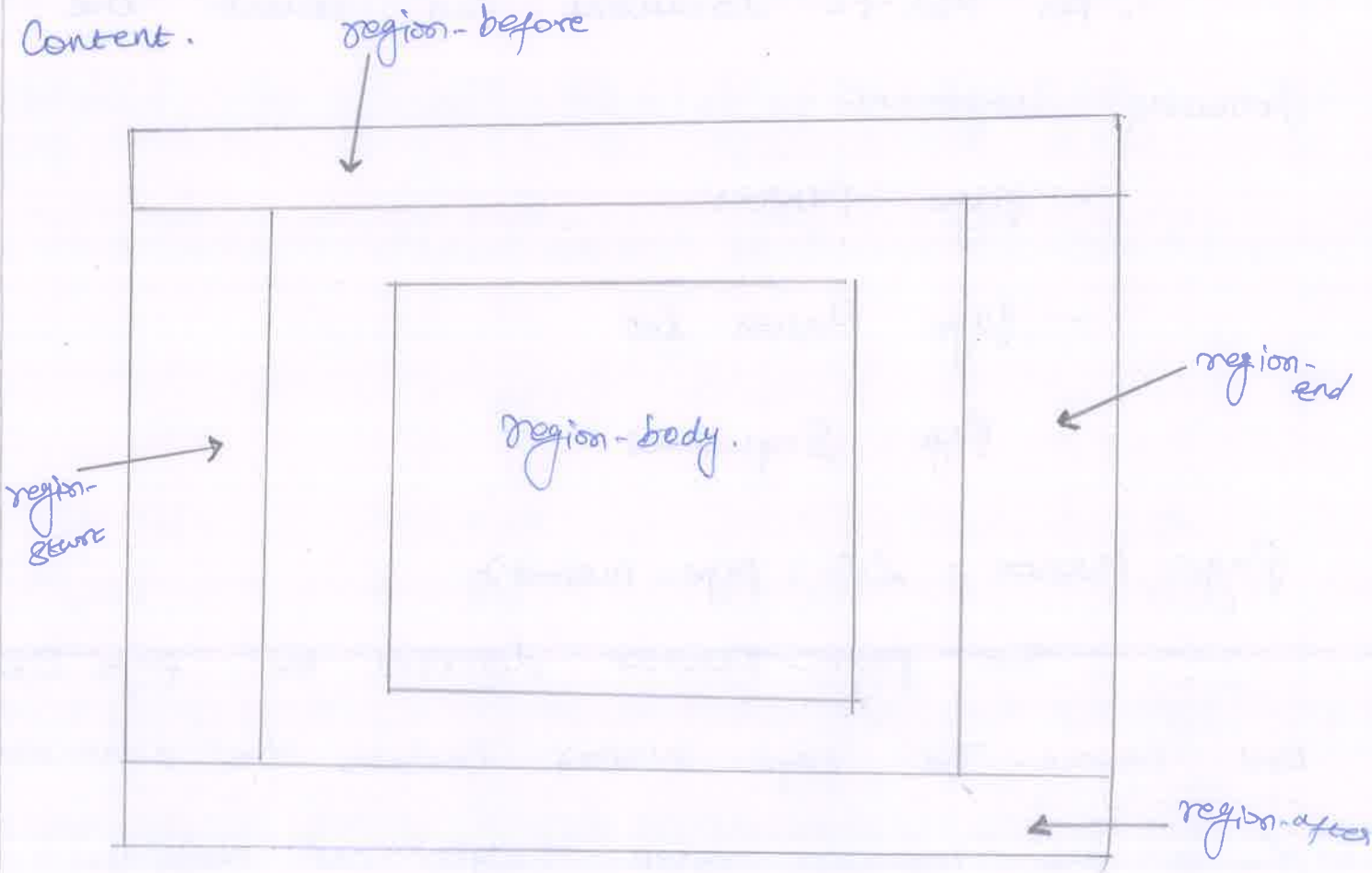
margin-right = "1.25in" >

</fo:simple-page-master>

Region.

- Each page is divided into five regions.

- Regions serve as containers for the document content.



- The region-before and region-after areas are commonly used for page headers and footers.

- The region-body area is the center of the page and contains the main content.

- The region-start and region-end sections are commonly used for left and right side-bars, respectively.

The size of the regions using the following elements.

<fo: region-before>

<fo: region-after>

<fo: region-body>

<fo: region-start>

<fo: region-end>

Example.

<fo: simple-page-master master-name = "simple"

page-height = "11in" page-width = "8.5in" >

<fo: region-body margin-top = "0.5in" />

<fo: region-before extent = "0.5in" />

</fo: simple-page-master>

PAGE MASTER SET : <fo: page-master-set>

- A document can be composed of multiple pages each with its own dimensions. The page master set refers to the collection of page masters.

Example.

<fo: layout-master-set>

<fo: simple-page-master master-name = "simple"

page-height = "11in" page-width = "8.5in"

margin-top = "1 in" margin-bottom = "1 in"

margin-left = "1.25 in" margin-right = "1.25 in" >

< fo: region-body margin-top = "0.5 in" />

< fo: region-before extent = "3 cm" />

< fo: region-after extent = "1.5 cm" />

</ fo: Simple-page-master>

</ fo: layout-master-set>

PAGE SEQUENCES : < fo: page-sequence>

- A page sequence defines a series of printed pages. Each page sequence refers to a page master for its dimensions.

- The page sequence contains the actual content for the document.

- < fo: static-content>

- < fo: flow>

- The < fo: static-content> element is used for page headers and footers.

- The < fo: flow> element contains a collection of text blocks. A body of text is defined using the < fo: block> element.

< fo: page-sequence master-name = "simple">

```
<fo:flow flow-name = "xsl:region-body">
<fo:block font-size = "18pt" font-family = "Sans-serif">
Ez Books Online
</fo:block>
</fo:flow>
</fo:page-sequence>
```

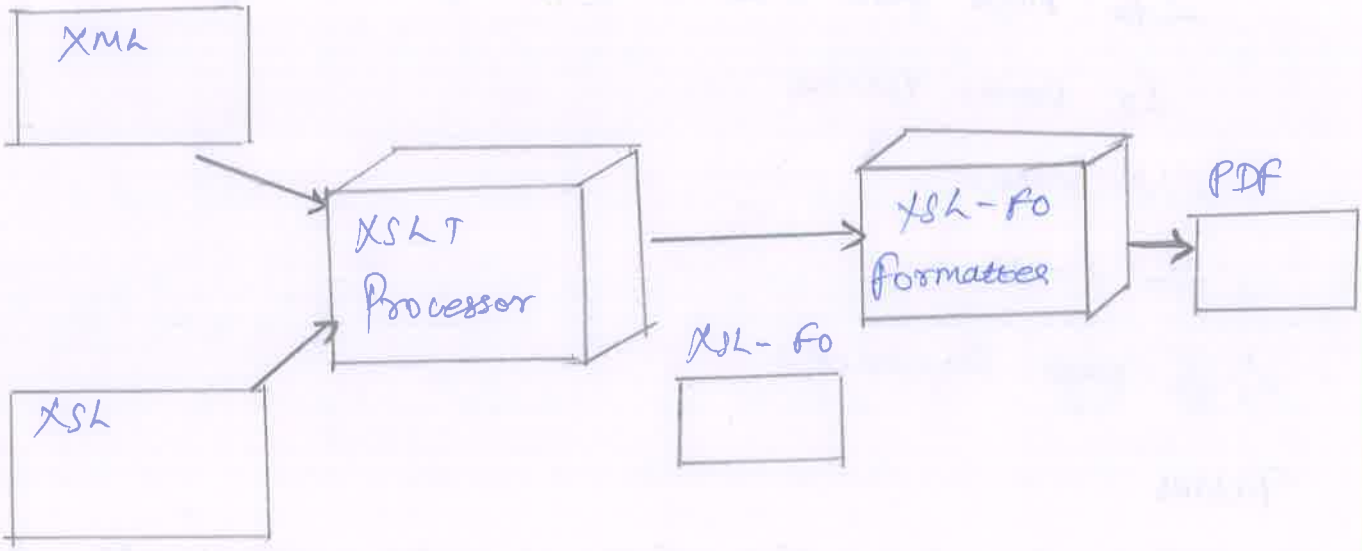
Tables.

XSL-FO has rich support for structuring tabular data.

Code:

```
<fo:table>
    <fo:table-column column-width = "120 pt" />
    <fo:table-header>
        <fo:table-row>
            <fo:table-cell>
                <fo:block font-weight = "bold"> Author
                </fo:block>
            </fo:table-cell>
        </fo:table-row>
    </fo:table-header>
</fo:table>
```

Generating XSL-FO tables with XSLT.



XQuery.

- XQuery is the language for querying XML data.
- XQuery for XML is like SQL for databases.
- XQuery is built on XPath expressions.
- XQuery is supported by all major databases.
- XQuery is a W3C Recommendation.

XQuery FLWOR Expressions.

For - Selects a sequence of nodes.
Let - Binds a sequence to a variable.
Where - Filters the nodes.
Order by - Sorts the nodes.
Return - What to return.

Example.

```
for $x in doc ("books.xml") /bookstore /book
where $x / price > 30
return $x / title.
```

The result will be

```
<title lang = "en" > XQuery Kick Start </title>
<title lang="en"> Learning XML </title>
```

Functions.

- XQuery uses functions to extract data from XML documents.

```
doc ("books.xml")
```

Path Expressions.

- XQuery uses path expressions to navigate through elements in an XML document.

```
doc ("books.xml") / bookstore / book / title.
```

The XQuery above will extract the following.

```
<title language = "en"> Everyday Italian </title>
<title language = "en"> Harry Potter </title>
<title language = "en"> Learning XML </title>
<title language = "en"> XQuery Kick Start </title>
```

Predicates.

- XQuery uses predicates to limit the extracted data from XML documents.

doc ("books.xml") / bookstore / book [price < 30]

The XQuery above will extract the following.

<book category = "CHILDREN">
<title lang = "en"> Harry Potter </title>
<author> Rowling </author>
<year> 2005 </year>
<price> 30.44 </price>
</book>

Two Marks.

1. What is XML?.
2. List the components of XML Document Structure
3. Mention the rules applied for XML elements.
4. Define DOCTYPE.
5. What is DTD?
6. Distinguish between Internal Dtd and External DTD.
7. What is meant by Well-formed documents and mention the rules?.
8. Define Namespace.
9. Write the syntax for declaring Namespace.
10. Define XML Schema.
11. What is DOM?.
12. Mention the need of DOM.
13. Write the steps in passing XML Document using DOM.
14. What is XSLT?.
15. How XSLT is efficient for Document Publishing.
16. Write the steps involved in creating database in XML.
17. What are the advantages of XML?.
18. What is W3C Consortium?.
19. What is Web Services?.
20. What are the different XSLT elements?.
21. Give the importance of SAX.
22. What is meant by XSL formatting?.

SIXTEEN MARKS.

1. Explain the XML document Structure.
2. Explain in detail about Various XML attributes.
3. Compare Well formed and Valid documents of XML with example.
4. Explain in detail about Namespaces in XML).
5. Explain in detail about Document Type Definition (DTD).
6. With examples explain Internal and external DTD.
7. Explain in detail about XML Schema.
8. Disuss about XSD - Validation.
9. Write notes on DOM model and DOM nodes.
10. Explain SAX based parsing with example.
11. Write a brief note on XSLT processor.
12. Give a brief note on modeling databases in XML.
13. Explain in detail about XSL formatting methods.

References.

1. Thomas Erl, "Service Oriented Architecture : Concepts Technology and Design", Pearson Education, 2005.
2. Ron Schmelzer et al, "XML and Web Services", Pearson Education, 2002.
3. Thomas Erl "SOA Design patterns" (The Prentice Hall Service-Oriented Computing Series from Thomas Erl).
4. Dr. R. Manjula Devi, M. Sangeetha, "Service oriented Architecture", Charulatha Publications.

UNIT - II

SERVICE ORIENTED ARCHITECTURE BASICS

INTRODUCTION

- A Service oriented architecture is essentially a collection of services. These services communicate with each other. The communication can involve either simple data passing or it could involve two or more services coordinating some activity.

- SOA allows users to combine a large number of facilities from existing services to form applications.

- SOA encompasses a set of design principles that structure system development and provide means for integrating components into a coherent and decentralized system.

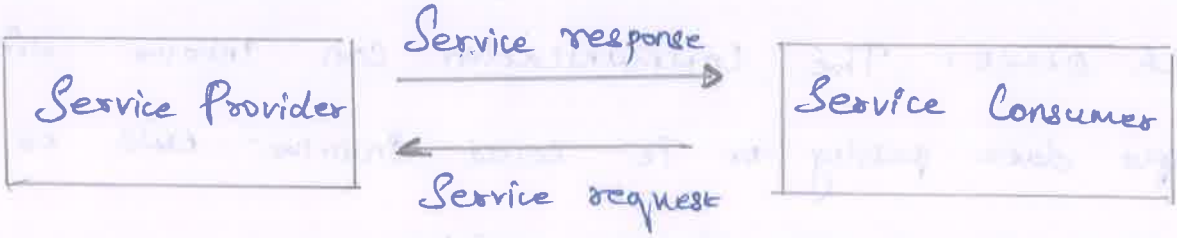
- There are two major roles within Service-Oriented architecture.

1. Service Provider

The service provider is the maintainer of the service and the organization that makes available one or more services for others to use.

2. Service Consumer.

— The Service consumer can locate the service metadata in the registry and develop the required client components to bind and use the service.



Characteristics of SOA

Contemporary SOA

— Contemporary SOA is an extended variation of service-oriented architecture which builds increasingly powerful XML and Web services support into current technology platforms.

Common Characteristics of contemporary SOA

— Contemporary SOA builds upon the primitive SOA model by leveraging industry and technology advancements with the following primary characteristics

1) Contemporary SOA is at the core of the service-oriented computing platform.

2) Contemporary SOA increases quality of service

3) Contemporary SOA is fundamentally autonomous.

4) Contemporary SOA is based on open Standards.

5) Contemporary SOA supports vendor diversity.

6) Contemporary SOA fosters Intrinsic Interoperability

7) Contemporary SOA promotes discovery.

8) Contemporary SOA promotes federation.

9) Contemporary SOA promotes architectural composability.

10) Contemporary SOA fosters inherent reusability.

11) Contemporary SOA emphasizes extensibility.

12) Contemporary SOA supports a Service-oriented business modeling paradigm.

13) Contemporary SOA implements layers of abstraction.

14) Contemporary SOA promotes loose coupling throughout the enterprise.

15) Contemporary SOA promotes organizational agility.

16) Contemporary SOA is a building block.

17) Contemporary SOA is an evolution.

18) Contemporary SOA is still maturing

19) Contemporary SOA is an achievable ideal.

(1) Contemporary SOA is at the core of the Service-Oriented Computing platform.

"SOA" has become a multi-purpose buzzword when discussing an application computing platform consisting of Web Services technology and Service orientation principles.

- Contemporary SOA represents an architecture that promotes Service-orientation through the use of Web Services.

② Contemporary SOA increases Quality of Service

- Contemporary SOA is striving to fill the QoS gaps of the primitive SOA model with the following requirements.

1. In a secure manner
2. Reliably
3. With appropriate performance
4. Protecting business integrity
5. Executing exception logic in case of failure.

③ Contemporary SOA is fundamentally autonomous.

Autonomous Principle.

- Represents the ability of a service to carry out its logic independently of outside influences.

Message-level autonomy.

- Messages are "intelligent agents" and

Control the way they are processed by receipients.

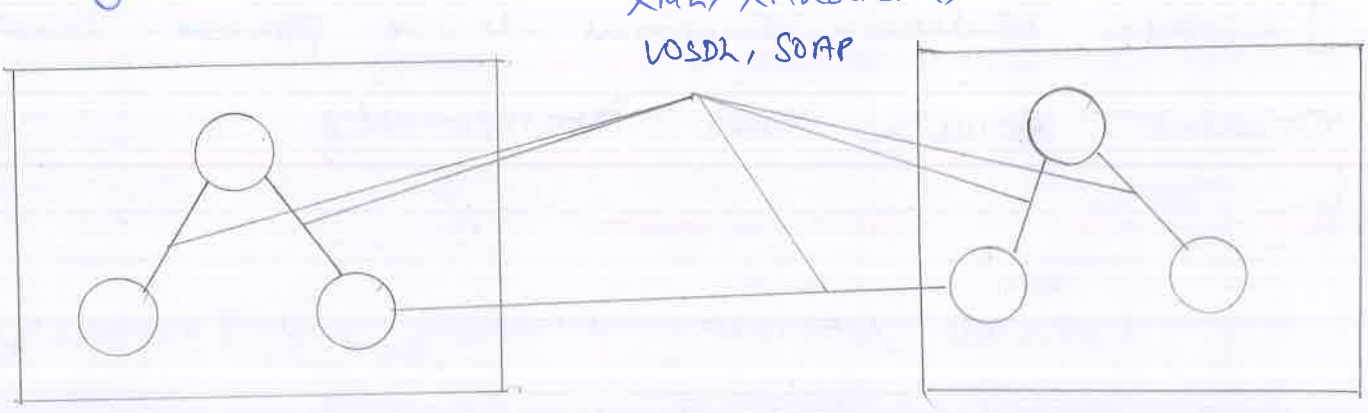
Levels of Autonomy.

SOA Autonomy / Service Autonomy can be Observed as various levels:

- Runtime autonomy.
  - represents the amount of control a service has over its execution environment at runtime.
- Design-time autonomy.
  - represents the amount of governance control a service owner has over the service design.

④ Contemporary SOA is based on open standards.

- Based on open standards, messages travel between services via a set of protocols that is globally standardized and accepted.
- SOAP, WSDL, XML and XML Schema allow messages to be fully self-contained.



Standard open technologies are used within and outside of solution boundaries.

(5) Contemporary SOA supports vendor diversity.

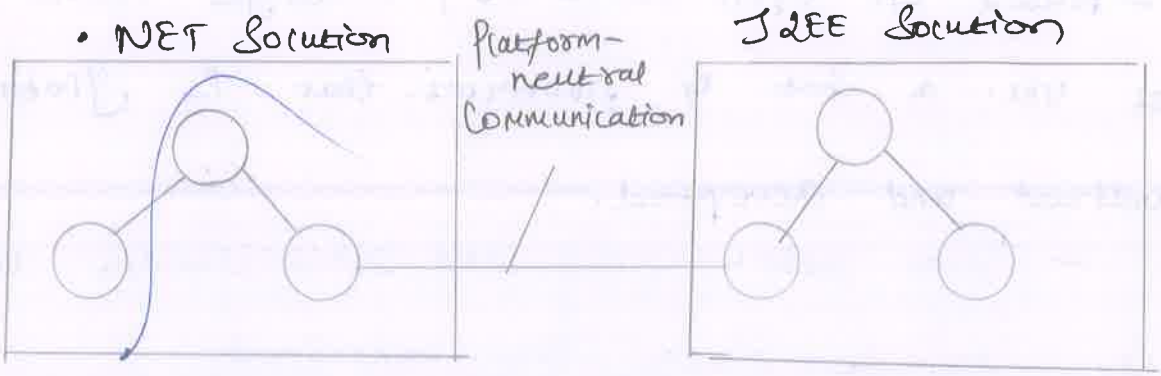
- The communication framework bridges the heterogeneity within and between corporations

→ Choose best-of-bred environments for specific applications.

→ Any development environment that supports Web services can be used to create a non-proprietary service interface layer.

→ Integration technologies encapsulate legacy logic through services adapters.

→ Platform neutral communication • NET solution and J2EE solution.



Disparate technology platforms do not prevent service-oriented solutions from interoperating.

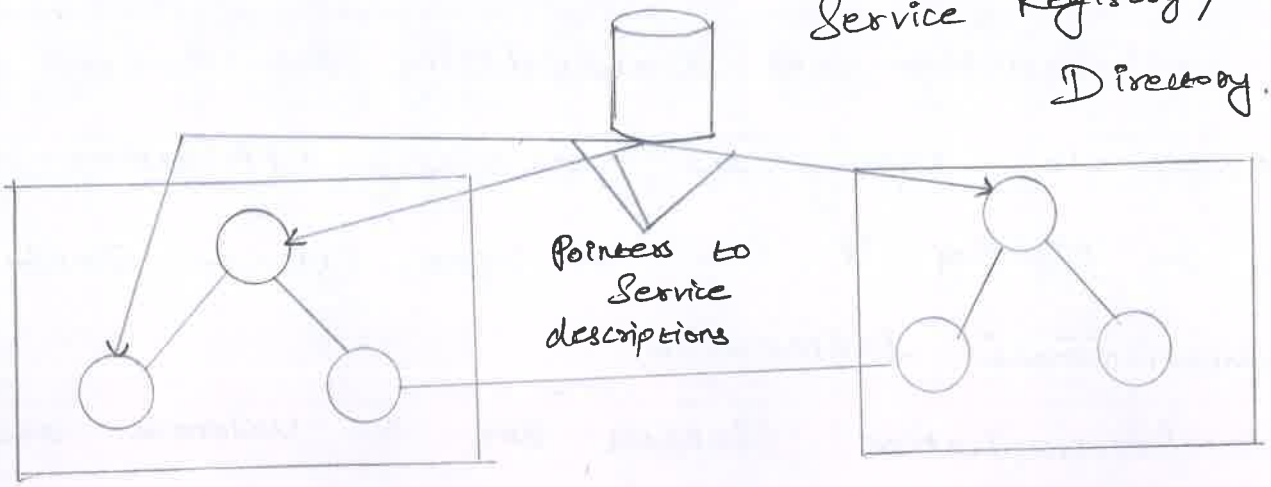
(6) Contemporary SOA promotes discovery

- Universal Description Discovery and Integration (UDDI) provided for service registries.

- Services are supplemented with communicative meta data by which they can be

discovered and interpreted.

- Store meta data in a service registry or profile documents.



Registries enable a mechanism for the discovery of services.

⑦ Contemporary SOA fosters intrinsic interoperability.

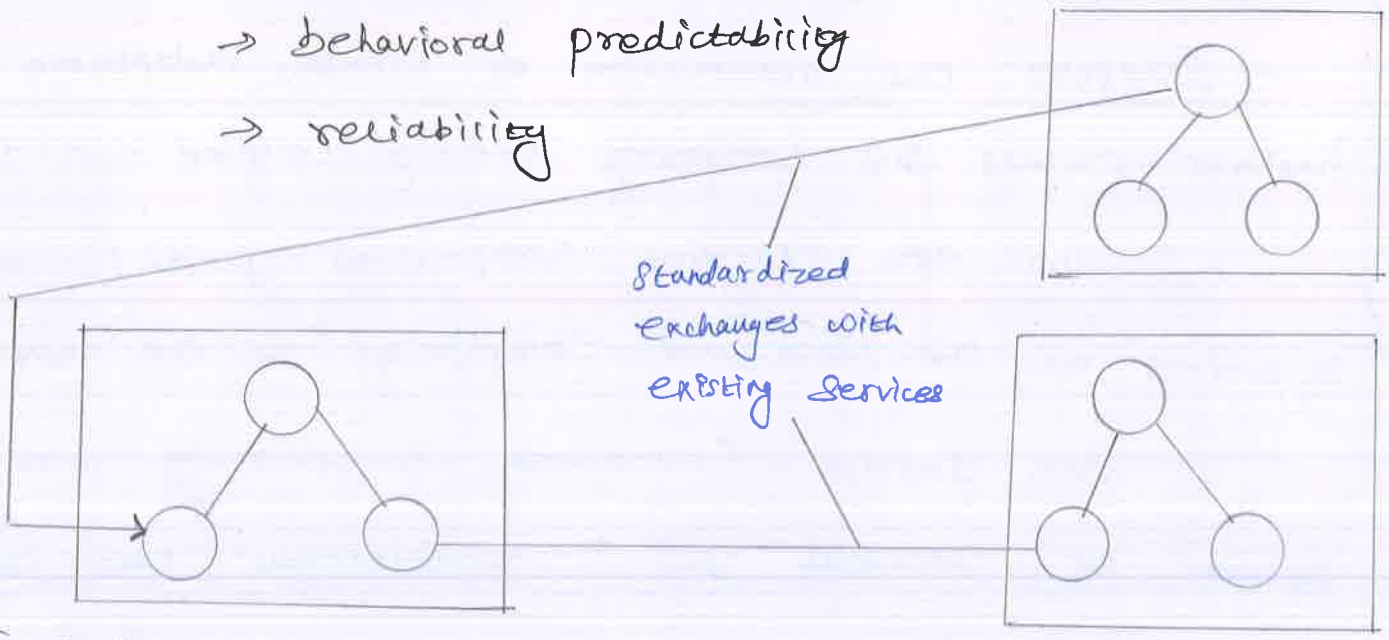
The design characteristics required to facilitate interoperability are

→ Standardization

→ Scalability

→ behavioral predictability

→ reliability



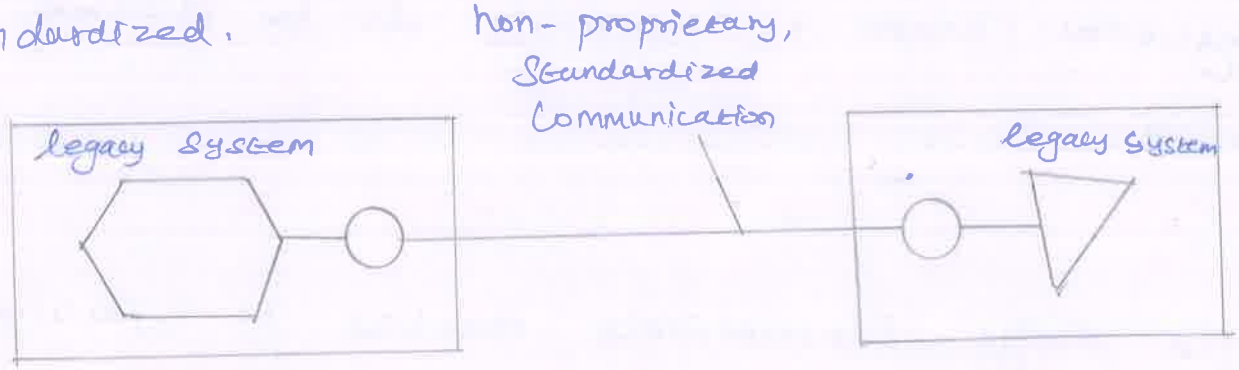
Intrinsically interoperable services enable unforeseen integration opportunities

⑧ Contemporary SOA promotes federation

- Establish SOA in an enterprise doesn't require replacement of what you have.

- Establishing and standardizing the ability to encapsulate legacy and non-legacy application logic and by exposing it via an open, common standard communications framework.

- Communication channels are all uniform and standardized.



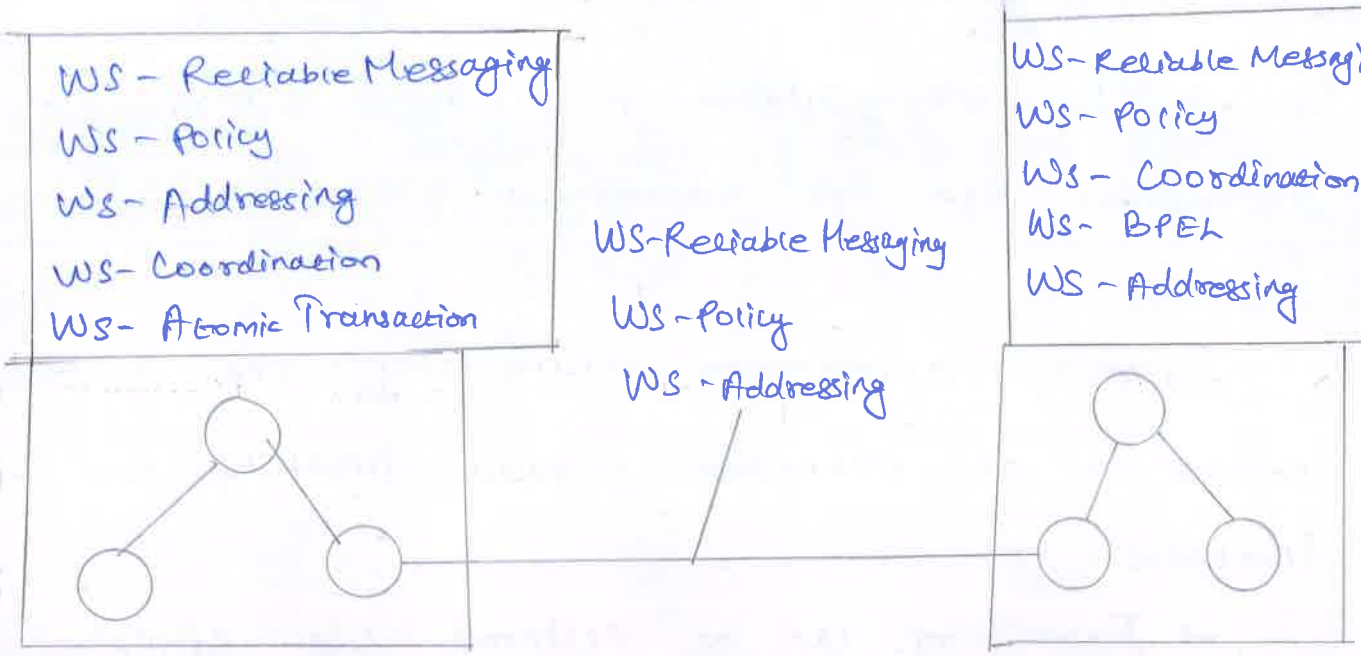
Services enable standardized federation of disparate legacy systems.

⑨ Contemporary SOA promotes architectural composability

- Supports the automation of flexible, adaptable business process by composing loosely coupled services.

- Services are effective composition participants, regardless of the size and complexity of the composition.

- Web service framework is evolving with the release of numerous WS-* specifications that can be composed. WS-* specification leverage SOAP messaging.



Different Solutions can be composed of different extensions and can continue to Pnteroperate as long as they support the common extensions required.

(10) Contemporary SOA fosters Pnherent reusability.

- Service - oriented design principles encourage reuse of Software.

- Services can be composed Pnto larger services which Pn turn can be reused.

- Services are agnostic in regard to business processes and automation Solutions.

- Services contain and express agnostic logic and can be positioned as reusable enterprise resources.

- Reusable Services have the following characteristics:

→ Logic is highly generic

→ can be accessed concurrently

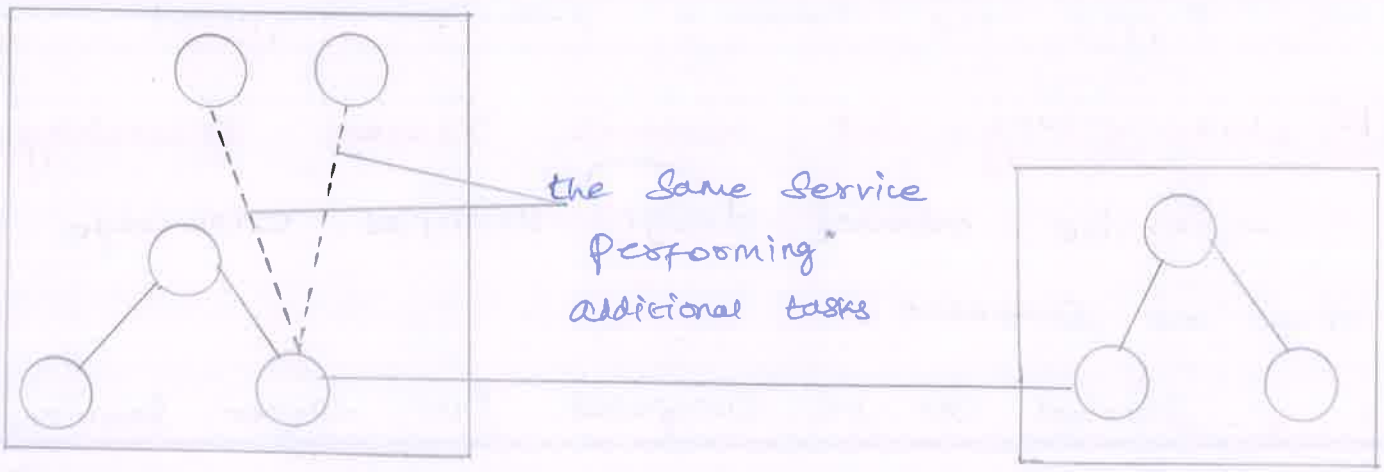
→ Has a generic and extensible contract

(11) Contemporary SOA emphasizes extensibility

→ When encapsulating functionality through a service description, we are encouraged beyond a point-to-point solution.

→ With appropriate granularity, the scope of a service can be extended without breaking an established interface.

→ Extensibility can be achieved less significantly due to loosely coupled relationship fostered among the services.



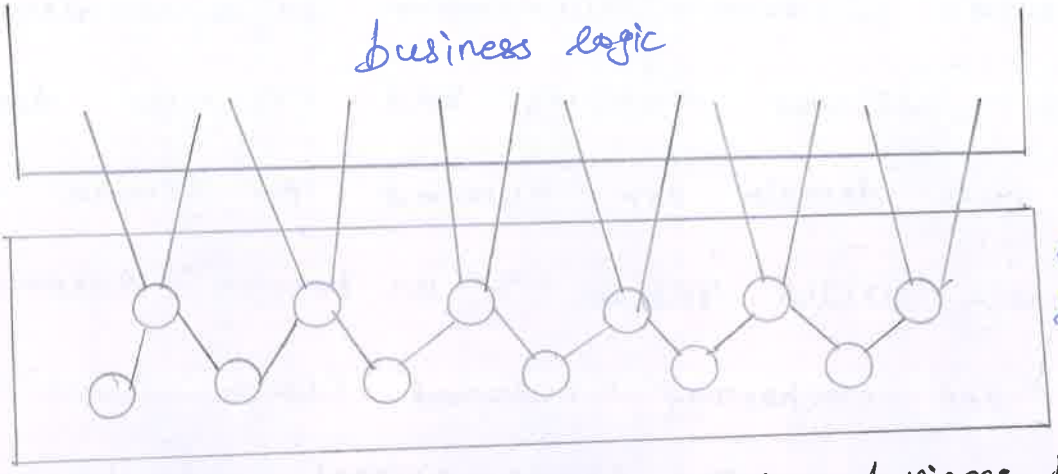
Extensible services can expand functionality with minimal impact.

(12) Contemporary SOA supports a service-oriented business modeling paradigm.

- Business processes are modeled with services and cut vertically through business logic.

- Partitioning business logic into services that can then be composed has significant implications as to how business processes can be modeled.

- BRM models, entity models and other forms of business intelligence can be accurately represented through coordinated composition of business-centric services.

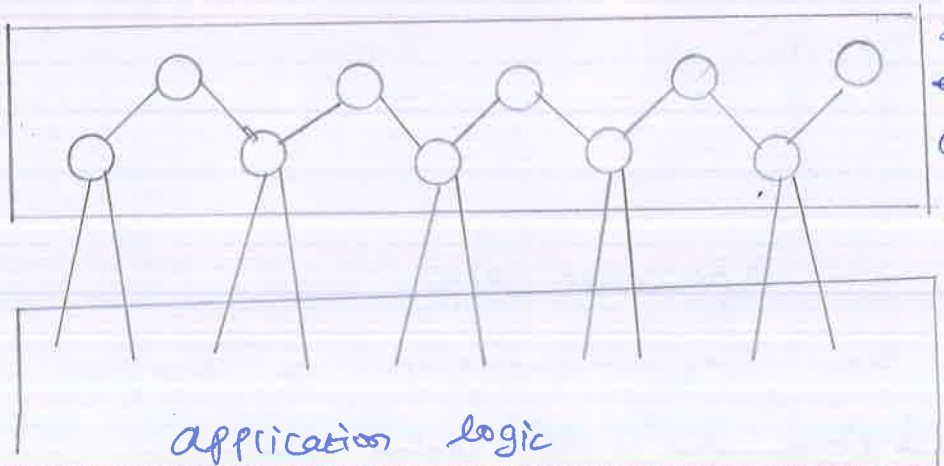


A collection of services encapsulating business process logic

(13) Contemporary SOA implements layers of abstraction

- SOA introduces layers of abstraction by positioning services as the sole access points to a variety of resources and processing logic.

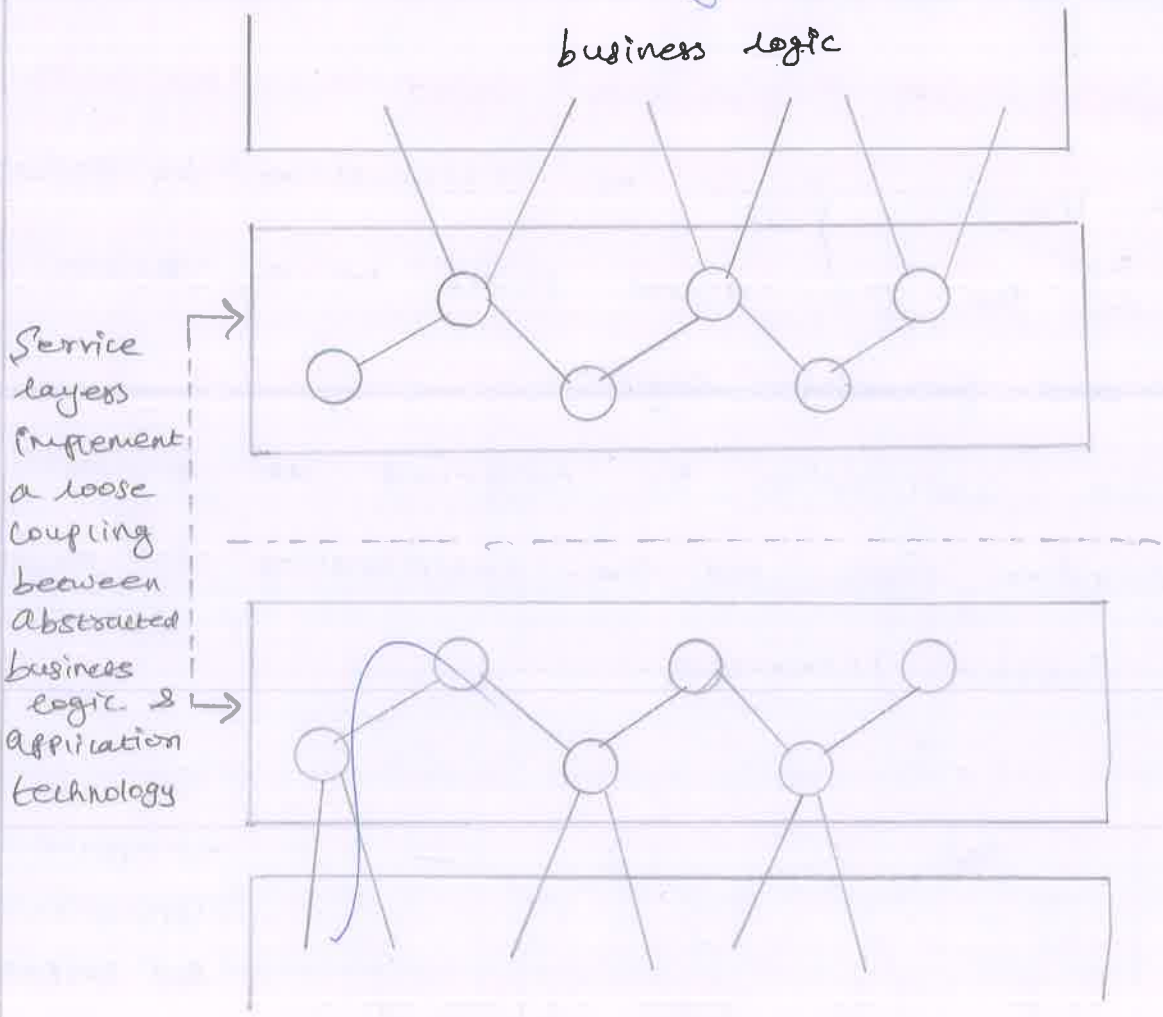
- The abstraction is targeted at business and application logic and the functionality is offered via the service interfaces.



(14) Contemporary SOA promotes loose coupling throughout the enterprise.

— The loose coupling concept is achieved by implementing standardized service abstraction layers when service-orientation principles are applied to both business modeling and technical design.

→ each domain are allowed to evolve more independently which result in an better allomodate business and technology-related change-quality environment known as organizational agility.



Through the implementation of service layers that Abstract business and application logic

(15) Contemporary SOA promotes organizational agility.

-- Organizational Agility refers to efficiency with which an organization can respond to change.

- High dependency between parts of an enterprise means that changing software is more complicated and expensive.

- Leveraging Service business representation, Service abstraction and loose coupling promotes agility.

(16) Contemporary SOA is a building block

- Services are composed into larger Services.

- Multiple SOA applications can be pulled into Service-oriented Integration technologies to help build a Service-Oriented Enterprise (SOE).

- No limits to the Scope of Service encapsulation.

→ An SOA consists of Services within Services, to the point that a Solution based on SOA itself is one of many Services within an SOE.

(17) Contemporary SOA is an evolution.

- SOA is a distinct architecture from its Predecessors.

- Different from Client-Server technology in that it is influenced by concepts in Service-orientation and Web Services.

- Promotes reuse, encapsulation, componentization, and distribution of application logic like previous technologies.

(18) Contemporary SOA is still maturing.

- Standards organization and vendors are continuing to develop new SOA technologies.

- Even SOA reach an adequate level of maturity, the utilization of Web Services can be extended to support the creation of enterprise SOA solutions.

(19) Contemporary SOA is an achievable ideal.

- Many organizations begin with a single application and then begin leveraging services into other applications.

- Changing to SOA requires cultural changes in an organization.

Comparing SOA with Client Server Architecture and Distributed Internet Architectures.

SOA vs. Client-Server architecture.

Client-Server architecture is architecture in which one piece of software requests or receives information from another.

Client-Server Architecture.

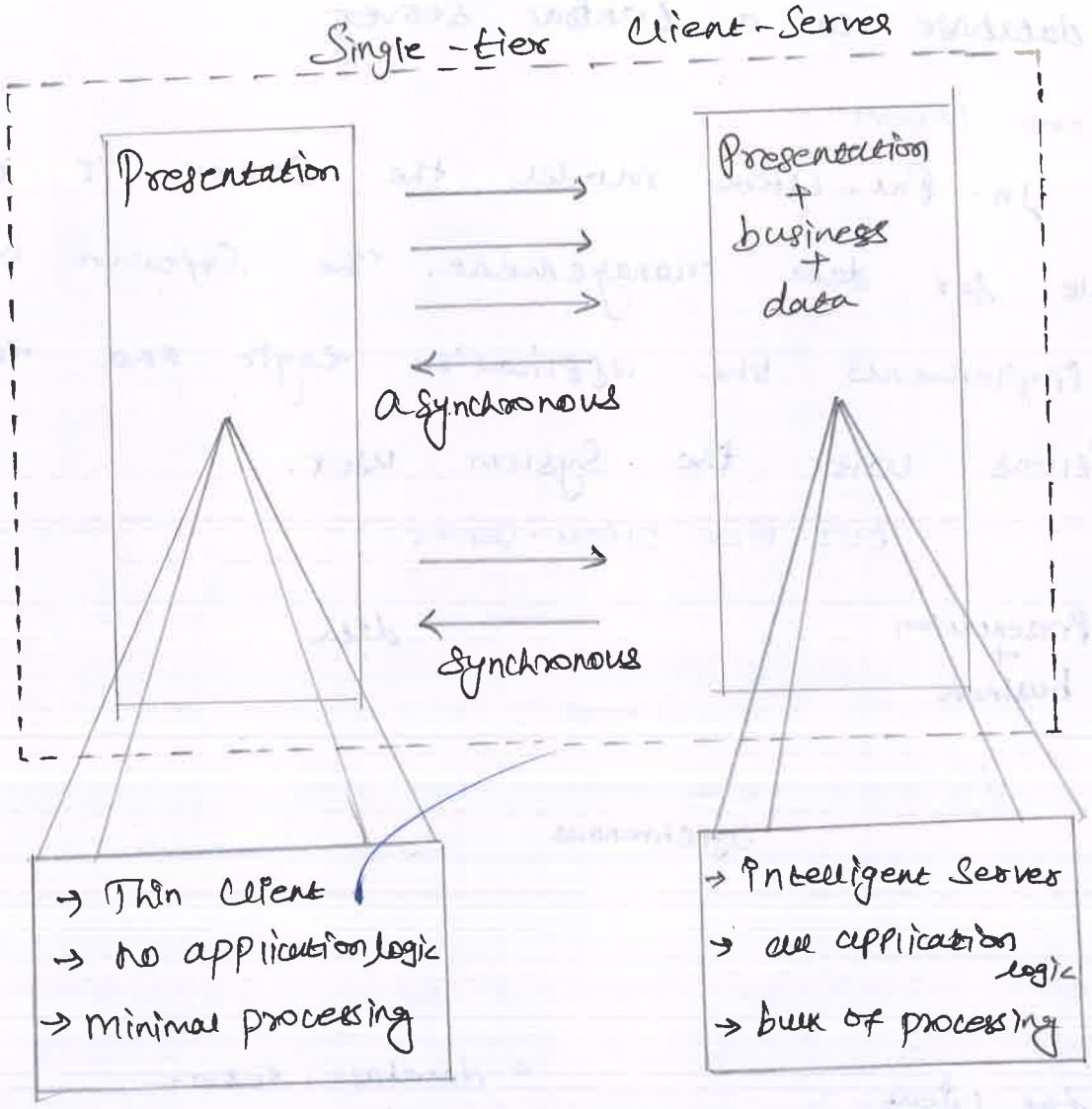
1. Single-tier Client-Server architecture.

- Single-tier Client-Server architecture is an

environment in which bulky mainframe back-ends Servers Served the thin Clients.

Thin-Client model.

In a thin-client model, all of the application Processing and data management is carried out on the Server. The Client is simply responsible for running the Presentation Software.



Types of Communication.

- Mainframe Systems natively Supported both.

Synchronous Communication

- Allow the Client and Server to wait for

→ Asynchronous communication

- Allows the server to continuously receive messages from the client without waiting for the server to respond.

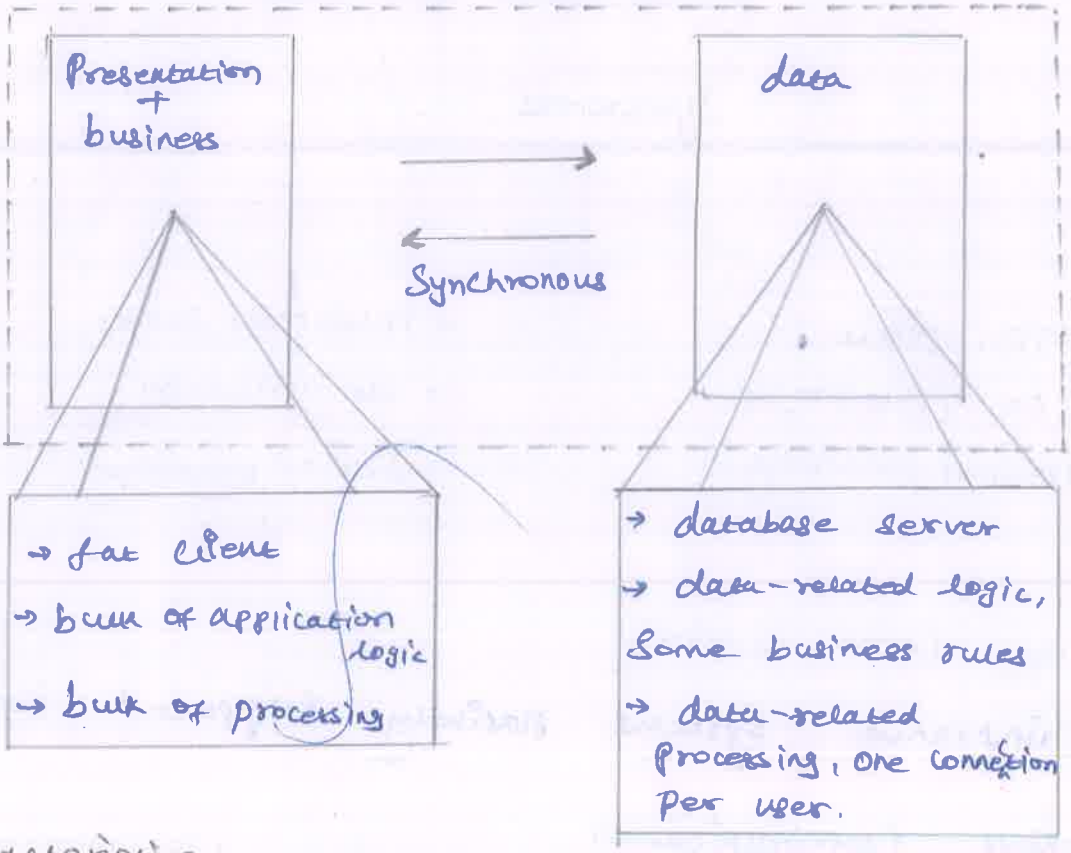
2. Two-tier Client-Server architecture.

- Two-tier client-server architecture consists of multiple fat clients, each with its own connection to a database on a central server.

Fat-client model.

In fat-client model, the server is only responsible for data management. The software on the client implements the application logic and the interactions with the system user.

Two-tier client-server



Characteristics.

- The primary characteristics of the two tier client

Server architecture is given below which is compared to SOA

1. Application logic
2. Application processing
3. Technology
4. Security
5. Administration.

1. Application logic

Client Server Architecture.

- The application or business logic either resides on the client or on the database server in the form of stored procedures.

SOA

The processing logic is partitioned into autonomous units which facilitate design qualities, future composability and reusability.

2. Application Processing

Client Server Architecture.

- Logic resides on Client Component
- Follows 80/20 where bulk of processing is done by client and other database access and connection pooling is done by server.
- Communication is predictably synchronous.
- Client establish its own database connection - Persistent.

SOA

- Each Service has explicit functional boundary and resource requirement.
- Processing in SOA is highly distributed.
- No fixed processing ratio
- SOA provides Stateless and autonomous nature of Services.

3. Technology.

Client Server Architecture.

Front End.

- 4Gh programming languages, such as Visual Basic and PowerBuilder, is used
- Provides the ability to create aesthetically rich and more interactive user-interfaces.

Back end

- Database vendors, Such as Oracle, IBM, Sybase and Microsoft, provided robust RDBMSs that could manage multiple connections.

SOA

Front End

- Newer versions of older programming languages, Such as Visual Basic, are used to create Web Services.

Back End

- Relational databases are used.

4. Security

Client Server Architecture

- Client - Server Security is simple and it is centralized at Server side.

SOA

- SOA Security is complex with respect to degree of Security measure.

5. Administration

Client Server Architecture.

- Administration process is highly burden

SOA

- Administration process is simple and flexible.

SOA vs. Distributed Internet Architecture.

Distributed Internet Architecture.

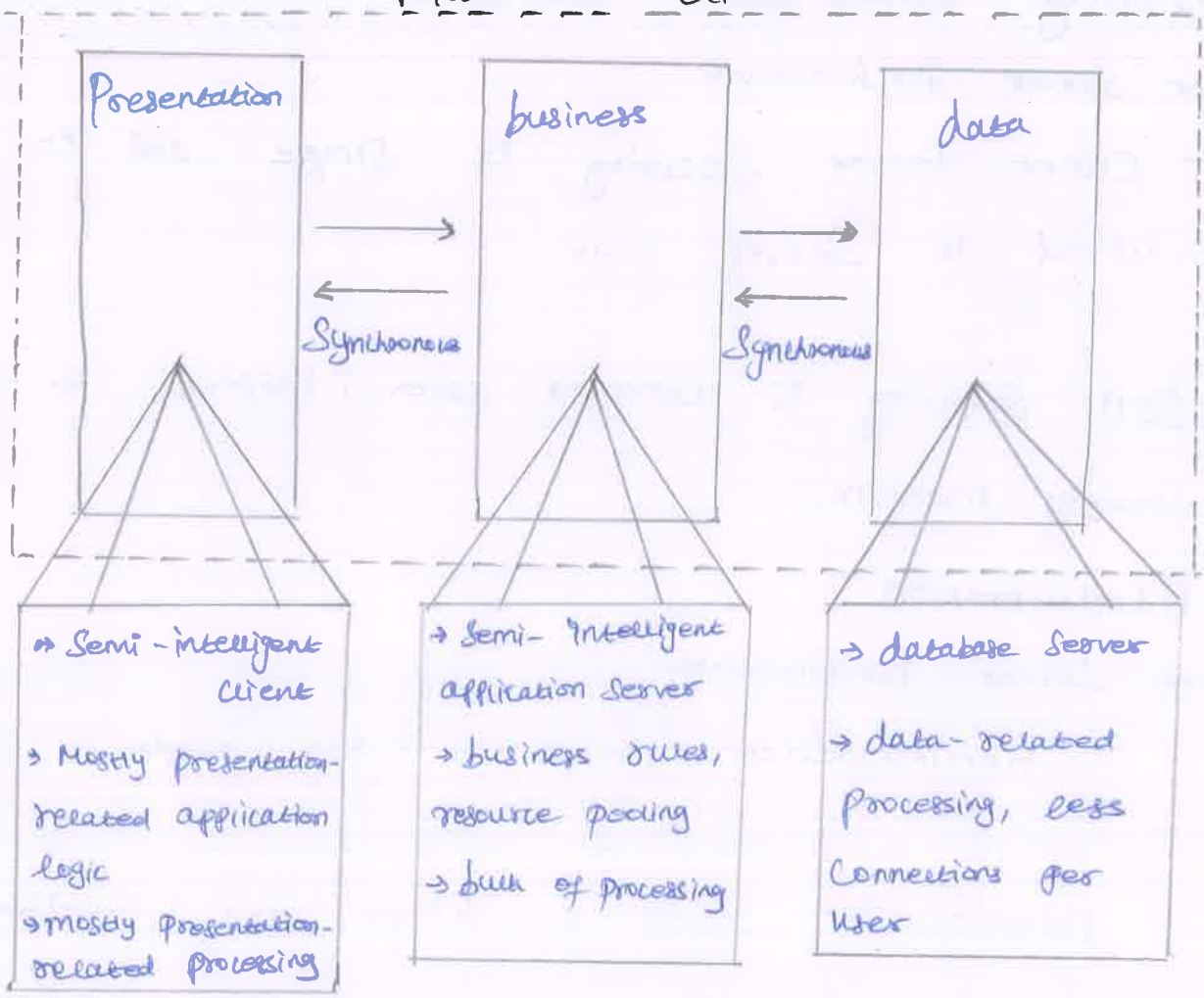
1. Multi-tier Client - Server Architectures

- Multi-tier architecture is a client - server architecture in which the presentation, the application processing, and the data management are logically separate processes.

RPC

Client - Server remote procedure call (RPC) Connections are used for remote communication between components residing on client workstations and

Multi-tier Client-Server



Distributed Internet Architecture.

→ Custom Software Client component are replaced with the browser.

→ Reduces the problem of centralization on server.

→ Provides dedicated servers which shares and manages database connections.

→ Introduces a new physical tier web server, which replaced HTTP by RPC protocol to communicate between client and servers.

Issues.

1. Application logic
2. Application Processing

3. Technology
4. Security
5. Administration

1. Application logic

Distributed Internet Architecture

- All application logic is placed on the Server Side and client-side Scripts are downloaded from the Web Server upon request.
- Components are tightly coupled.
- Reusability is strictly allowed.

SOA

- Provider logic resides on the Server end where it is broken down into separate units.
- Components are loosely coupled.

2. Application Processing

Distributed Internet architecture

- Distributed Internet architecture promotes the use of proprietary communication protocols for remote data exchange.
- Supports creation of Stateful and Stateless components

SOA

- SOA relies on message-based communication.
- Support for stateless services is supported by Content management options
- Asynchronous Patterns encouraged.

3. Technology.

Distributed Internet architecture.

- Distributed Internet architecture consists of components, Server Side Scripts and web technologies like HTML and HTTP.

SOA

- Use XML and web Services

4. Security.

Distributed Internet architecture.

- Traditional Security architectures incorporate delegation and impersonation as well as encryption.

SOA

- SOAs rely on WS- Security to provide Security logic on the messaging level.

5. Administration

Distributed Internet Architecture.

- Introduces the Web Server and physical environment using HTTP

- Maintaining Component - base applications.

SOA

- SOA requires additional runtime administration;

- Problems with Messaging frameworks

- Additional administration of a private or public registry of Services.

Benefits of SOA

The benefits of SOA focus on tangible returns on investment, related primarily to:

- Improved integration
- Inherent reuse
- Streamlined architectures and solutions
- Leveraging the legacy investment
- Establishing standardized XML data representation
- Focused investment on communications infrastructure
- "Best-of-breed" alternatives
- Organizational agility.

Improved Integration

- The solutions are created of SOA that consist of inherently interoperable services. Solutions are utilized based on interoperable services is part of service-oriented integration (SOI) and results in a service-oriented integration architecture.

Inherent reuse.

- Service-orientation promotes the design of services that are inherently reusable.
- Building services to be inherently reusable results in a moderately increased development effort and requires the use of design standards.

Streamlined architectures and Solutions.

- The WS-* platform is based in its entirety on the principle of composability which lead to highly optimized automation environments, where only the technologies required actually become part of the architecture.

Leveraging the legacy investment

- The industry-wide acceptance of the Web Services technology set
  - → Enabling many legacy environments to participate in Service-oriented integration architectures.
  - → Allows IT departments to work toward a state of federation.

Establishing Standardized XML data representation.

- SOA is built upon and driven by XML which leads to the opportunity to fully leverage the XML data representation platform. A Standardized data representation format can reduce the underlying complexity of all affected application environments.

Focused investment on Communications Infrastructure.

- SOA can centralize inter-application and intra-application communication as part of standard IT infrastructure which allows organizations enterprise-wide infrastructure by investing

in a single technology set responsible for communication.

"Best-of-breed" alternatives.

- IT departments are frequently required to push back and limit or even reject requests to alter or expand upon existing automation solutions.

- the potential scope of business requirement fulfillment increases, as does the quality of business automation.

Organizational agility.

- Agility is a quality inherent in just about any aspect of the enterprise.

  - simple algorithm
  - Software component
  - Solution
  - Platform
  - Process.

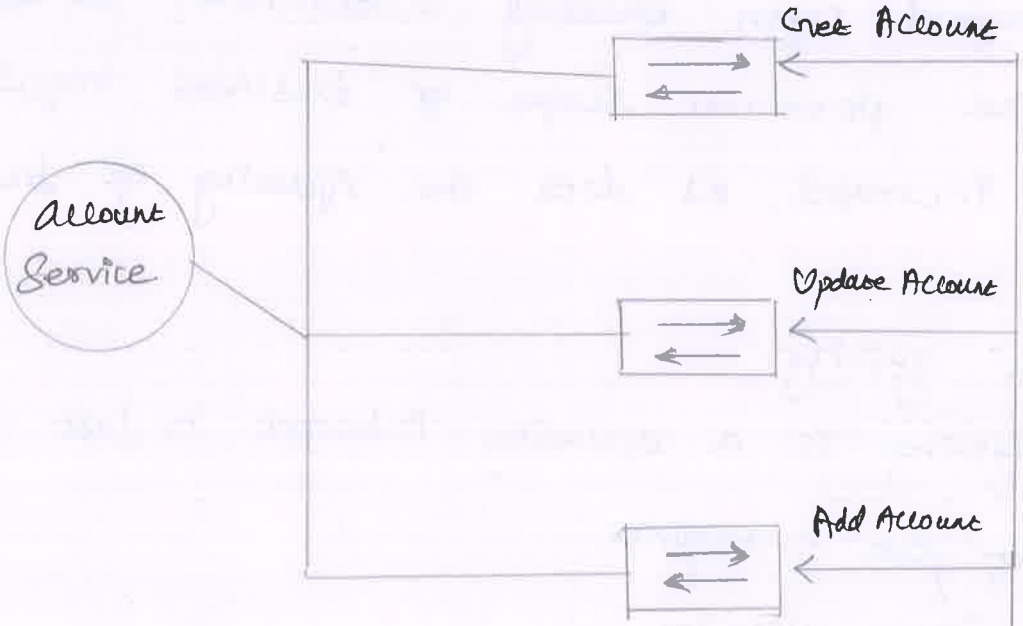
All of these parts contain a measure of agility related to how they are constructed, positioned and leveraged.

PRINCIPLES OF SERVICE ORIENTATION

- A Service-oriented architecture is an environment standardized according to the principles of service-orientation in which a process that uses services can execute.

1. Services are reusable.

- Service Reusability is a design principle that is used to create services that have the potential to be reused across the enterprise resources. The more generic a service's operations are, the more reusable the service.



each operation is reusable by multiple service requestors.

Reusability includes

- Inter-application interoperability
- Composition
- Creation of Cross-cutting or Utility services.

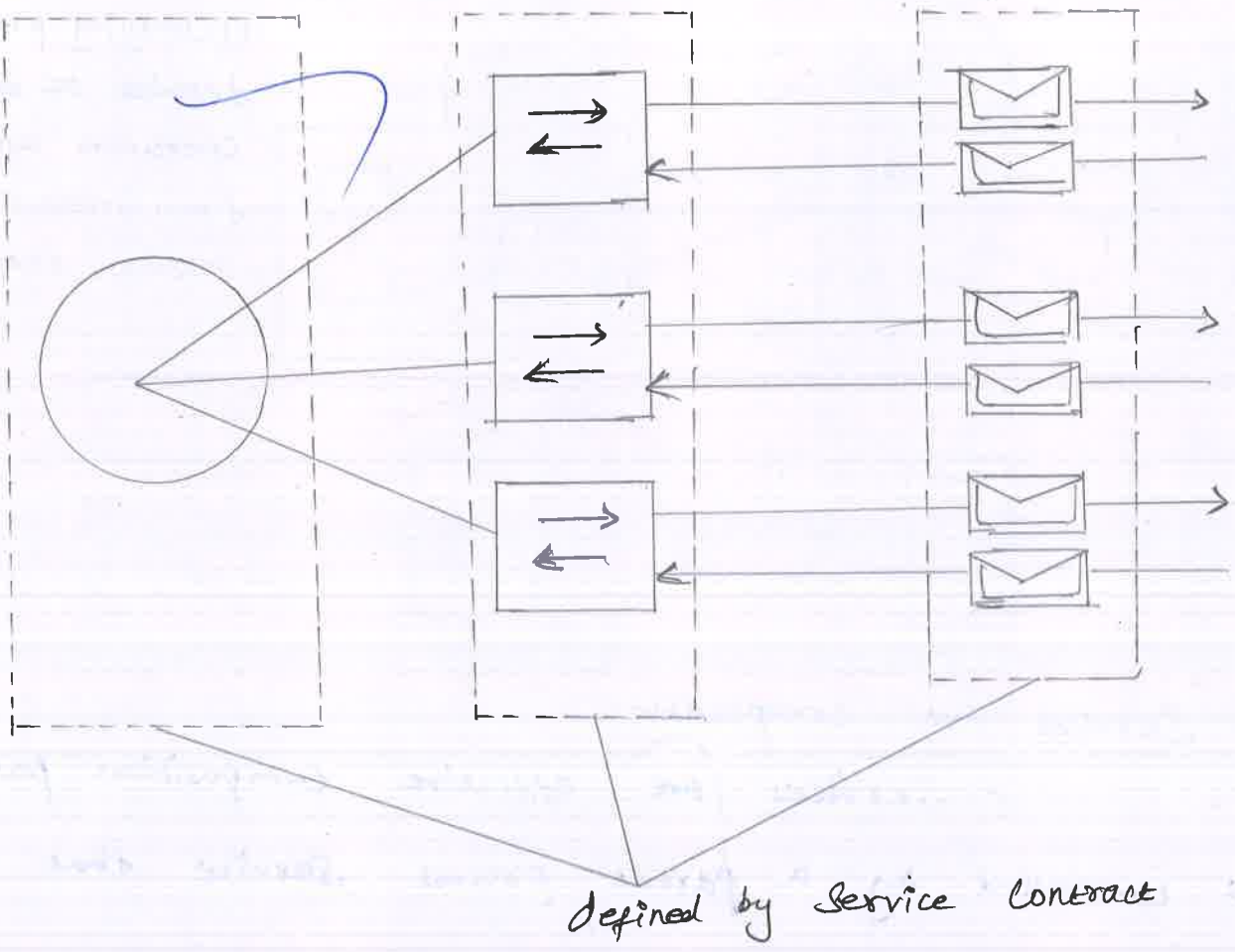
Benefits.

→ Reduce the need for creating wrapper services.

→ Reducing risks by reusing well-tested code and runtime environments.

2. Services Share a formal Contract

- Service Contracts provide a formal definition for all of the primary parts of an SOA.
  - the Service endpoint
  - each Service operation
  - every Input and Output message supported by each operation.
  - rules and characteristics of the Service and its operations.



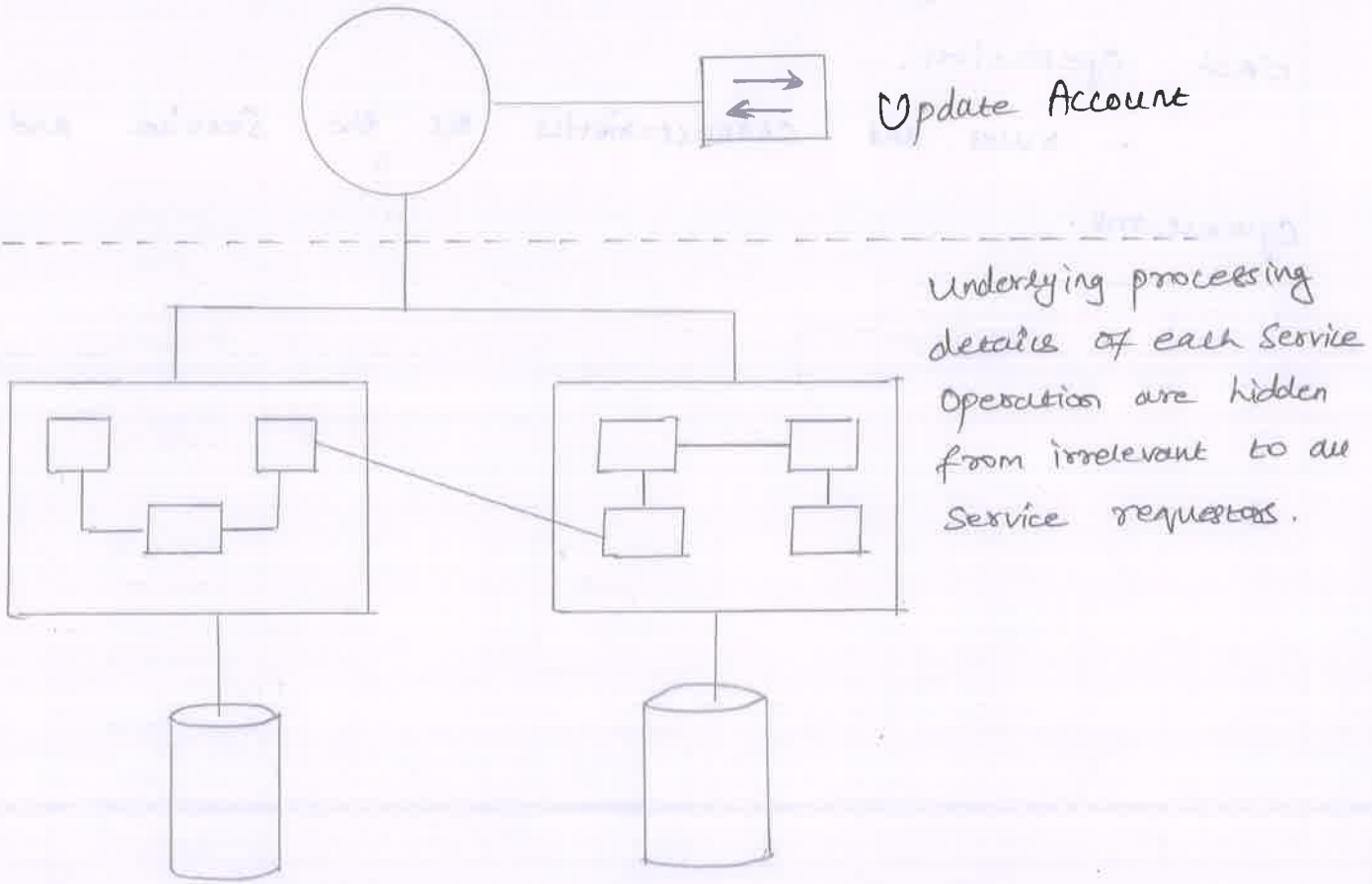
3. Services are loosely coupled.

- Loose coupling is a condition wherein a Service acquires knowledge of another Service while still remaining independent of that Service.
  - It is achieved through the use of Service

Contracts that allow services to interact within predefined parameters.

4. Services abstract underlying logic.

- Service Interface - level abstraction is this principle that allows services details are hidden from the potential customers.



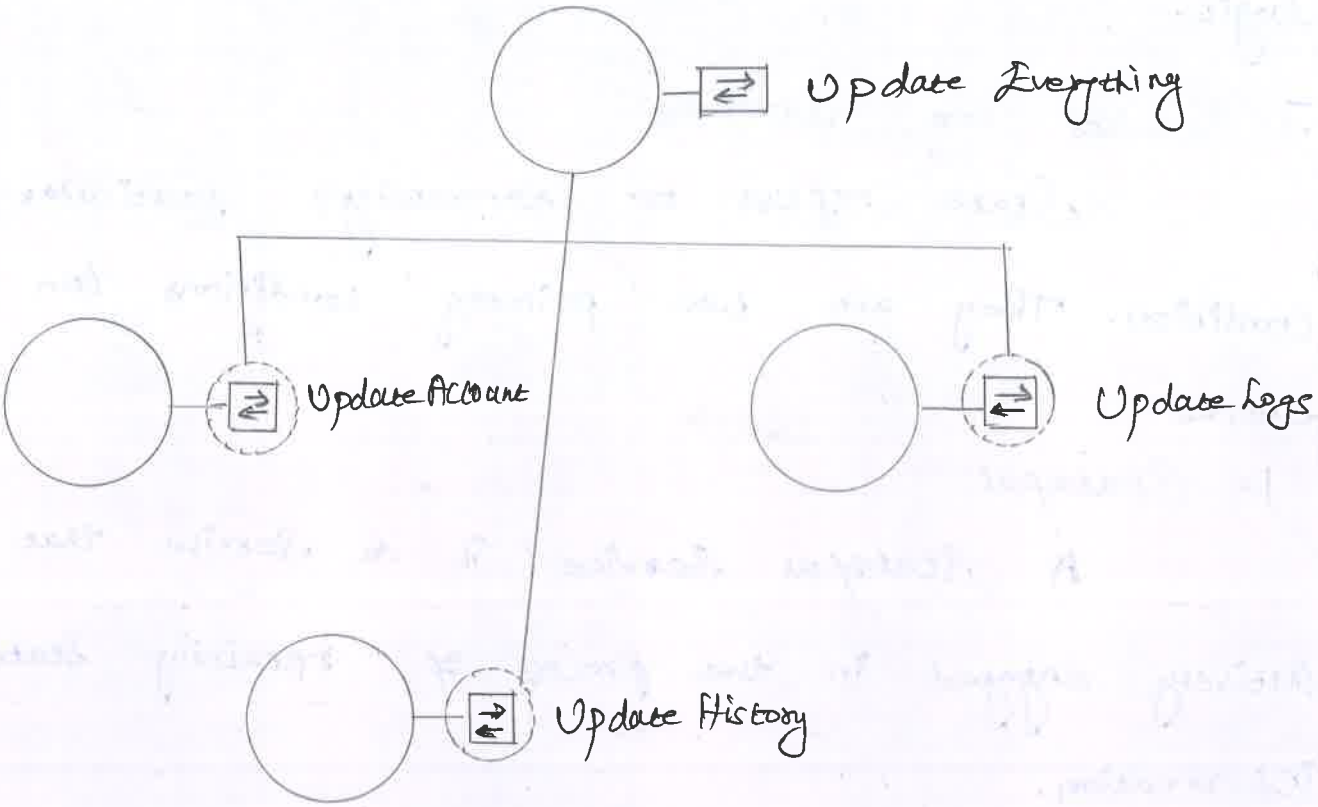
5. Services are composable

- Services are effective composition participants, is controlled by a parent process service that composes process participants.

- A Service composition is an aggregate of Services collectively composed to automate a particular task or business process.

Benefits.

- Reusability
- Emphasis on the design of Service operations



6. Services are autonomous.
- Autonomy allows the service to execute self-governance of all its processing.
- An autonomous service is a service whose ability to function is not controlled or inhibited by other services.

Types of autonomy.

→ Service-level autonomy
- Service boundaries are distinct from each other, but the service may share underlying resources.

→ Pure autonomy.
- When the underlying logic is

built from the ground up in support of the service which have complete control and ownership of that logic.

7. Services are Stateless.

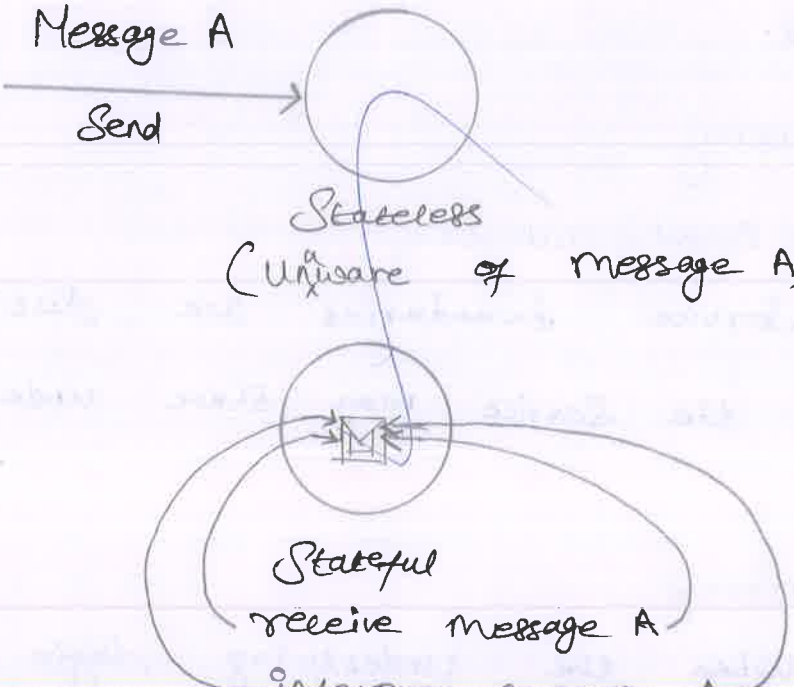
- State refers to something's particular condition. They are two primary conditions can be evoked:

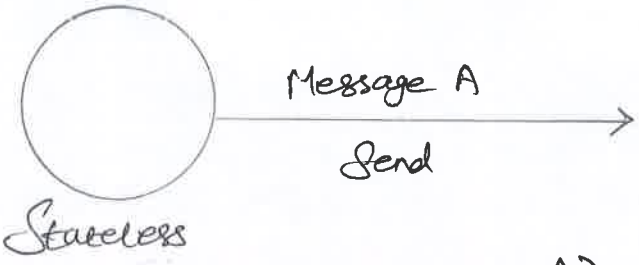
1. Stateful

A Stateful service is a service that is actively engaged in the process of retaining state information.

2. Stateless

A Stateless service is a service whose response does not require access or use of information nor is contained in the input message.





Benefits.

Avoids the accidental creation of redundant Services or Services that implement redundant logic.

Service Layers.

Service Layers describes the functional capabilities of the Services in the SOA.

Service layer abstraction

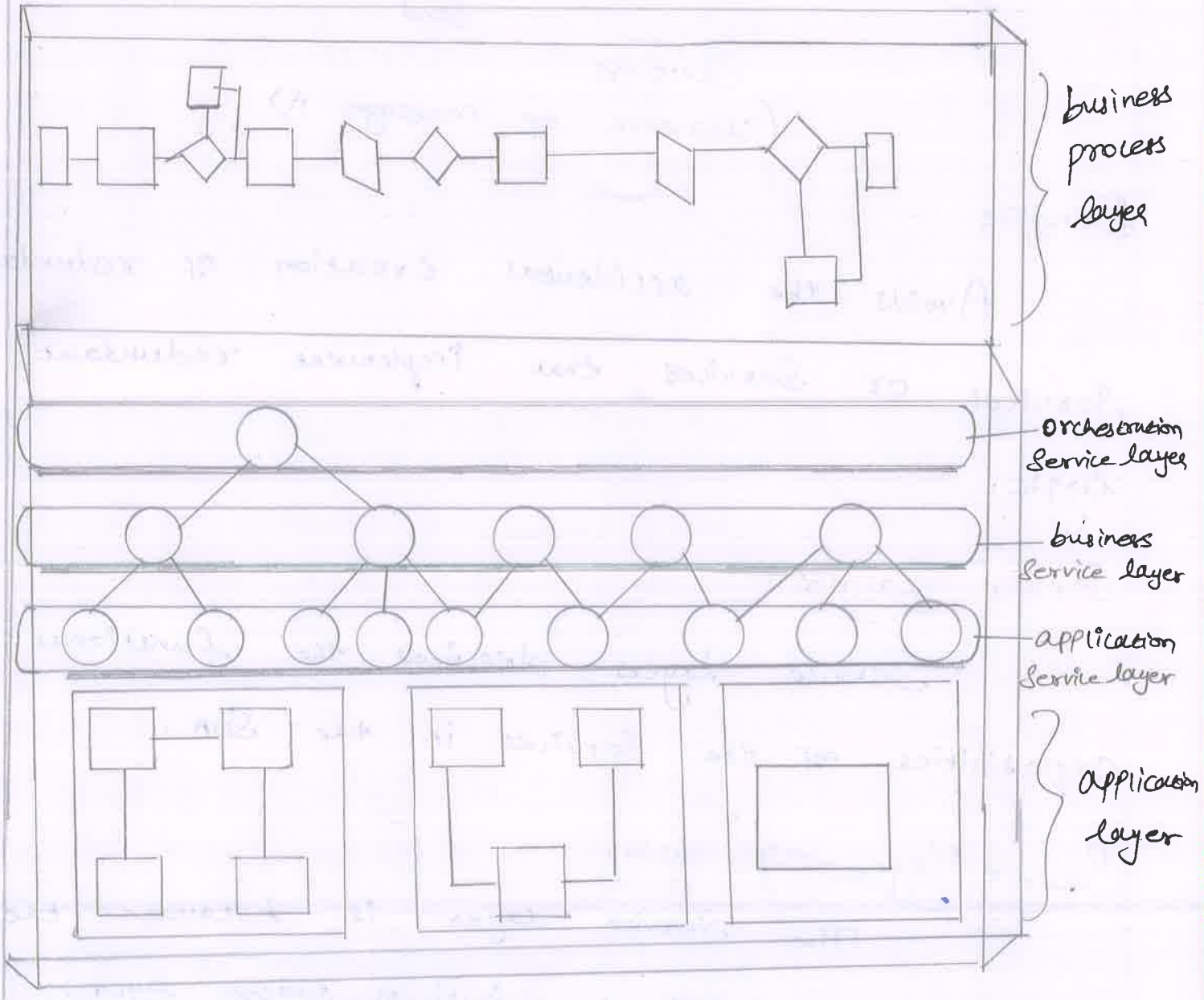
The Service layer is between the application layer and the business process layer.

Layers of abstraction

- Each layer can abstract a specific aspect of the solution, addressing to one of the issues that are identified. The three layers of Abstraction identified for SOA are.

1. The application Service layer
2. The business Service layer

3. The Orchestration Service layer.



Three Primary Service layers.

1. Application Service Layer

- The application service layer consists of application services that represent technology-specific logic.

Examples.

1. Utility models
2. Wrapper models

Characteristics

- Solution - agnostic
- Generic and reusable
- Expose functionality within a specific processing Context

Hybrid application Services

- Services that contain both application and business logic can be referred to as hybrid application Services.

Application Integration Services

- Application Services that exist solely to enable Integration between systems often are referred to as application Integration Services.

Proxy Service.

Proxy Service, also known as an auto-generated WSDL, simply provides a WSDL definition that mirrors an existing Component Interface.

Business Service Layer

- The business service layer is comprised of business services, a direct implementation of the business service model.

Types.

1. Task - Centric business Service

A Service encapsulates business logic specific to a task or business process.

2. Entity - Centric business Service

A Service encapsulates a specific business entity.

→ Highly reusability.

Orchestration Service Layer

- The Orchestration Service layer consists of one or more process Services that compose business and application Services according to business rules and business logic embedded within process definitions.

- Orchestration abstracts business rules and Service execution sequence logic from other Services, promoting agility and reusability.

Two Marks

1. What is architecture).
2. Define Service-oriented architecture.
3. Define Client/Server Architecture.
4. Define Distributed Internet architecture.
5. Define SOA Characteristics.
6. Define WSDL?.
7. List out Some characteristics of contemporary SOA.
8. How loose coupling achieved in SOA?.
9. What are the goals needed for performing a Service-oriented analysis?.
10. Give the step-by-step process in the service-oriented analysis.
11. What are the benefits of SOA).
12. What are the principles of Service orientation?.
13. Define pure autonomy.
14. Define the layers of abstraction.
15. What are the types of business service layer?.
16. What is meant by organizational agility?

SIXTEEN MARKS.

1. Explain how SOA can be compared to Client Server Architecture.
2. Describe the principles of service orientation.
3. Explain in detail about SOA components and how are they interrelate.
4. What is distributed Internet architecture? Compare it with SOA.
5. Compare SOA with Client Server and distributed Internet architectures.

References.

1. Thomas Erl, "Service oriented Architecture : Concepts Technology and Design", Pearson Education, 2005.
2. Ron Schmelzer et al, "XML and Web Services", Pearson Education, 2002.
3. Thomas Erl "SOA Design patterns"
4. Dr. R. Manjula Devi, M. Sangeetha, "Service oriented Architecture", Charulatha publications.

UNIT- III

WEB SERVICES (WS) AND STANDARDS

Web Services Platform.

Web Services

- A Web Service is a Software System designed to support Interopesable machine-to-machine Interaction over a network.

- Web Service is a Standardized medium to propagate Communication between the client and Server applications on the World Wide Web.

Web Services Platform.

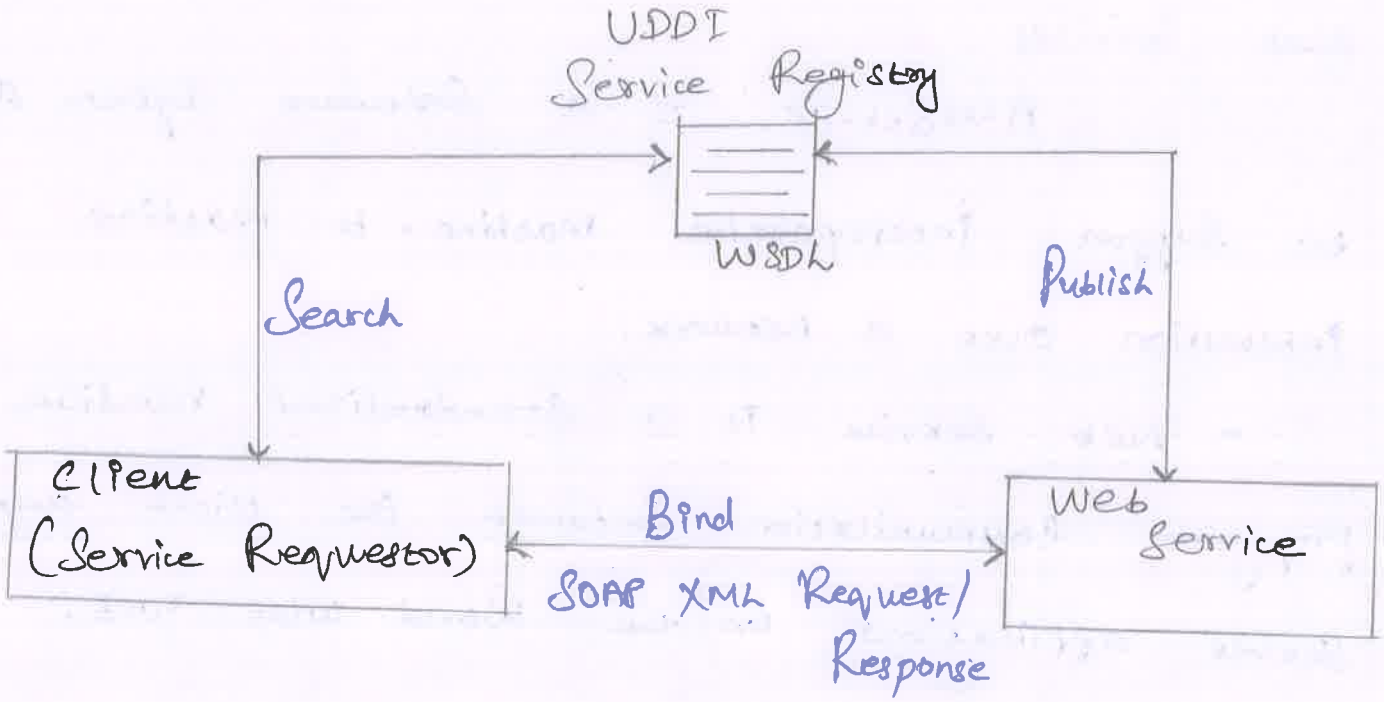
Web Services platform consists of the following Components.

1) UDDI (Universal Description, Discovery & Integration)
2) WSDL (Web Services Description Language)
3) SOAP (Simple Object Access Protocol)

UDDI :

- UDDI is a XML based framework for describing, discovering and Integrating web Services.

- UDDI is a directory of Web Service interfaces described by WSDL, containing information about Web Services.



SOAP

- SOAP is a XML-based protocol for accessing web services.

- SOAP is a W3C recommendation for communication between applications.

- SOAP is XML based, so it is platform independent and language independent.

WSDL.

- WSDL is an xml document containing information about web services such as method name, method parameter and how to

- Abstract description
- Concrete description.

Abstract description

- An abstract description establishes the interface characteristics of the web service without any reference to the technology used to host or enable a web service to transmit messages.

Ports.

The three main parts are.

1. Port Type.
   - Provides a high-level view of the service interface by sorting the messages a service can process into groups of functions.

2. Operation-
   - Represents a specific action performed by the service.

3. Message
   - An operation consists of a set of input and output messages.

Concrete description.

- The concrete description portion of the WSDL file defines the connection needed

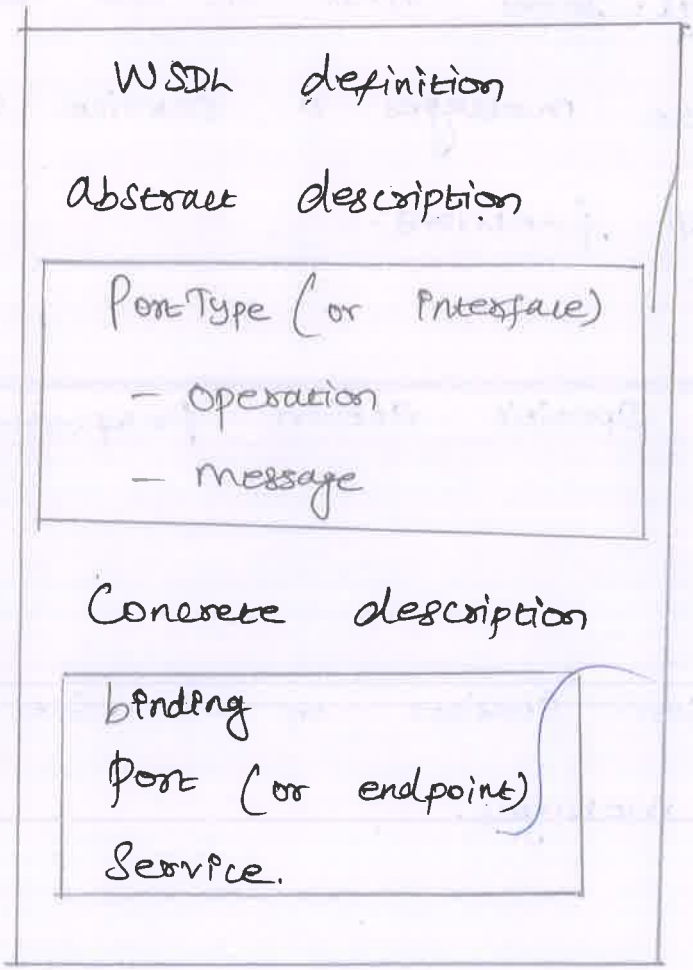
access it.

- WSDL is a part of UDDI. It acts as an interface between web service applications.

Service Descriptions (WSDL)

- The individual documents that comprise a service contract are referred to as service description documents.

- The primary service description document is the WSDL definition.



- A WSDL service description can be separated into two categories.

a physical transport protocol.

The three main parts are

1. Binding
   - Represents one possible transport technology the service can use to communicate.
2. Port
   - Represents the physical address at which a service can be accessed with a specific protocol.
3. Service
   - Refers to a group of related end-points.

The main structure of a WSDL document is

```
<definitions>
  <types>
    data type definitions....
  </types>
  <message>
    definition of the data being communicated...
  </message>
  <port Type>
    Set of operations...
```

</binding>

Protocol and data format Specification...

</binding>

</definitions>

WSDL Example.

```
<definitions name = "HelloService"
  targetNamespace = "http://www.examples.com/wsdl/
                     HelloService.wsdl"
  xmlns = "http://schemas.xmlsoap.org/wsdl/"
  xmlns:soap = "http://schemas.xmlsoap.org/wsdl/soap/"
  xmlns:xsd = "http://www.w3.org/2001/XMLSchema">
  <message name = "SayHelloRequest">
    <part name = "firstName" type = "xsd:string" />
  </message>
  <portType name = "Hello_PortType">
    <operation name = "sayHello">
      <input message = "tns:SayHelloRequest" />
      <output message = "tns:SayHelloResponse" />
    </operation>
  </portType>
</definitions>
```

Messaging with SOAP.

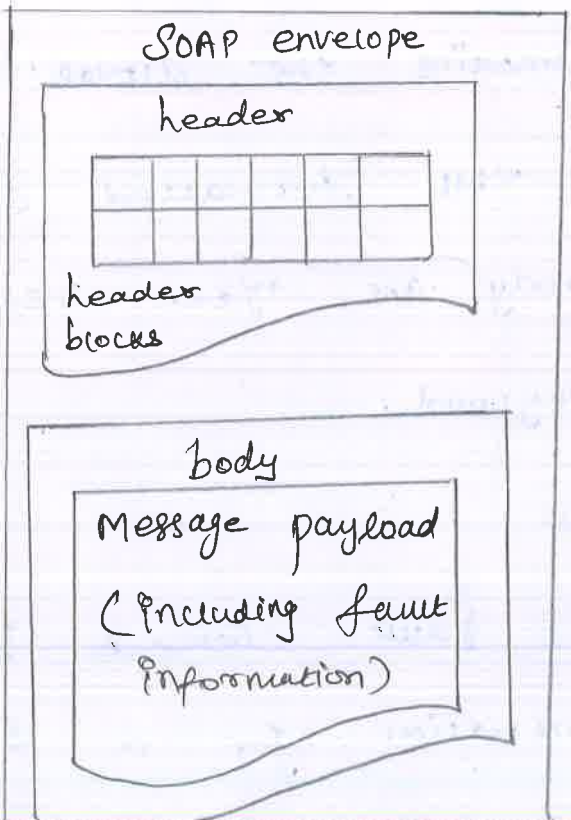
- The Simple Object Access Protocol (SOAP) is used to define a standard message format which is used for communication between services running on different operating systems.

Characteristics.

- Extensibility
- Interoperable
- Independent

Soap Message Format

- SOAP provides the envelope for sending the web services messages over the Internet.
- The basic structure of a SOAP message,



- The Envelope element
- The header element and
- The body element
- The fault element (Optional)

The SOAP envelope.

- The Soap <Envelope> is the root element in every SOAP message. It contains two child elements
  - an optional <Header> and
  - a mandatory <Body>

The SOAP header (optional)

- Header determines how a recipient of a SOAP message should process the message.

The SOAP Body.

- Body contains the actual message content, which consists of XML formatted data. The contents of a message body are often referred to as the message payload.

The SOAP fault

- The Soap fault element holds errors and status information for a SOAP message.

The SOAP fault element has the following sub elements:

Sub Element	Description
<faultcode>	A code for identifying the fault
<faultstring>	A human-readable explanation of the fault
<faultactor>	Information about who caused the fault to happen

Skeleton SOAP message.

```
<? xml version = "1.0" ?>
<Soap:Envelope
  xmlns:Soap = "http://www.w3.org/2003/05/soap-envelope/"
  Soap:encodingStyle = "http://www.w3.org/2003/05/soap-encoding">
  <Soap:Header>
  ...
  </Soap:Header>
  <Soap:Body>
  ...
    <Soap:fault>
    ...
```

</soap:Body>

</soap:Envelope>

Service Discovery

- Service Discovery is the process of finding and identifying a service in a network. It starts with a one-time operation in which the service provider publishes its service in some form of service registry.

- Registry can range from a simple web page to a robust implementation with advanced query capabilities.

Categories.

Service discovery can be divided into two categories.

1. Manual discovery
2. Autonomous discovery.

Manual discovery

- User uses a discovery service to locate and select a service description that meets the desired functional criteria.

Autonomous discovery

- User agent performs the task either at design time or run time.

UDDI (Universal Description, Discovery and Integration)

- UDDI allows Service providers to register their Services and Service Consumers to discover the Services.

- UDDI Supports the description and discovery of

1. Business, Organizations and other Web Service Providers.
2. Available web Services
3. Technical Interfaces which may be used to access these Services.

UDDI Data model

- UDDI XSD defines Several type of Information that provides Several Kinds of Information that the Users and application would Need to know inorder to use a particular web Service.

- Users and applications together form a base Information model and Interaction framework of UDDI registers.

Four main entities of the registry are.

- business Entity
  - describes an organization that provides Web Services.
- business Service.
  - describes a group of related Web Services offered by a business Entity.
- binding Template
  - describes the technical information necessary to use a particular Web Service.
- tModel
  - technical model - a generic container for any kind of Specification.

Information in UDDI Registry

- The UDDI Business Registry System Consists of three directories

White pages

Provides basic information such as a Company name, address and phone numbers, as well as other Standard business Identifiers.

Yellow Pages

- Provides detailed business data, Organized by relevant business classifications.

Green Pages.

- Provides information about a company's key business processes, Such as operating platform, Supported programs, purchasing methods and other higher-level business protocols.

UDDI Nodes, Registries and Affiliated Registries.

Classifications of UDDI Servers are

1. Node

It is a UDDI Server that Supports at least the minimum set of functionality defined in the Specification.

2. Registry

- Registries Composed of one or more nodes. A registry performs the Complete set of functionality defined in the Specification.

3. Affiliated Registries.

- It is an individual UDDI registry that implements policy-based Sharing of information

among them.

- UDDI also provides a set of APIs for clients of a UDDI system:

→ UDDI Subscription listener:

- the client side of the Subscription API.

→ UDDI Value Set:

- Used to Validate the information provided to a UDDI registry.

ORCHESTRATION

- Orchestration has been called the "heart of SOA", as it establishes a means of centralizing and controlling a great deal of inter and intra-application logic through a standardized service model.

- A primary industry specification that standardizes Orchestration is the Web Services Business Process Execution Language (WS-BPEL)

1. Business Protocols and process definition.

Business Protocols.

Defines how participants can interoperate

to achieve the completion of a business task.

Process definition

- Encapsulates and expresses the details of the workflow logic.

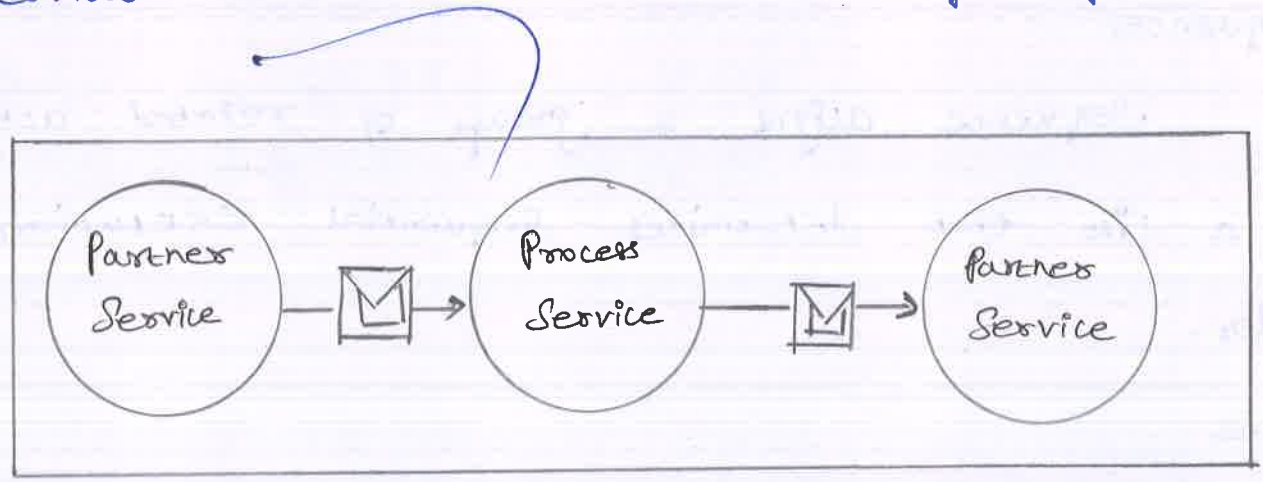
2. Process Services and Partner Services

Process Services

- A process service is the process itself represented as a service.

Partner Services

- Partner Services or partner links is the services allowed to interact with the process service



Process Services and partner Services.

3. Basic activities and Structured activities.

- WS-BPEL breaks down workflow logic into a series of predefined primitive activities

→ Basic Activities represent fundamental workflow

→ Invoke

→ Receive

→ Reply

→ Throw

→ Wait

Structured activities are created by assembling other activities using logics

→ Sequence

→ Switch

→ While

→ Flow

→ Pick

4. Sequences, flows and links.

Sequences

Sequence aligns a group of related activities in a list that determines sequential execution order.

Flows

Flow also contains group of related activities but activities can be executed concurrently.

Links

Links are used to establish formal dependencies between activities that are part of a flow. Links are also known as synchronization dependencies.

5. Orchestrations and activities

- A single orchestration scope can be classified as a complex, and most likely, long-running activity.

6. Orchestration and coordination

WS-BPEL fully utilizes WS-Coordination context management framework by incorporating the WS-Business Activity coordination type.

7. Orchestration and SOA

Service-oriented solution environments achieves the following characteristics.

→ Composability

→ Interoperability

→ Extensibility

→ Vendor Diversity.

CHOREOGRAPHY

- Choreography is a complex activity comprised of a service composition and a series of MEPs. The Web Services Choreography Description Language (WS-CDL) is the specification that represents the choreography.

1. Collaboration

The goal is to enables an organized Collaboration between Services representing different Service entities, Only no one entity necessarily controls the Collaboration logic.

2. Roles and participants.

Roles

- Roles establish what the Service does and what the Service can do within the Content of a particular business task.

Participants

- Participants are the roles that bounded to WSDL definitions, and those related are grouped.

3. Relationships and Channels.

Relationship

Relationship defines potential exchange between two roles in Choreography. Every relationship Consequently consists of exactly two roles.

Channels.

Channels define the Characteristics of the Message exchange between two Specific roles.

4. Interactions and work units

behind a message exchange.

- Work units are the rules and constraints that must be adhered to for an interaction to successfully complete.

5. Reusability, Composability and Modularity.

→ Designed choreography can be applied to different business tasks comprised of the same fundamental actions.

→ Choreography can be assembled from independent modules that can represent distinct sub-tasks.

→ Choreography composes a set of non-specific services to accomplish a task.

6. Orchestrations and Choreographies.

- An orchestration expresses organization specific business workflow.

- A Choreography is not owned by a single entity, it acts as a community interchange pattern used for collaborative purposes by services from different provider entities.

7. Choreography and SOA

- Choreography can assist in the realization of SOA across organization boundaries. It support the following SOA characteristics.

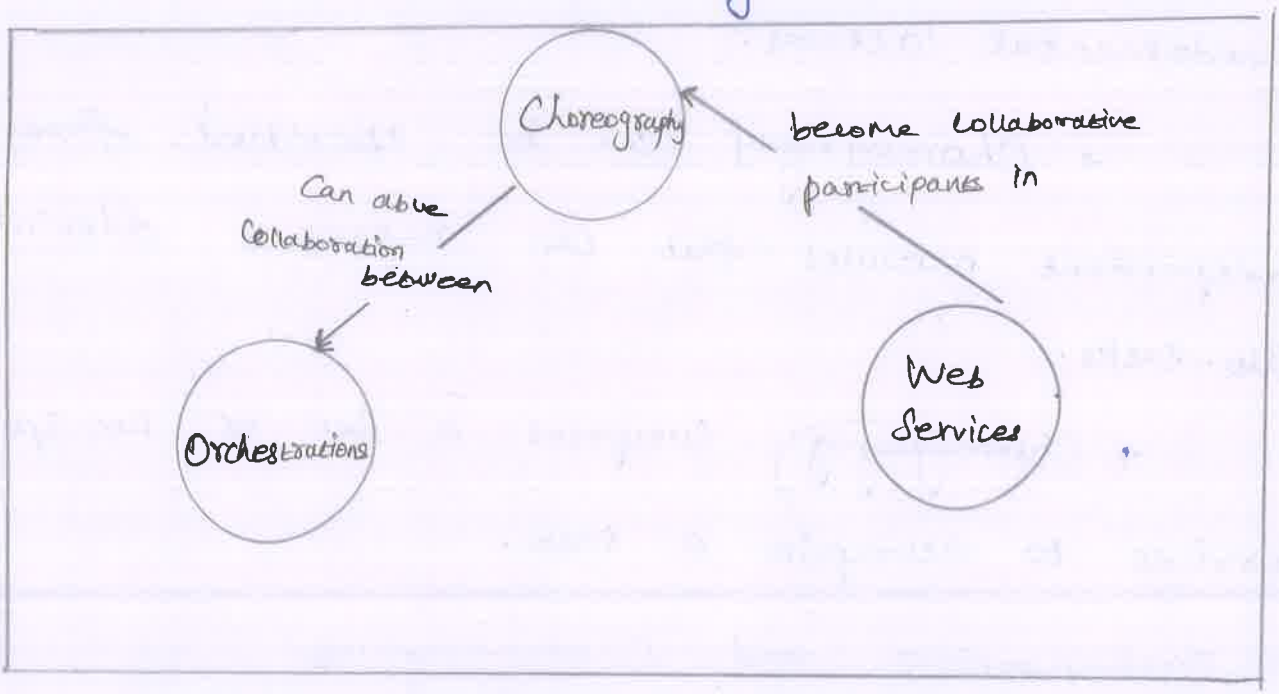
→ Composability

→ Reusability

→ Extensibility

→ Increase organizational agility

→ discoverability.



Choreography and SOA.

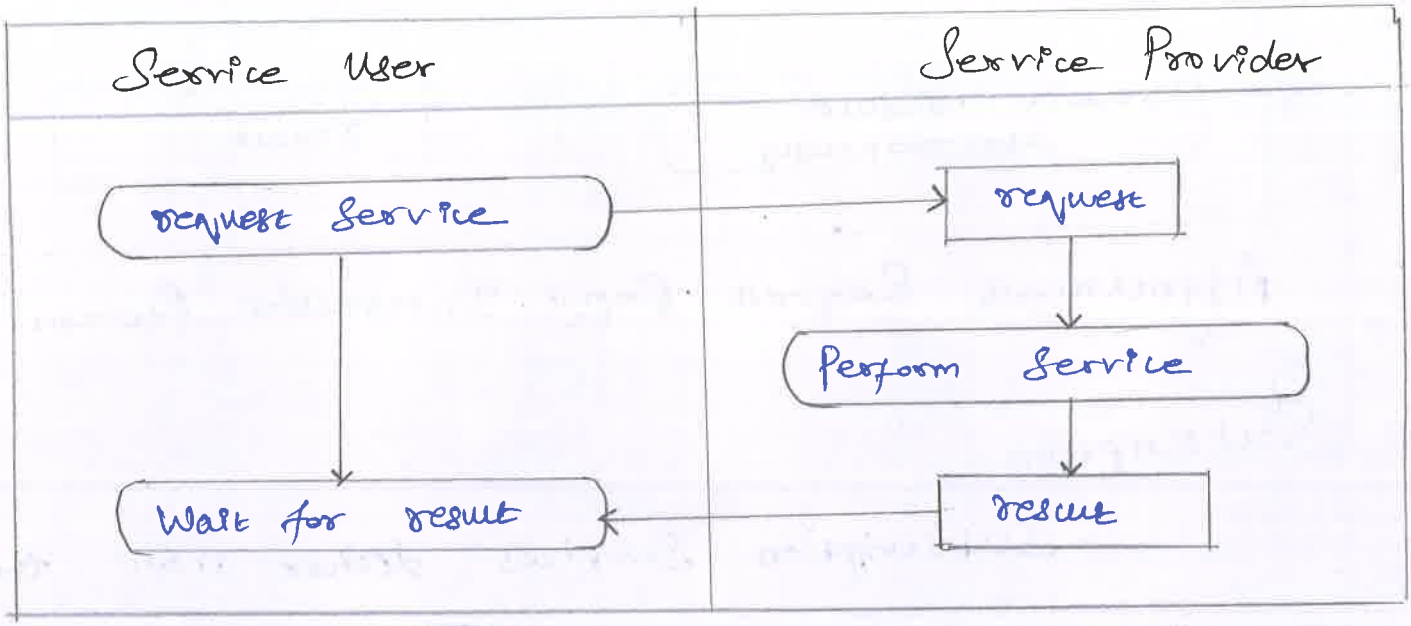
Service-Level Interaction Patterns.

Synchronous Request-Reply.

- The Service user ask the Service Provider to perform the Service - and then waiting for the result. This style of interaction is characterized by the synchronous request-reply

pattern.

- The requester sends a request and waits for a response message. The service provider receives the request message and responds with either a response or a fault message.

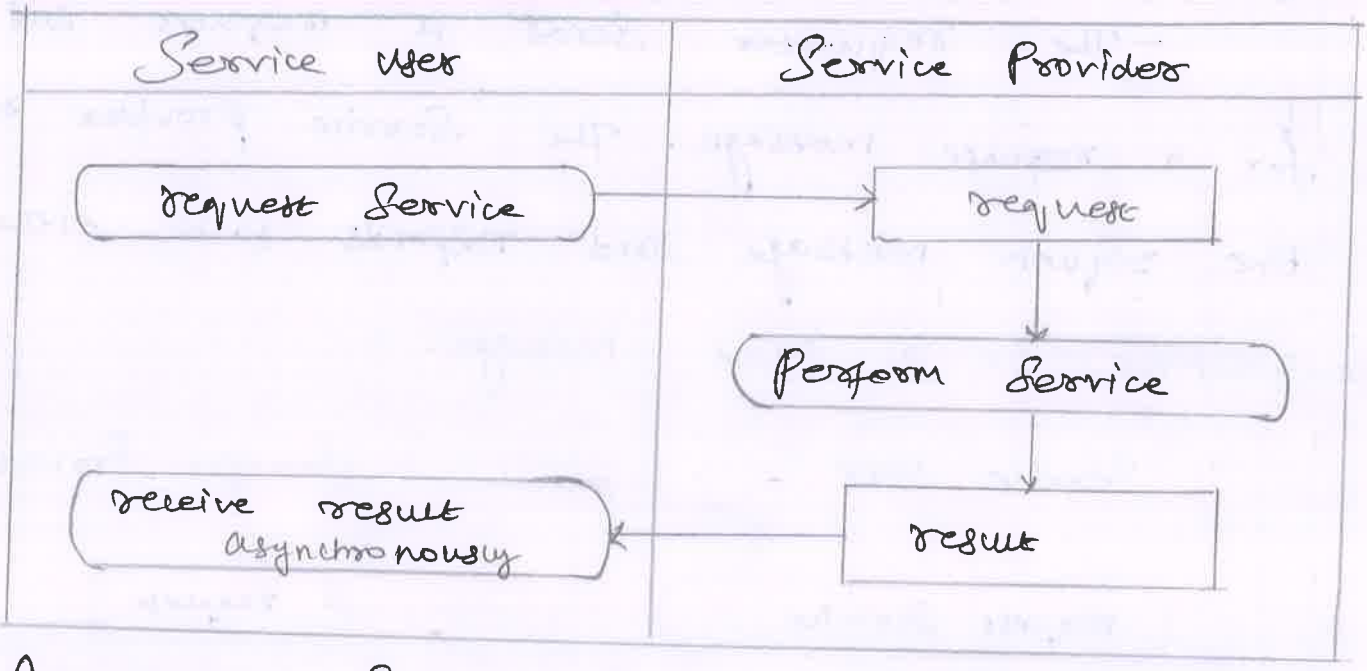


Synchronous Request - Reply Interaction Pattern

Asynchronous Request - Reply

- When we order a book online, the book does not arrive while we are still sitting at the keyboard!. We don't wait for the book, to the exclusion of all other activity, until it arrives. Instead, we go off about our business for a few days until the book is delivered. This is the style of interaction represented by the asynchronous request - reply

pattern.



Asynchronous Request-Reply Interaction Pattern

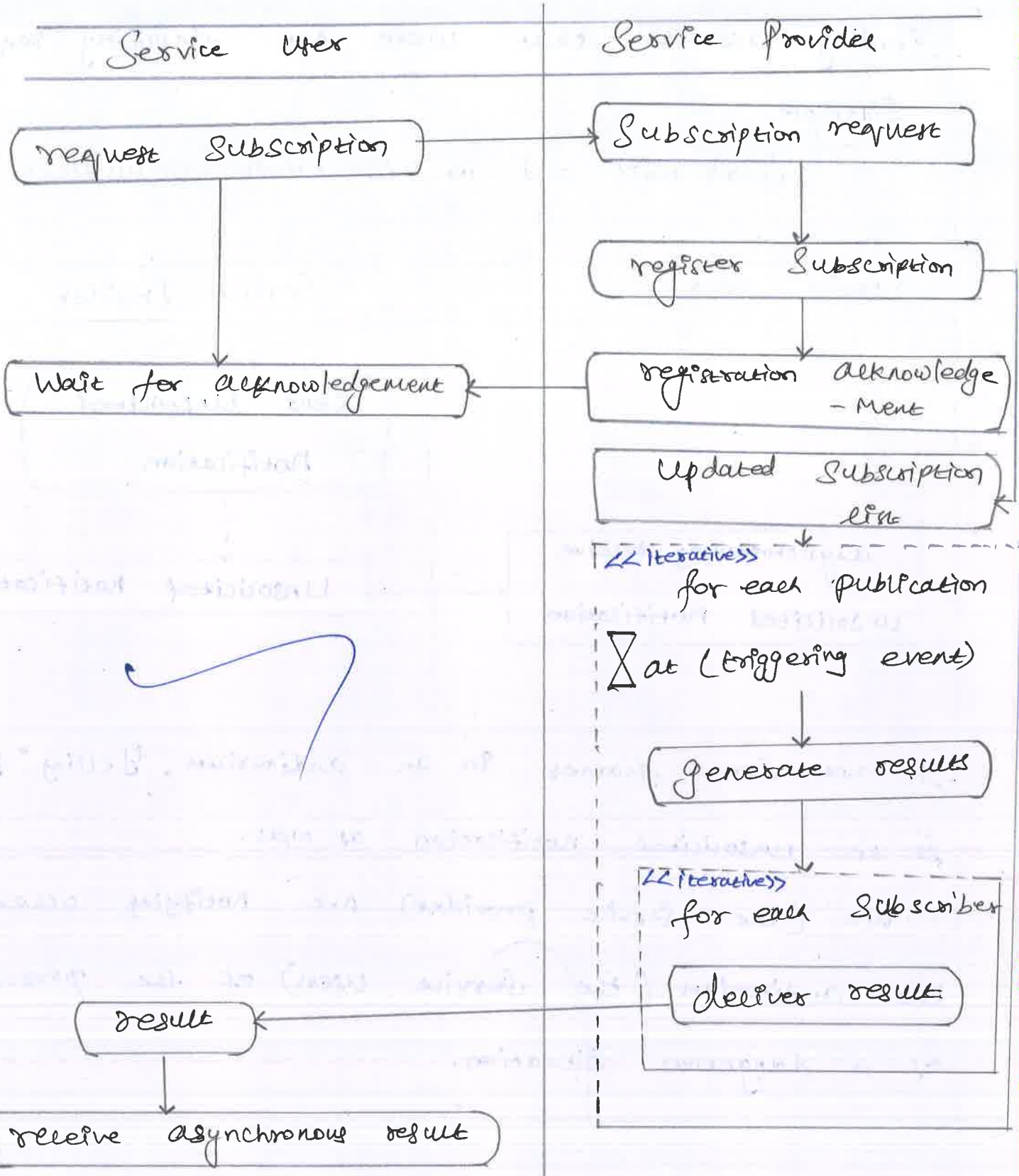
Subscription.

- Subscription Services deliver more than One result.

- They provide an ongoing series of results spread out over time.

- Our newspaper subscription is an example of this type of service, as are the stock market activity alerts delivered to our phone or computer.

- The Service User provides an interface for the subsequent delivery of the expected results.



Subscription Interaction Pattern.

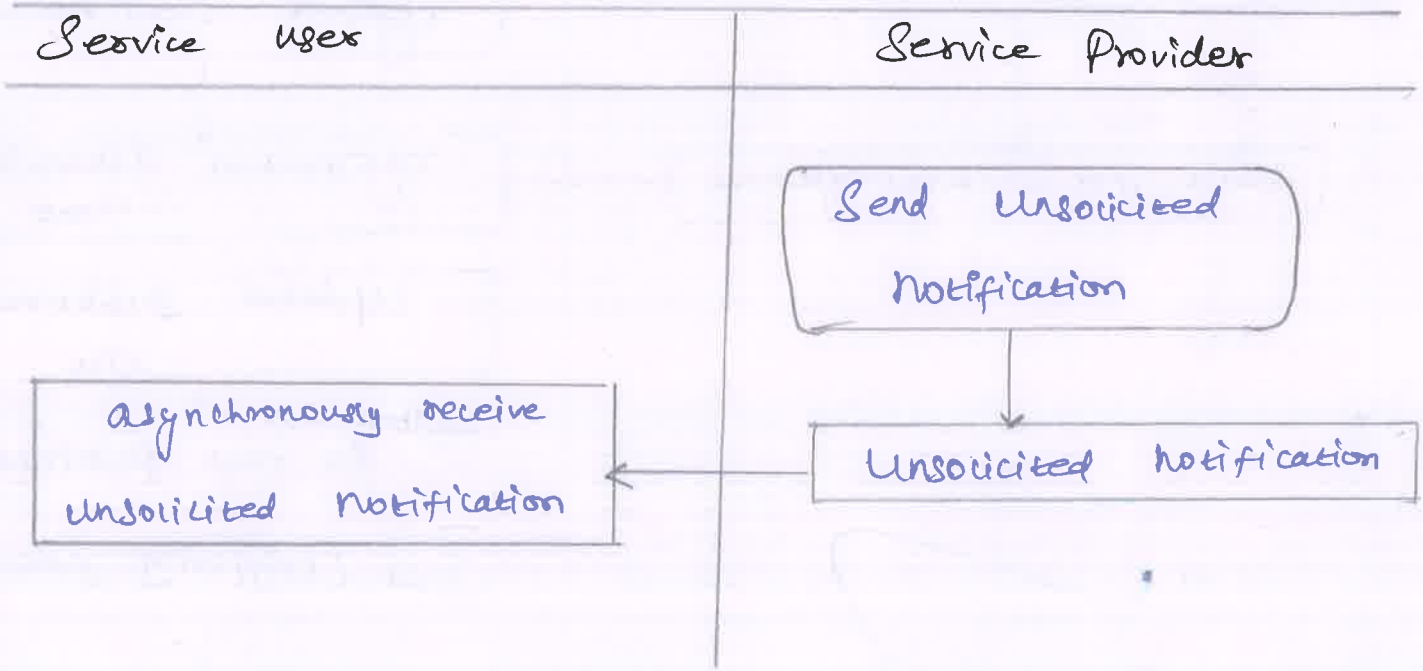
Unsolicited Notification.

- Once a Service provider becomes aware of the presence of a delivery interface, there is nothing stopping the Service Provider from

Sending results that were not explicitly requested.

Example,

Junk mail and its electronic equivalent Spam,



- If we see flames in an auditorium, Yelling "Fire!" is an unsolicited notification as well.
- We (the service provider) are notifying others in the auditorium (the service users) of the presence of a dangerous situation.

TWO MARKS

1. What is Web Service?.
2. What are web Services?.
3. Define Soap Message.
4. Define Request - Response.
5. Define Orchestration
6. Define Choreography.
7. Sketch the anatomy of a SOAP message.
8. What is UDDI ?.
9. List any four pitfalls of SOA.
10. Define WSDL.
11. List out the elements in the WSDL Document Structure.
12. Describe the Message elements.
13. Define the binding element.
14. Give the Skeleton for the Envelope element.
15. What is the fault element?.
16. What are the web services framework?.
17. What are the fundamental Service roles in web Servic
18. List out the COMMON Service models.
19. Define Node.

SIXTEEN MARKS.

1. What is SOAP? What are the building blocks of SOAP? With a simple example explain how the request is send to a server and the response is received from the server.

2. Elaborate the technical requirements of Orchestration and Choreography.

3. Briefly explain about WSDL basics with examples.

4. Explain UDDI & its types.

5. Explain in detail the Service Level Interaction Patterns.

Verified

References.

1. Thomas Erl, "Service oriented Architecture : Concepts Technology and Design", Pearson Education, 2005.

2. Ron Schmelzer et al, "XML and Web Services", Pearson Education, 2002.

3. Dr. R. Manjula Devi, M. Sangeetha, "Service oriented Architecture", Charulatha Publications.

UNIT - IV

WEB SERVICES EXTENSIONS

WS- ADDRESSING

WS- Addressing introduce two important Concepts.

→ endpoint references and

→ Message Information headers.

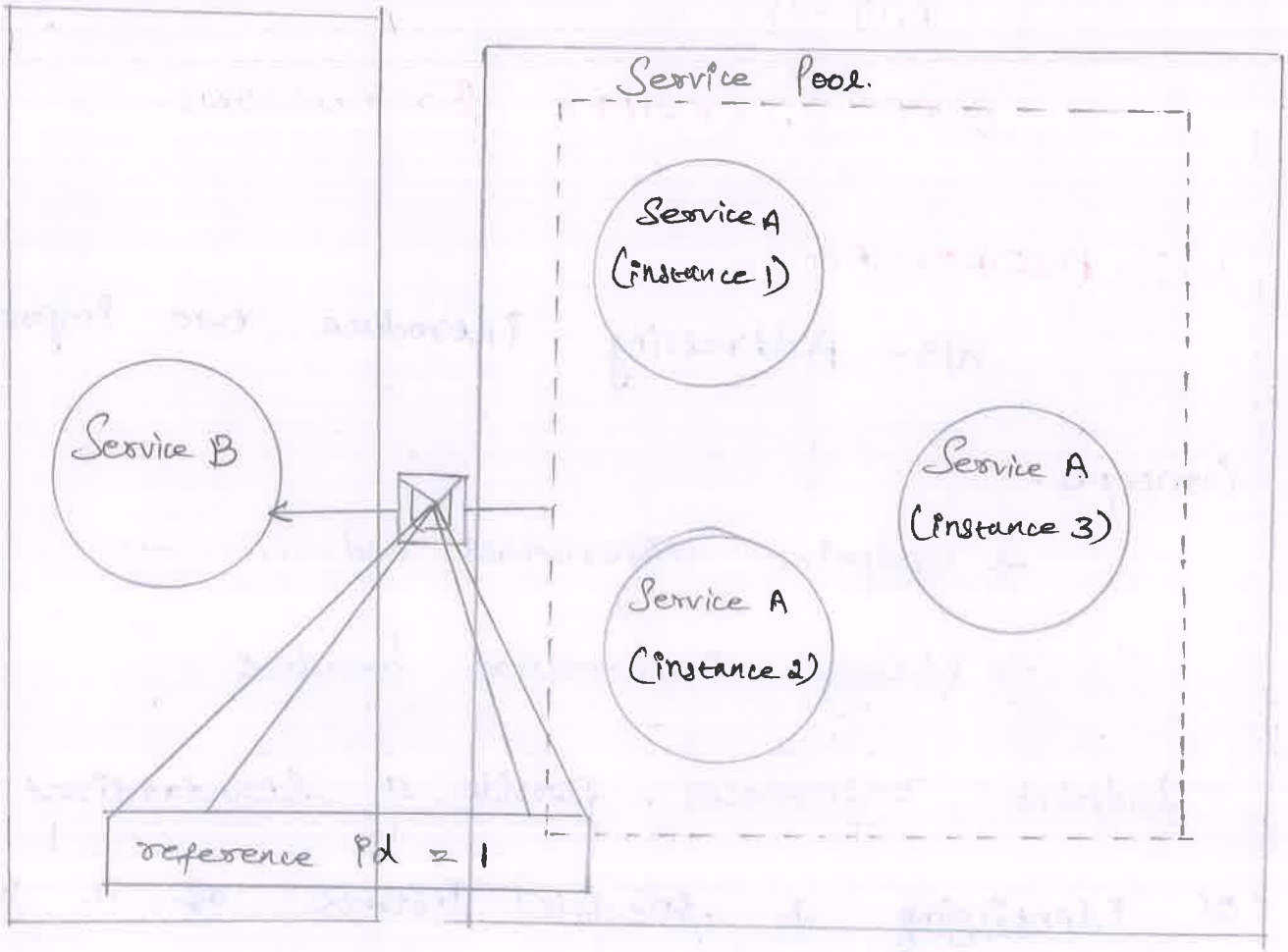
- Endpoint references provide a standardized means of identifying a specific instance of a web Service.

- Message Information headers add message exchange properties to a specific message, conveying interaction Semantics to recipient services.

1. Endpoint references

- The endpoint reference, an extension used primarily to provide identifiers that pinpoint a particular instance of a Service.

- The endpoint reference is expected to be almost always dynamically generated and can contain a set of supplementary properties.



A SOAP message Containing a reference to the Instance of the Service that Sent it.

An endpoint reference Consists of the following Parts:

Address - The URL of the Web Service

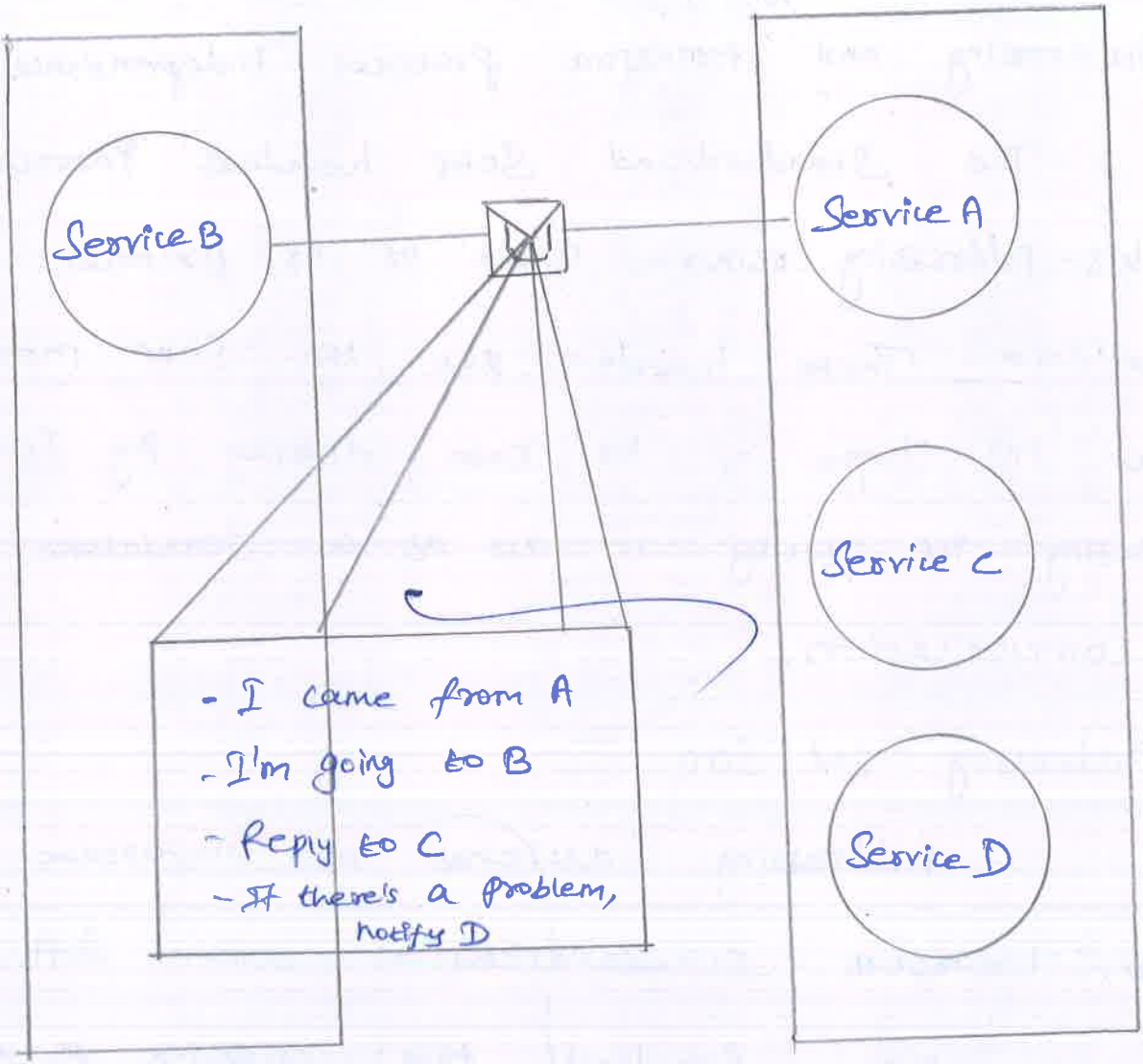
reference properties - A set of property values associated with the Web Service Instance.

reference Parameters - A set of parameter values that can be used to further interact with a Specific Service Instance.

Service Port type - Specific Service Interface Information giving the recipient of the Message the exact location of Service description details required for a reply.

2. Message Information headers.

- The extensions provided by WS-Addressing were broadened to include new SOAP headers that establish message exchange-related characteristics within the message themselves. This collection of standardized headers is known as the message information (or MI) headers.



The MI headers provided by WS-Addressing include:

destination - The address to which the message is being sent

Source endpoint - An endpoint reference to the Web Service that generated the message.

reply endpoint - This important header allows a message to dictate to which address its reply should be sent.

message id - A value that uniquely identifies the message or the retransmission of the message.

action - A URI value that indicates the message's overall purpose.

3. Addressing and transport protocol independence.

- The standardized SOAP headers introduced by WS-Addressing remove much of its protocol-level dependence. These headers put the SOAP message itself in charge of its own destiny by further increasing its ability to act as a standalone unit of communication.

4. Addressing and SOA

- Addressing achieves an important low-level, transport standardization within SOA, further promoting open standards that establish a level of transport technology independence.

- The use of endpoint references and MI headers deepens the intelligence embedded into SOAP messages, increasing message-level autonomy.

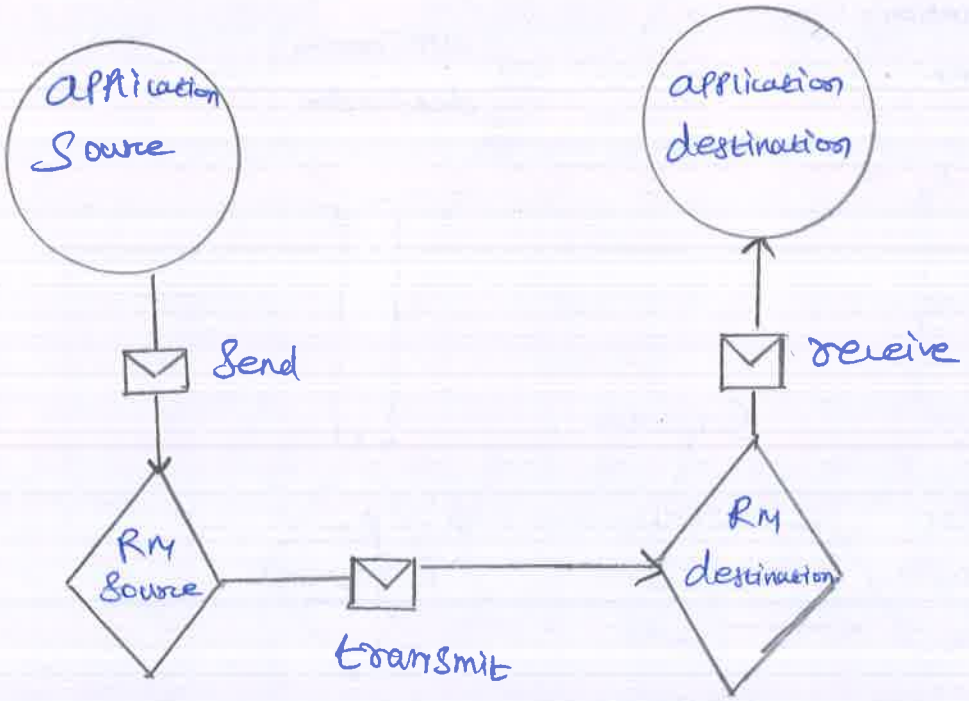
WS - Reliable messaging.

- WS - Reliable messaging establishes a framework that guarantees the delivery of a SOAP message or the reporting of a failure condition

1. RM Source, RM Destination, Application Source and Application Destination

- An application Source is the Service or application logic that Sends the message to the RM Source, the physical processor or node that performs the actual wire transmission.

- RM destination represents the target processor or node that receives the message and subsequently delivers it to the application destination.



2. Sequences

- A Sequence establishes the order in which

messages should be delivered.

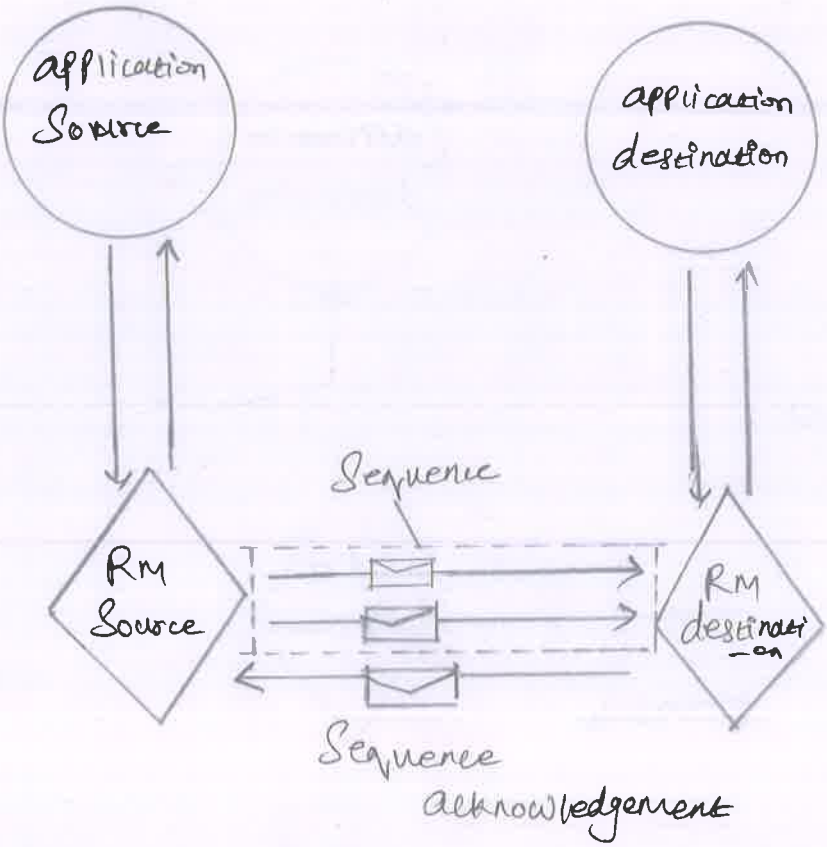
- Each message that is part of a sequence is labeled with a message number that identifies the position of the message within the sequence.

3. Acknowledgements.

— Upon receipt of the message containing the last message identifier, the RM destination issues a sequence acknowledgement.

- The acknowledgement message indicates to the RM source which messages were received.

- The RM source may retransmit any of the missing messages, depending on the delivery assurance used.



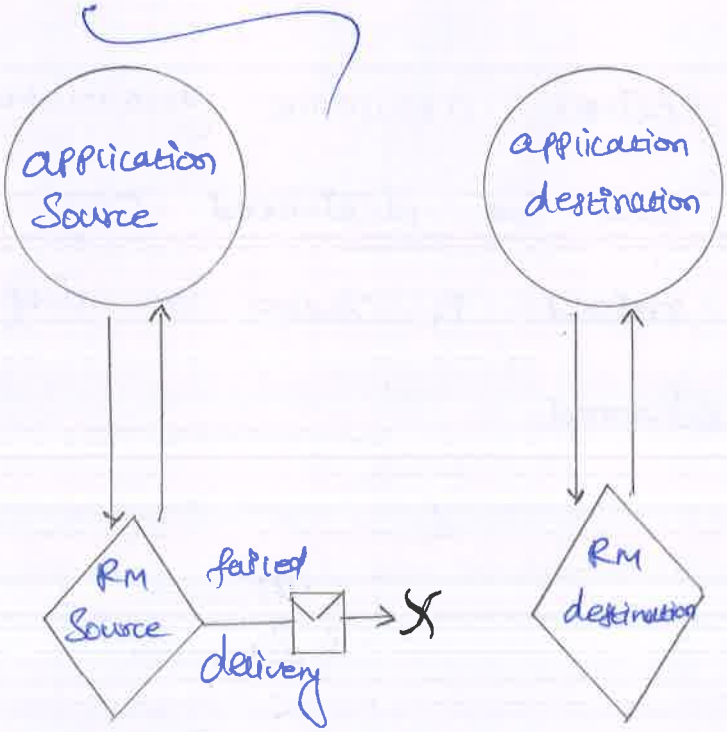
4. Delivery Assurances

- The nature of a Sequence is determined by a set of reliability rules known as delivery assurances.

- The following delivery assurances are supported:

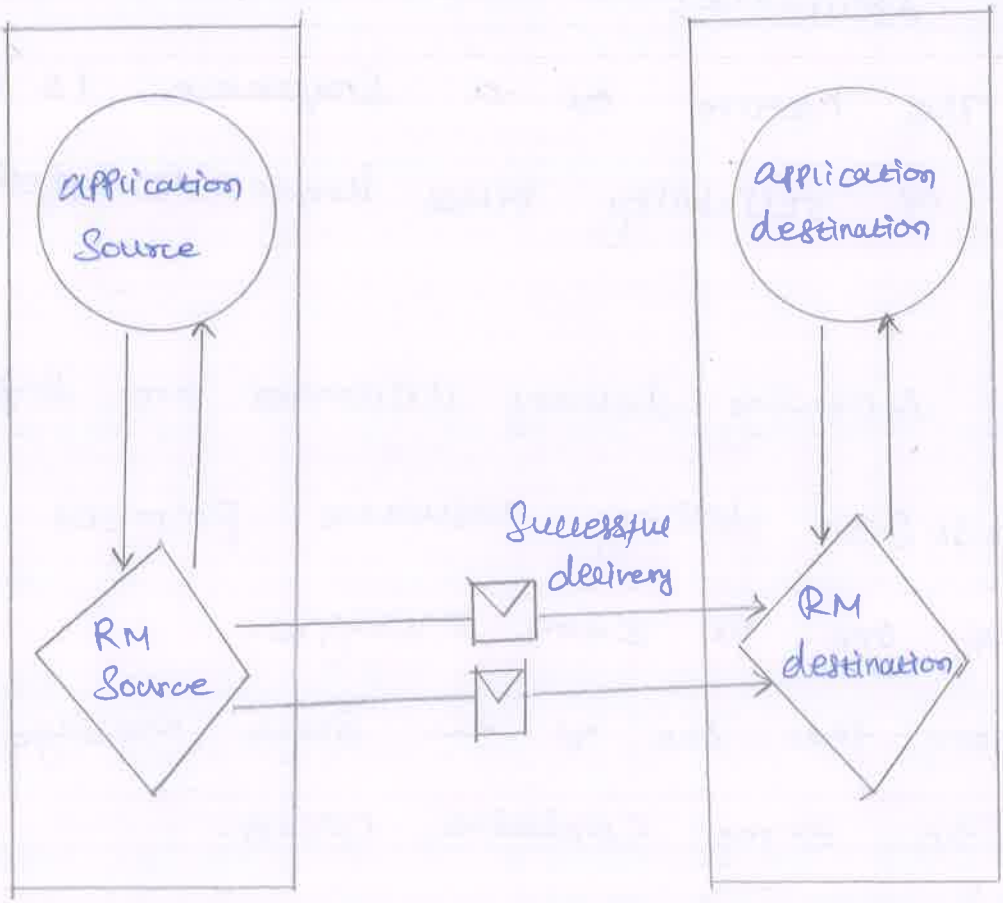
The AtMostOnce delivery assurance promises the delivery of one or zero messages.

- If more than one of the same message is delivered, an error condition occurs.



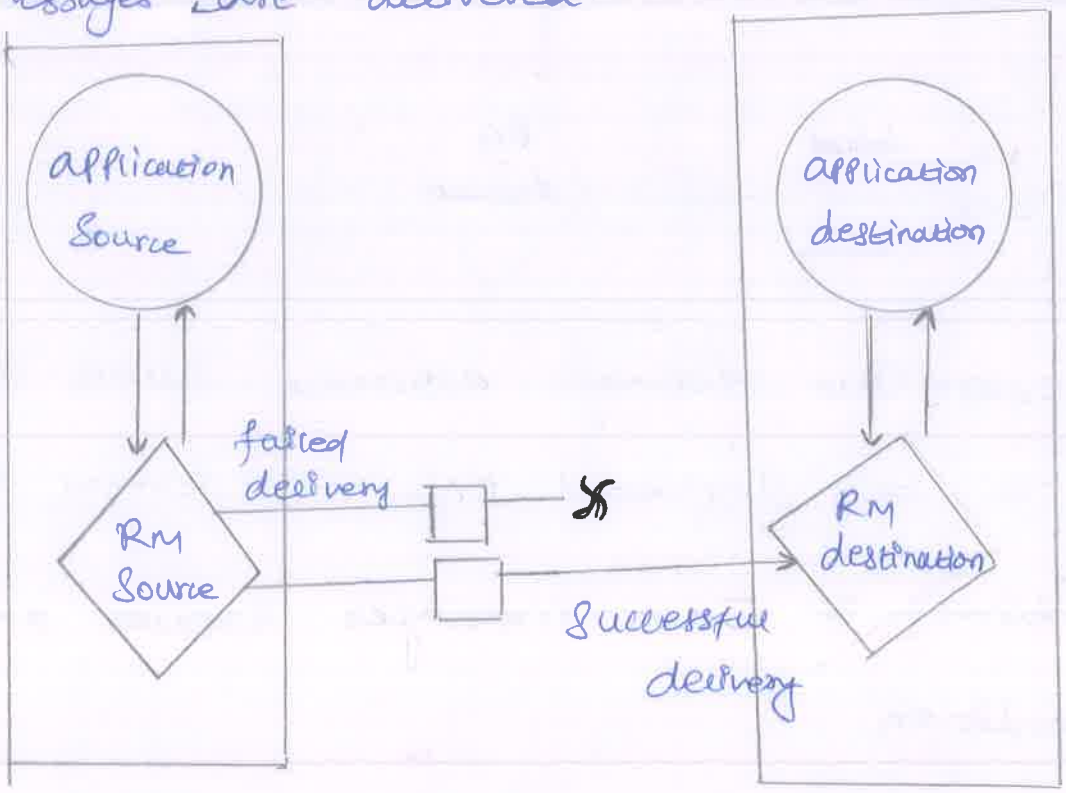
- The AtLeastOnce delivery assurance allows a message to be delivered once or several times.

- The delivery of zero messages creates an error condition.



The Exactly Once delivery assurance guarantees that a message only will be delivered once.

- An error is raised if zero or duplicate messages are delivered.



5. Reliable messaging and addressing.

- Originally, message Id values always had to be unique. However, the delivery assurances supported by WS-Reliable Messaging required the ability for services to retransmit identical messages in response to communication errors.

- The subsequent release of WS-Addressing, allowed retransmissions to use the same message ID

6. Reliable messaging and SOA

- Reliable messaging brings to service-oriented solutions a tangible quality of service.

- It introduces a flexible system that guarantees the delivery of message sequences supported by comprehensive fault reporting.

WS-Policy.

Web Services Policy Framework (WS-Policy) provides a general purpose model and corresponding syntax to describe and communicate the policies of a Web Service.

WS-Policy specifies;

1. An XML-based structure called a policy expression

containing policy information.

2. Grammar elements to indicate how the contained policy assertions apply.

Goal.

The goal of WS-Policy is to provide the mechanisms needed to enable Web services applications to specify policy information.

Policy → refers to the set of information being expressed as policy assertions.

Policy assertion → represents an individual preference, requirement, capability, etc.

Policy expression → set of one or more policy assertions.

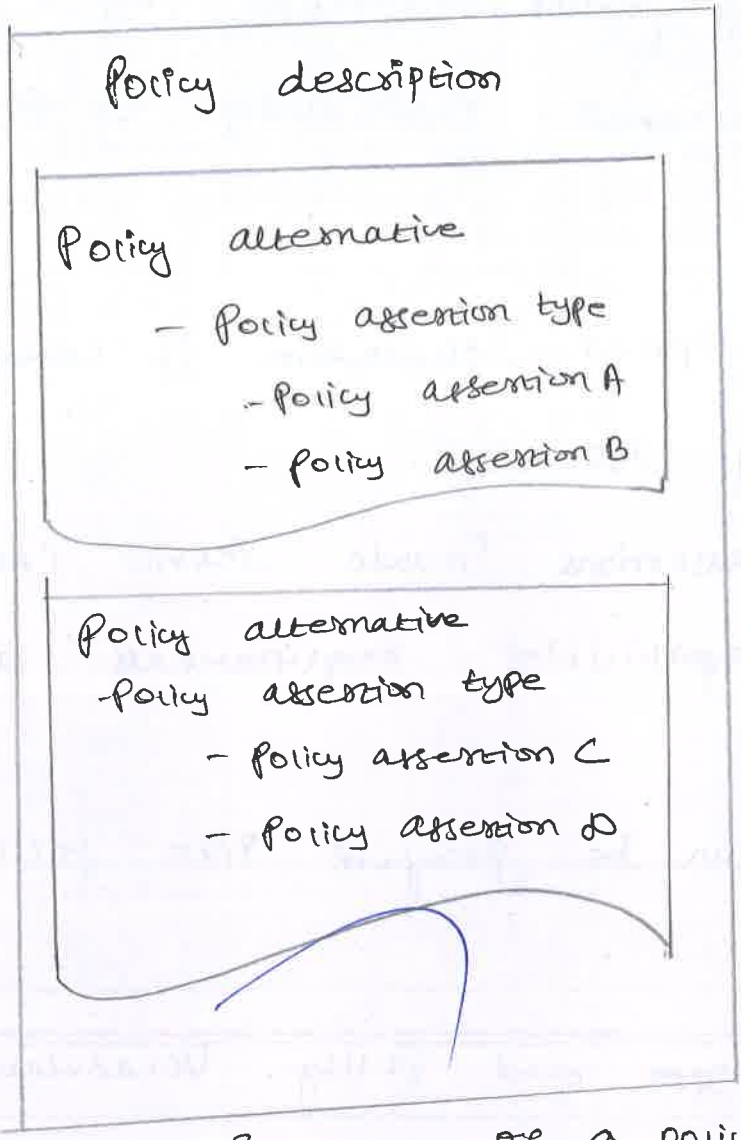
Policy subject → an entity to which a policy expression can be bound.

1. WS-Policy framework

- The WS-Policy framework establishes extensions that govern the assembly and structure of policy description documents, as well as the association of policies to Web resources.

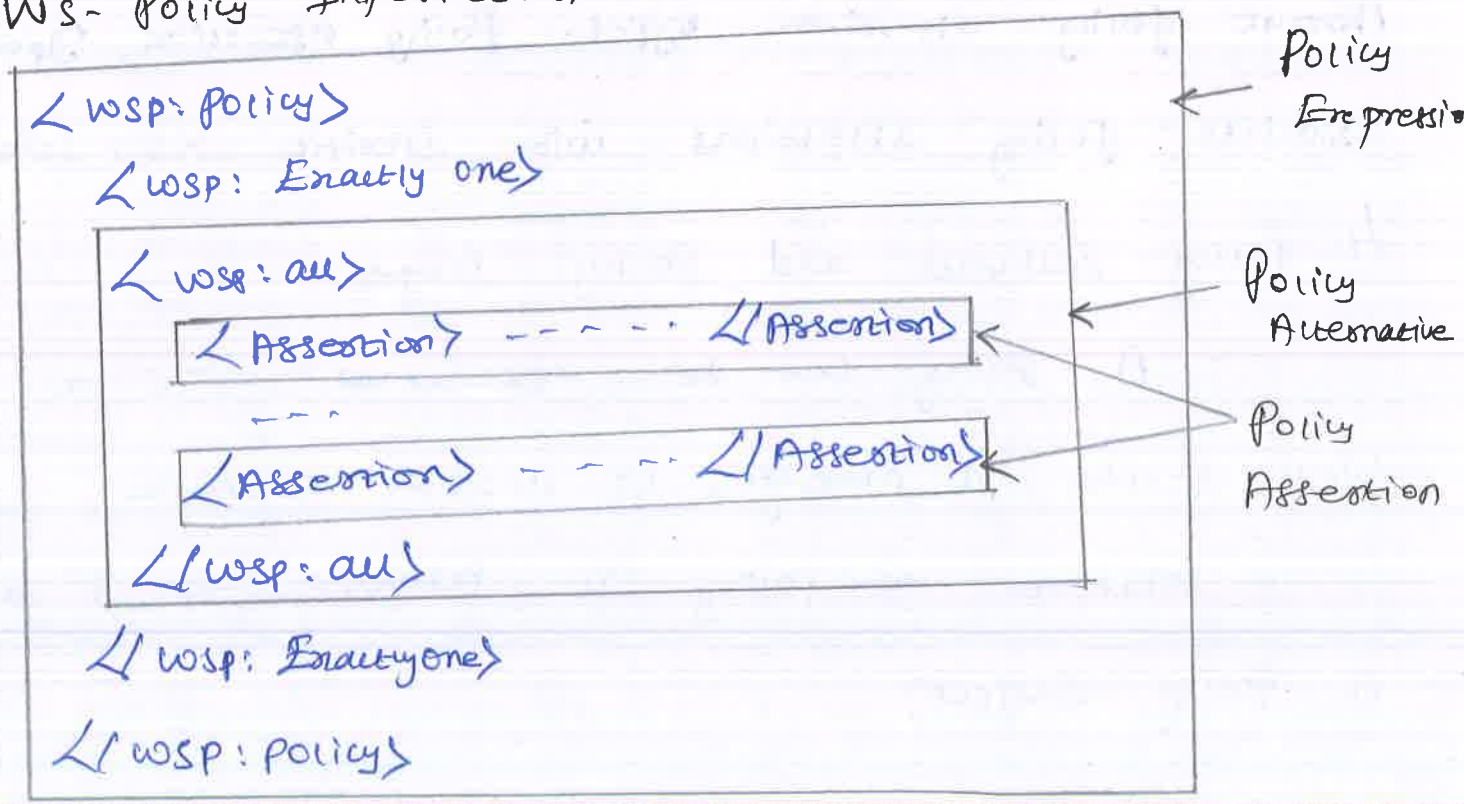
- WS-Policy framework forms part of the WS-Security framework. Policies can be programmatically accessed to provide service requestors with an

Understanding of the requirements and restrictions of service provides at runtime.



The basic structure of a policy description

WS- Policy Information Model.



2. Policy assertions and Policy alternatives

- The Service properties expressed by a policy description are represented individually by policy assertions.

- A policy description therefore is comprised of one or more policy assertions.

Examples of policy assertions include Service Characteristics, preferences, capabilities, requirements and rules.

- Policy assertions can be grouped into policy alternatives.

3. Policy assertion types and Policy Vocabularies.

- Policy assertions can be further categorized through policy assertion types. Policy assertion types associate policy assertions with specific XSD Schemas.

4. Policy Subjects and Policy Scopes.

- A policy can be associated with a Web Service, a message, or another resource.

- Whatever a policy is intended for is called a Policy Subject.

5. Policy expressions and policy attachments.

- Policy assertions that are physically implemented using the WS-Policy language are referred to as Policy expressions.

- Policy expressions are physically bound to policy scopes using policy attachments.

6. Policies in Coordination.

- When the WS-Coordination Context Coordination Service generates context information for participating Services, it can make the distribution of context data subject to the validation of security credentials and other forms of policy information.

7. Policies in Orchestration and Choreography.

- Policies can be applied to just about any subjects that are part of orchestrations or Choreographies.

- for example,

a policy can establish various requirements for orchestration partner services and Choreography participants to interact.

8. Policies in reliable messaging

- Policies are used to implement delivery assurances through the attachment of policy assurances to the messages that take part in reliable messaging exchanges.

9. Policies and SOA

- If an SOA is a city, then Policies are certainly the laws, regulations and guidelines that exist to maintain order among inhabitants.

- Policies are a necessary requirement to building enterprise-level service-oriented environments as they provide a means of communicating rules, constraints and guidelines for just about any facet of service interaction.

WS-COORDINATION

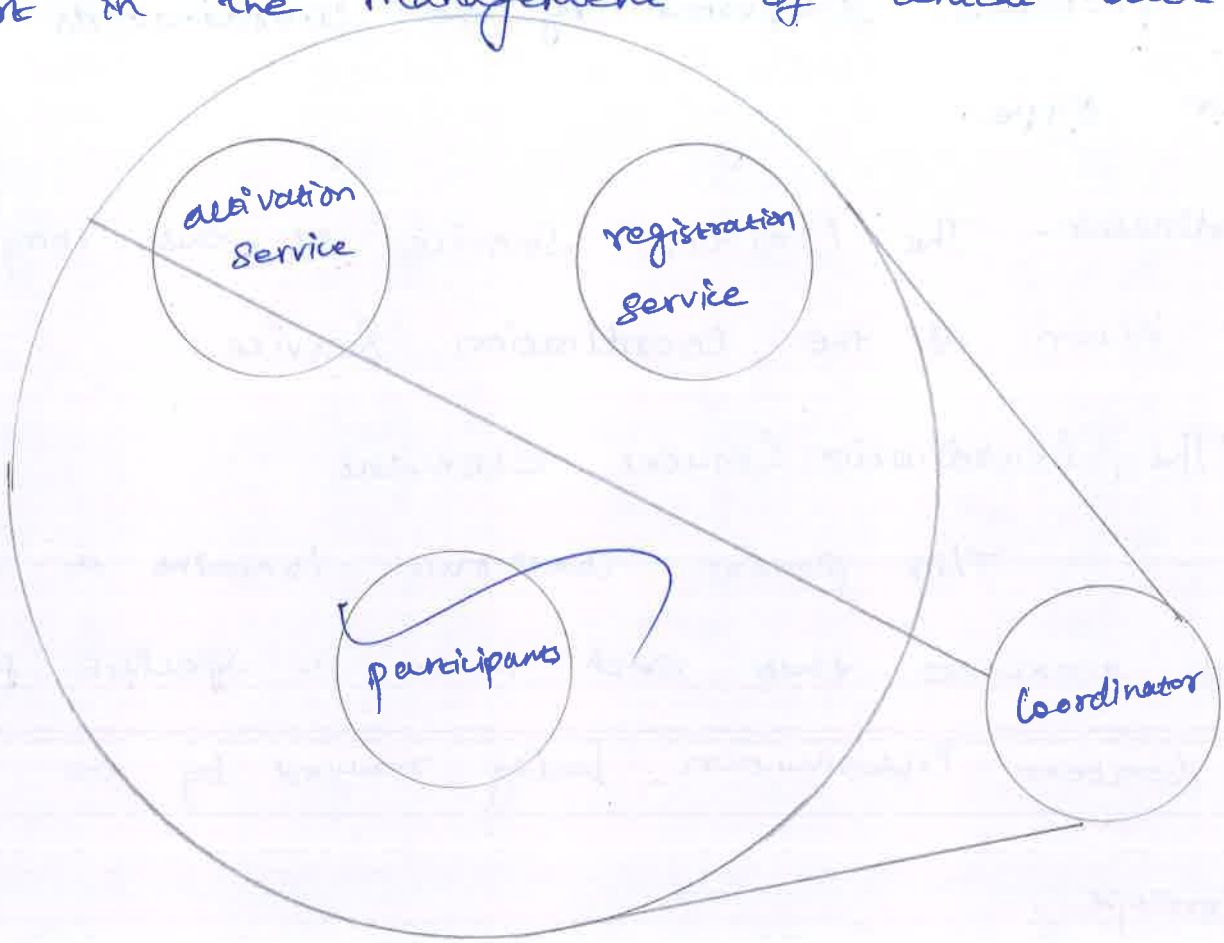
- WS-Coordination defines the underlying foundations for any transactional process taking place between Web services.

- WS-Coordination provides a context management framework using a standardized service composition spearheaded by a coordinator service.

- WS-Coordination establishes a framework

that introduces a generic service based on the Coordinator Service model.

- This service controls a composition of three other services that each play a specific part in the management of context data.



The Coordinator Service composition

The Coordinator composition consists of the following services:

Activation Service - Responsible for the creation of a new context and for associating this context to a particular activity.

Registration Service - Allows participating services

to use context information received from the activation service to register for a supported context protocol.

Protocol Specific Services - These services represent the protocols supported by the coordinator's co-ordination type.

Coordinator - The controller service of this composition, also known as the coordination service.

1. The Coordination Context element

-This parent construct contains a series of child elements that each house a specific part of the context information being relayed by the header.

```
<Envelope
    xmlns="http://schemas.xmlsoap.org/soap/envelope/"
    xmlns:wsc="http://schemas.xmlsoap.org/ws/2002/08/wscoor"
    xmlns:wsu="http://schemas.xmlsoap.org/ws/2002/07/utility">
<Header>
    <wsc:Coordination context>
        <wsu:Identifier>
        ---
```

```
</wsu:Identifier>
</wsu:Expires>
  ...
</wsu:Expires>
</wsc:CoordinationType>
  ...
</wsc:CoordinationType>
</wsc:RegisterationService>
  ...
</wsc:RegisterationService>
</wsc:CoordinationContext>
</Header>
<Body>
  ...
</Body>
</Envelope>
```

A Skeleton Coordination Context Construct.

The activation service returns this Coordination Context header upon the creation of a new activity.

- The Identifier and Expires elements.

- WS-Coordination uses the Identifier element to associate a unique ID value with the current activity.

- The Expires element sets an expiry date the

establishes the extent of the activity's possible lifespan.

```
<Envelope>
    ---
xmlns:wsu="http://schemas.xmlsoap.org/ws/2002/07/
                                        utility">
    ---
  <wsu:Identifier>
      http://www.xmltc.com/ids/process/33342
  </wsu:Identifier>
  <wsu:Expires>
      2008-07-30T24:00:00.000
  </wsu:Expires>
    ---
</Envelope>
```

The CoordinationType element

- This element is in the WS-BusinessActivity and WS-AtomicTransaction coordination types.

The RegistrationService element

- The RegistrationService construct hosts the endpoint address of the registration service. It uses the Address element also provided by the utility schema.

```
<wsc:RegistrationService>
```

<wsu:Address>

http://www.xmltc.com/bpel/reg

</wsu:Address>

</wsc:RegistrationService>

Designing the WS-Business Activity Coordination type.

- The specific protocol(s) that establish the rules and constraints of the activity are identified within the CoordinationType element.

- The URI values that are placed here are predefined within the WS-Business Activity and WS-Atomic Transaction.

<wsc:CoordinationType>

http://schemas.xmlsoap.org/ws/2004/01/wsba

</wsc:CoordinationType>

Designing the WS-Atomic Transaction Coordination type.

- The CoordinationType element is assigned the WS-Atomic Transaction Coordination type identifier which communicates the fact that the header's context information is part of a short running transaction.

<wsc:CoordinationType>

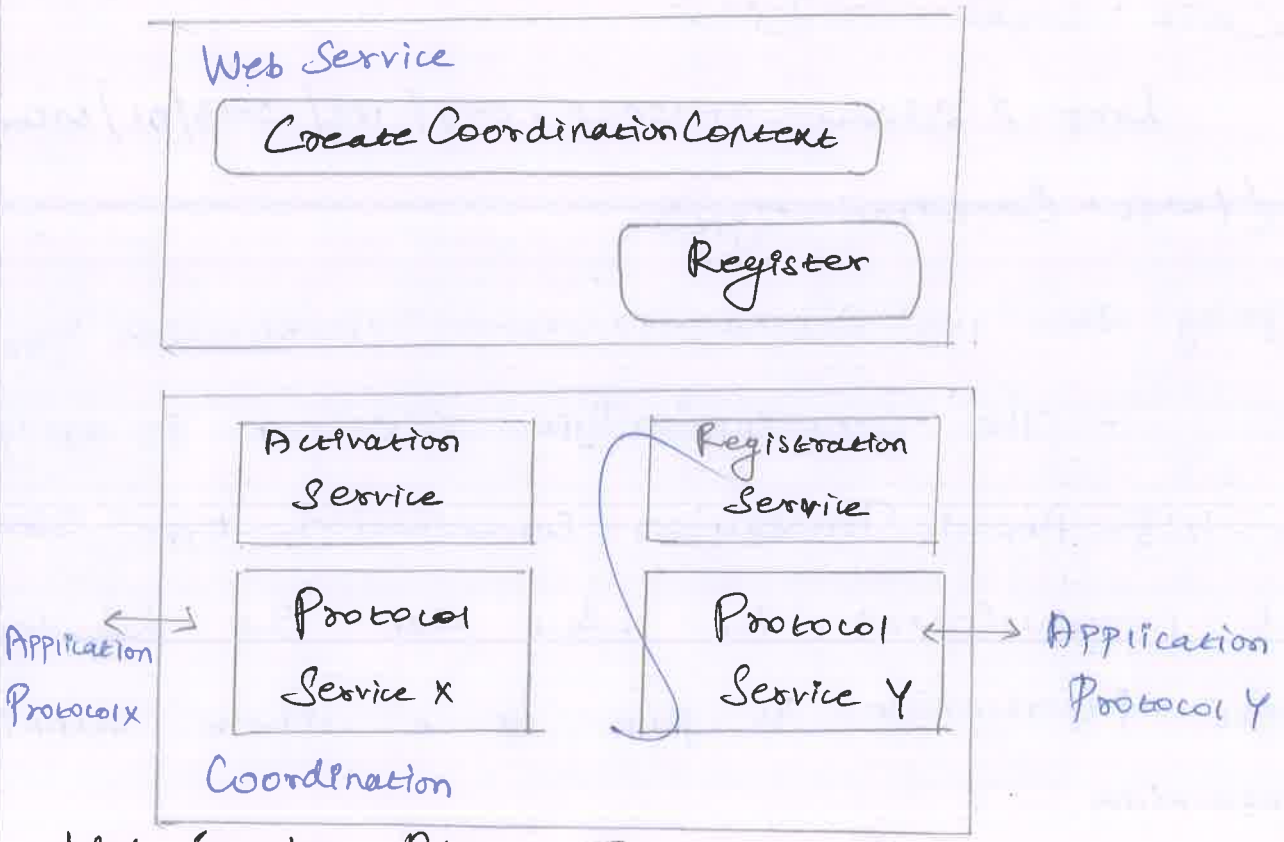
http://schemas.xmlsoap.org/ws/2003/09/wsat

WS - Transaction

- WS - Transaction is an Interoperability Standard that includes the WS - Atomic Transaction, WS - Business Activity and WS - Coordination Specifications.

- The Web Services Atomic Transaction (WS-AT) Support in the application Server provides transactional Quality of Service to the Web Services environment.

- With Web Services Business Activity (WS-BA) Support in the application Servers, web services on different systems can coordinate activities that are more loosely coupled than atomic transactions.



Web Services Atomic Transactions framework

- The coordinator, shown in the following figure, is the central component, managing the transactional

State (Coordination Context) and enabling Web Services and Clients to register as participants.

Atomic Transaction Protocols.

- This Specification defines the following protocols for Atomic Transactions.

Completion.

- The completion protocol initiates commit processing. Based on each protocol's registered participants, the coordinator begins with Volatile 2PC and then proceeds through Durable 2PC. The final result is signaled to the initiator.

Two-Phase Commit (2PC).

- The 2PC protocol coordinates registered participants to reach a commit or abort decision, and ensures that all participants are informed of the final result. The 2PC protocol has two variants:

Volatile 2PC:

- Participants managing volatile resources such as a cache register for this protocol.

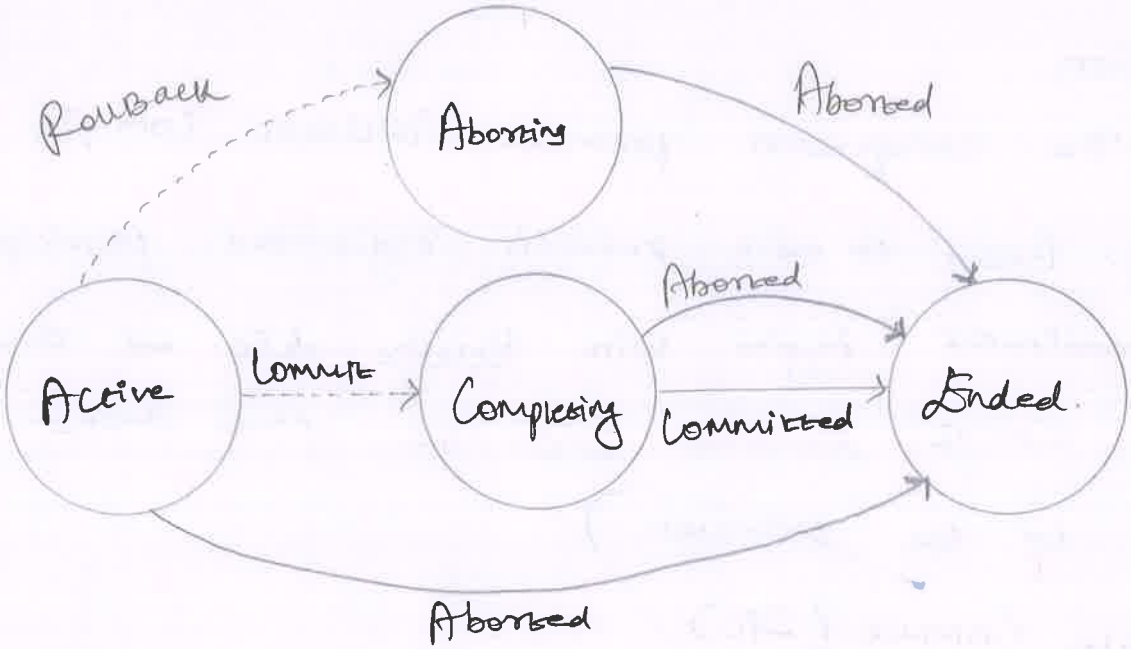
Durable 2PC:

- Participants managing durable resources such as a database register for this protocol.

- A completion protocol coordinator MUST be the root

Coordinator of an Atomic Transaction.

- The Registration Service for a Subordinate Coordinator MUST respond to an attempt to register for this coordination protocol with the WS-Coordination fault Cannot Register Participant.



The Coordinator accepts:

Commit:

- Upon receipt of this notification, the coordinator knows that the initiator has completed application processing.

Rollback:

- Upon receipt of this notification, the coordinator knows that the initiator has terminated application processing.

- The initiator accepts:

Committed.

- Upon receipt of this notification, the initiator knows that the coordinator reached a decision to commit.

Aborted.

- Upon receipt of this notification, the initiator knows that the coordinator reached a decision to abort.

Web Services Business Activity (WS-BA)

- The WS-BA Support is an implementation of the following specifications in the application servers.

- These specifications define a set of protocols that enable web services applications to participate in loosely coupled business processes that are distributed across the heterogeneous web services environment, with the ability to compensate actions if an error occurs.

For example,

An application that sends an email cannot retrieve that email following a failure in the business task.

WS-SECURITY

- The Primary aspects of Security addressed by these Specifications are identification, authentication, authorization, integrity and confidentiality, as well as non-repudiation.

- Two Primary technologies for preserving the integrity and confidentiality of XML documents are

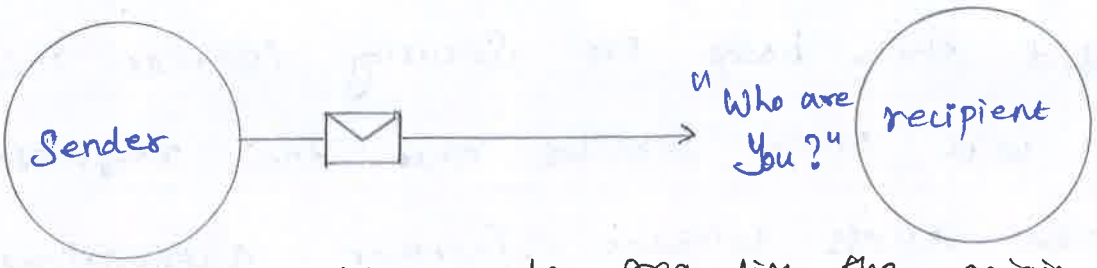
  - XML - Encryption and
  - XML - Signature.

- The SOAP messaging communications framework, upon which contemporary SOA is built, emphasizes particular aspects of Security that need to be accommodated by a Security framework designed Specifically for Web Services.

1. Identification, authentication and authorization

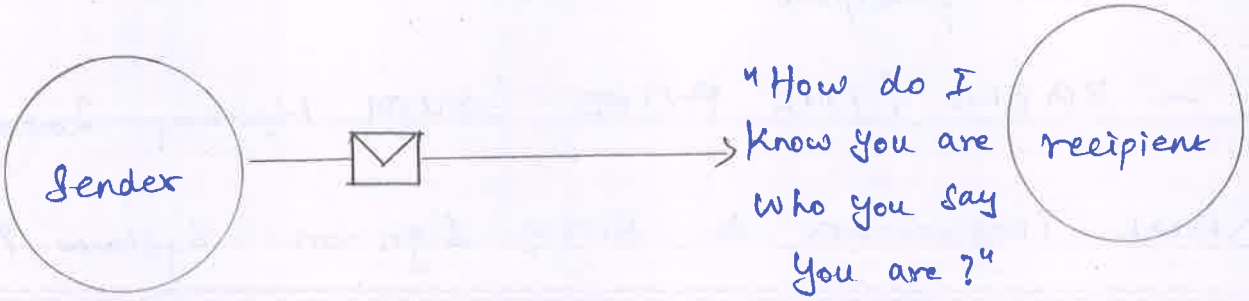
- For a Service requestor to access a Secured Service provider, it must first provide information that expresses its origin or owner. This is referred to as making a Claim.

- Claims are represented by identification information stored in the SOAP header.



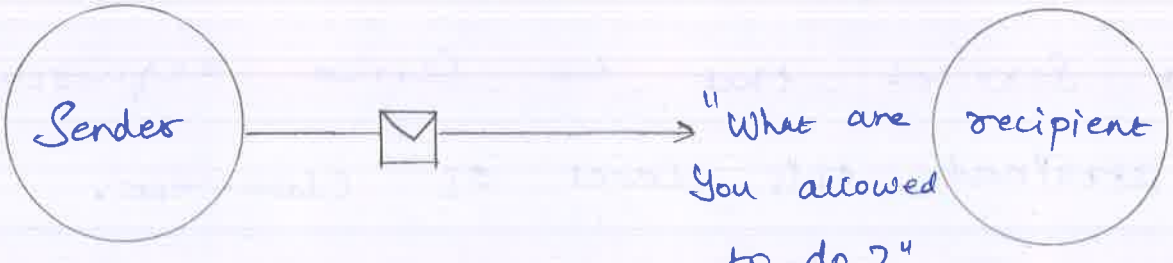
An identity is a claim made regarding the origin of a message.

- Authentication requires that a message being delivered to a recipient prove that the message is in fact from the sender that it claims to be.



Authentication means proving an identity.

- Once authenticated, the recipient of a message may need to determine what the requestor is allowed to do. This is called authorization.



2. Single Sign-on

- The use of a single sign-on technology

allows a service requestor to be authenticated once and then have its security context information shared with other services that the requestor may then access without further authentication.

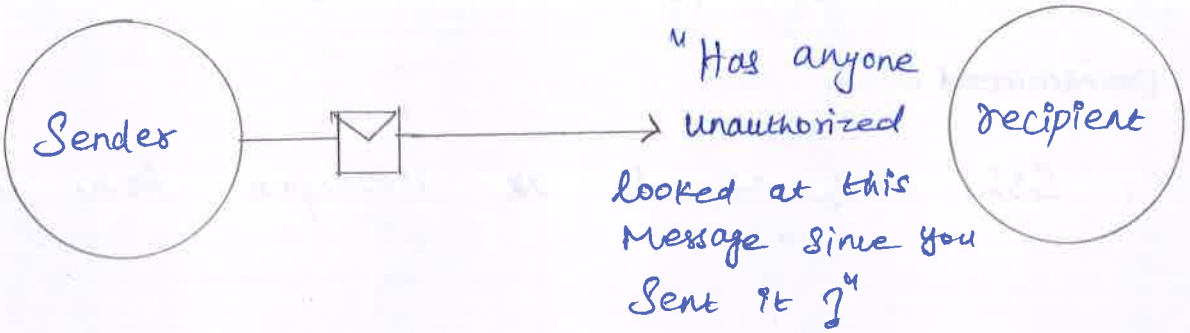
- There are three primary extensions that support the implementation of the single sign-on concept:
  - SAML (Security Assertion Markup Language)
  - .NET passport
  - XACML (XML Access Control Markup Language)

- SAML implements a single sign-on system in which the point of contact for a service requestor can also act as an issuing authority.
- This permits the underlying logic of that service not only to authenticate and authorize the service requestor, but also to assure the other services that the service requestor has attained this level of clearance.
- The issuing authority provides this information in the form of assertions that communicate the security details.

3. Confidentiality and Integrity.

— Confidentiality is concerned with protecting the privacy of the message contents.

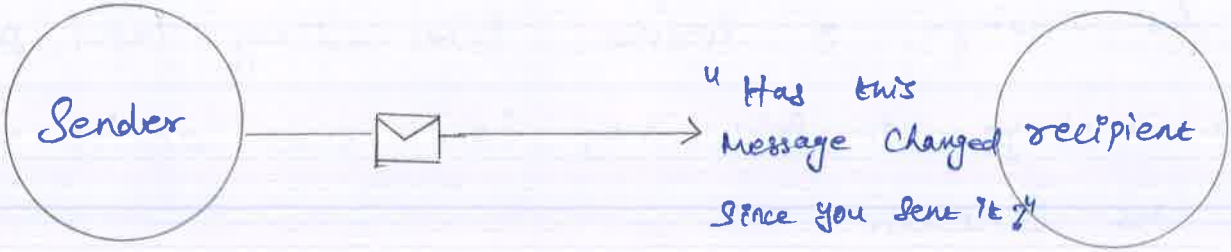
- A message is considered to have remained confidential if no service or agent in its message path not authorized to do so viewed its contents.



Confidentiality means that the privacy of the message has been protected throughout its message path.

- Integrity ensures that a message has not been altered since its departure from the original Sender.

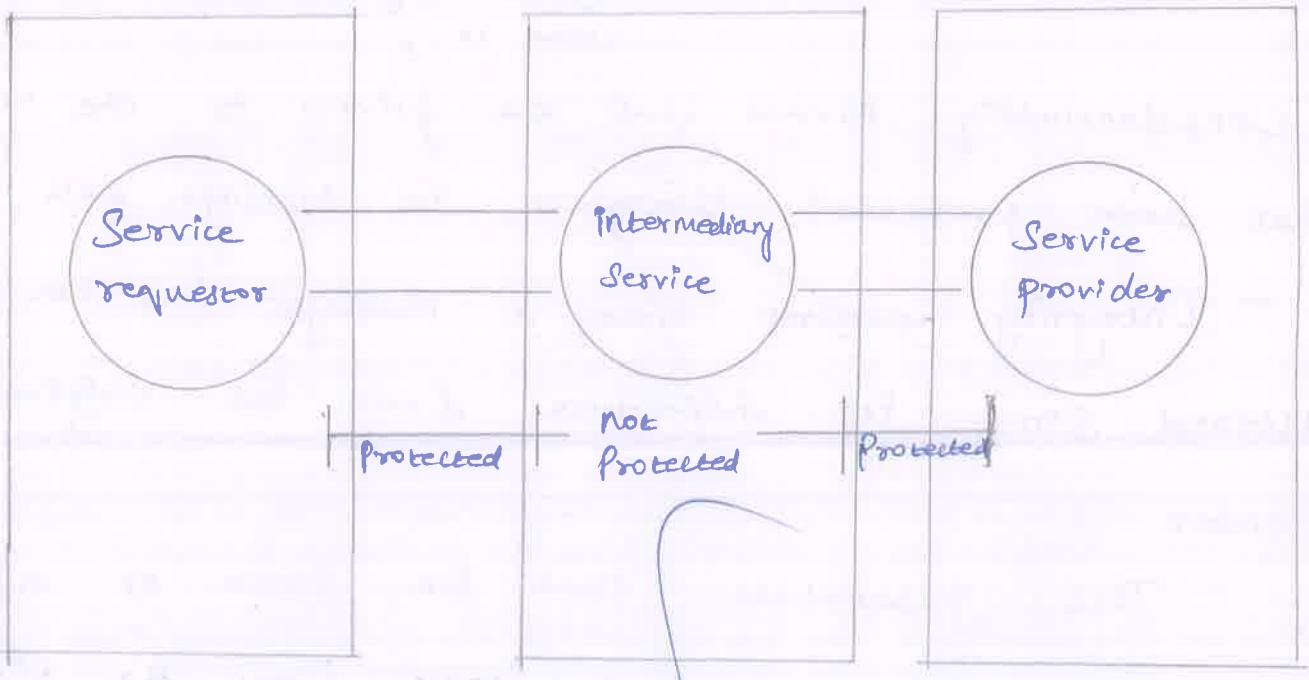
- This guarantees that the state of the message contents remained intact from the time of transmission to the point of delivery.



4. Transport-level Security and message-level Security

- The type of technology used to protect a message determines the extent to which the message remains protected while making its way through its message path. Secure Sockets Layer (SSL), for example, is a very popular means of securing the HTTP channel upon which requests and responses are transmitted.

Hence, SSL only affords us transport-level security.

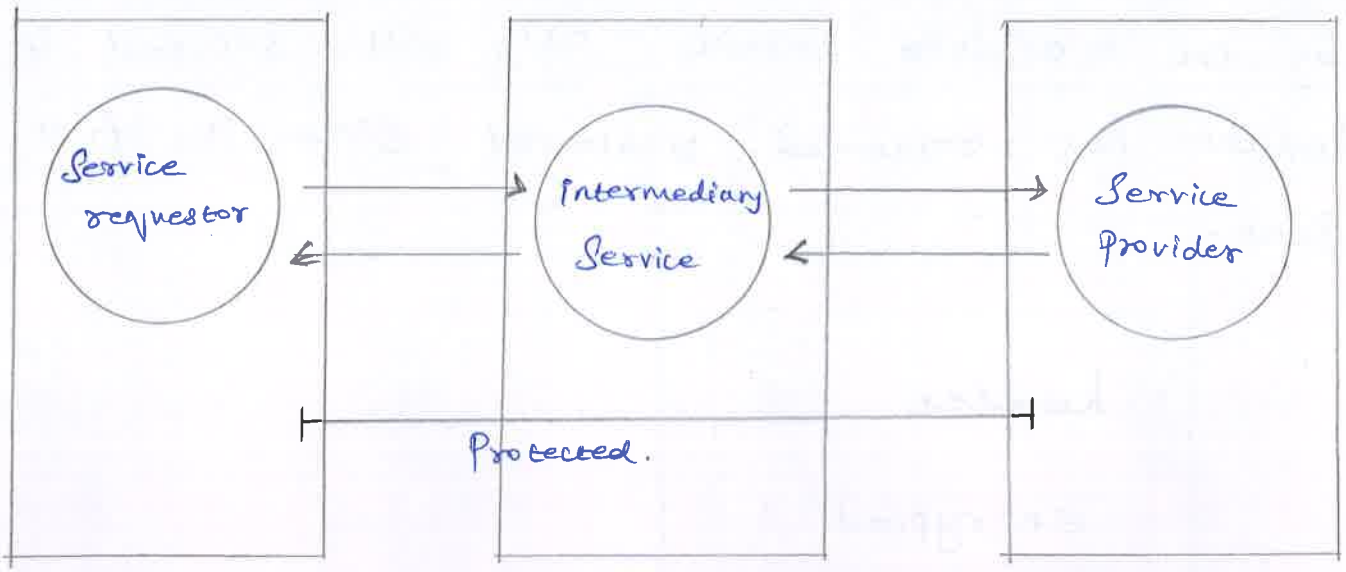


Transport-level security only protects the message during transit between service endpoints.

If for example, a service intermediary takes possession of a message, it still may have the ability to alter its contents.

To ensure that a message is fully protected along

its entire message path, message-level security is required.



Message-level security guarantees end-to-end message protection.

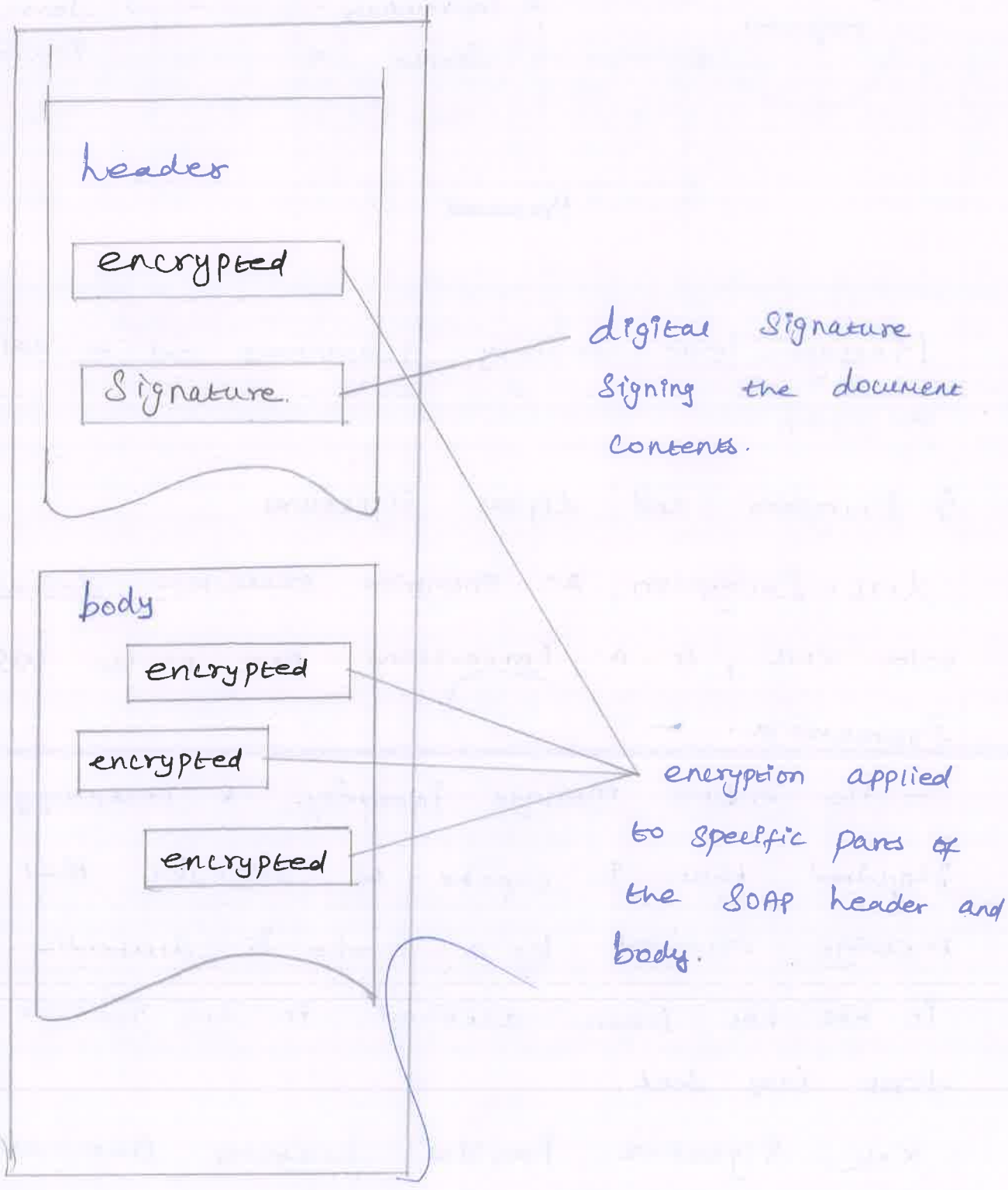
5. Encryption and digital signatures.

- XML-Encryption, an encryption technology designed for use with XML, is a cornerstone part of the WS-Security framework.

- To ensure message integrity, a technology is required that is capable of verifying that the message received by a service is authentic in that it has not been altered in any manner since it first was sent.

XML-Signature, Provides features that allow for an XML document to be accompanied by a special algorithm-driven piece of information that represents a digital signature.

- This signature is tied to the content of the document so that verification of the signature by the receiving service only will succeed if the content has remained unaltered since it first was sent.



F. Security and SOA

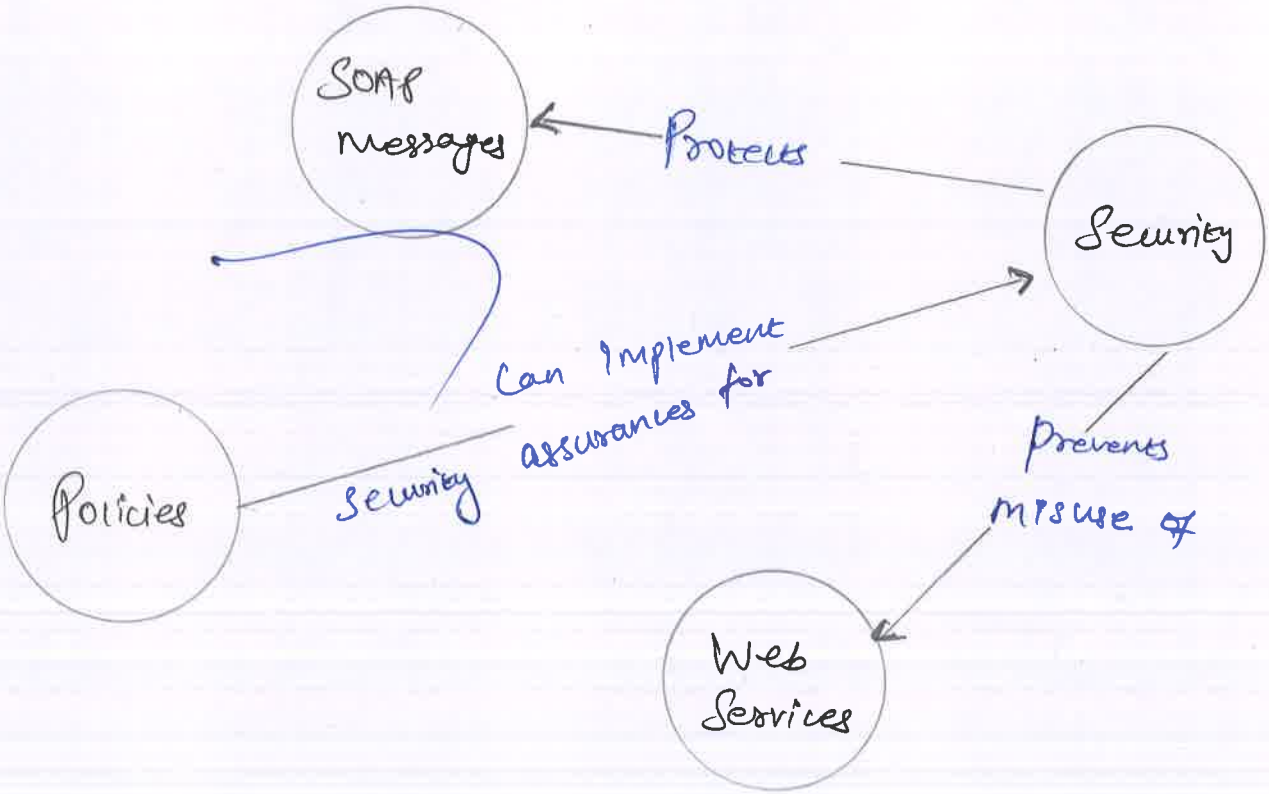
- Security measures can be layered over

the message content or the message recipient.

- The WS-Security framework and its accompanying Specifications therefore fulfill fundamental QoS requirements that enable enterprises to:

→ utilize Service-Oriented Solutions for the processing of Sensitive and private data.

→ restrict Service access as required.



Two Marks.

1. What is WS-Addressing?.
2. What are the types of WS-Addressing?.
3. What is Reliable messaging?..
4. What are the types of delivery assurance in Messaging.
5. What is WS-policy?..
6. What is the Goal of WS-Policy?.
7. Give the Specifications of WS-policy framework.
8. Define policy assertions.
9. List out the policy operators
10. List the Stages of WS-Coordination.
11. Define WS-Coordination Context.
12. What is WS-Transaction?
13. What are the types of WS-Transaction?..
14. Draw the Web Services Atomic Transactions framework.
15. What are the components of Web Service Atomic transactions.
16. What is WS-Security?
17. Why is WS-Security needed?..
18. Give the basic Structure of the XML Signature.

SIXTEEN MARKS.

1. Explain in detail WS-Addressing.
2. Explain in detail WS-Reliable Messaging.
3. Explain WS-policy & its types.
4. Explain in detail WS-Coordination and its types.
5. Elaborate the WS-Security framework with an example.

References.

1. Thomas Erl, "Service Oriented Architecture: Concepts Technology and Design", Pearson Education, 2005.
2. Thomas Erl, "SOA Design patterns".
3. I, Sabithdevi, V. Balakumar, "Service Oriented Architecture", Suchitra Publications.

UNIT - V

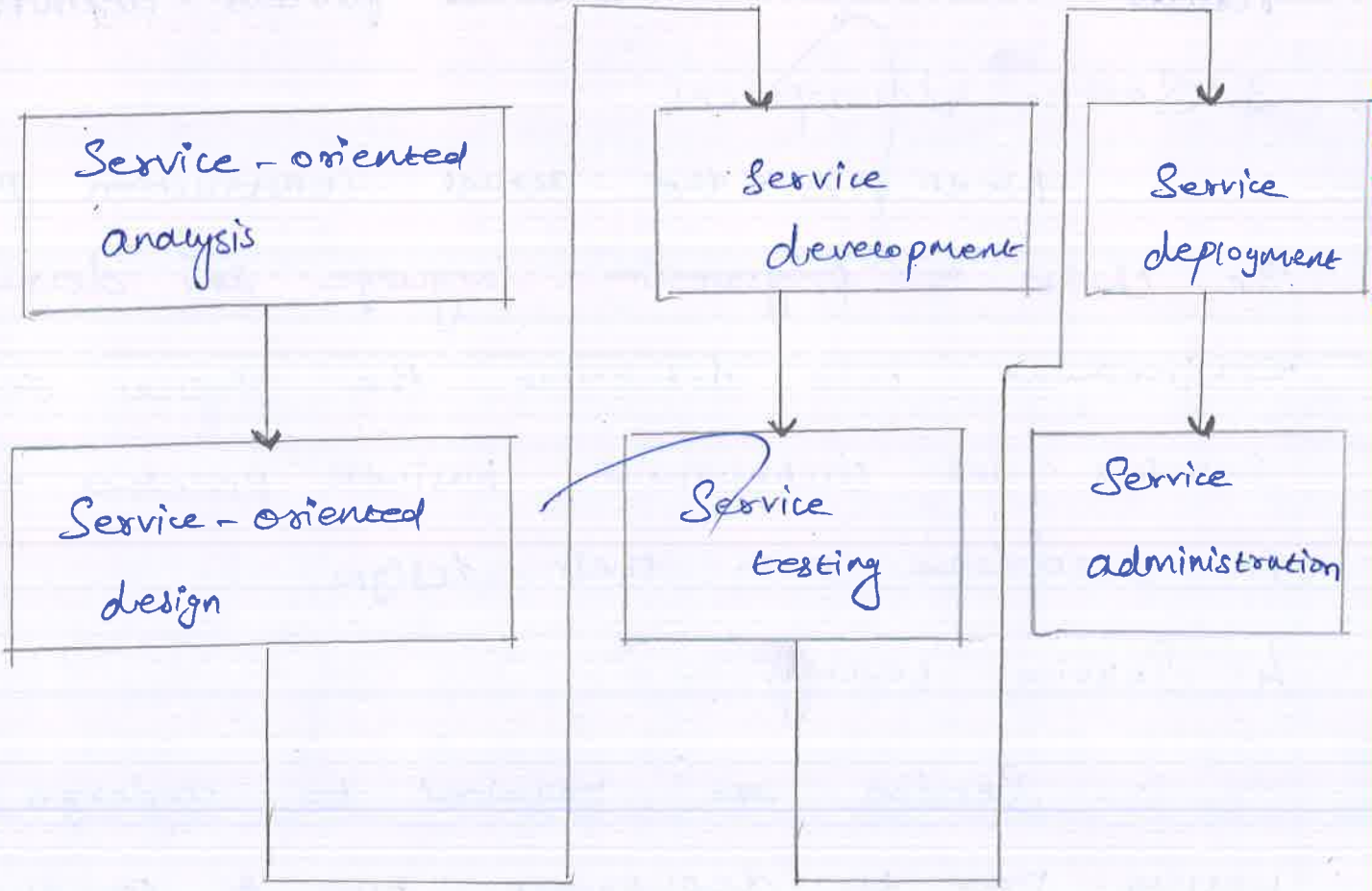
SERVICES ORIENTED ANALYSIS AND DESIGN

SOA Delivery Strategies.

SOA Delivery Lifecycle Phases.

- The lifecycle of an SOA delivery project is comprised of a series of steps that need to be completed to construct the services for a given service-oriented solution.

Basic phases of the SOA delivery lifecycle.



Common Phases of an SOA delivery lifecycle.

1. Service - oriented analysis

Service layers are mapped out, and individual services are modeled as service candidates that comprise a preliminary SOA.

2. Service - Oriented design

- Service oriented design is a heavily standards - driven phase that incorporates industry conventions and service - orientation principles into the service design process.

- The service layers designed during this stage can include the orchestration layer, which results in a formal business process definition.

3. Service development

Next, is the actual construction phase. The choice of programming language and development environment will determine the physical form services and orchestrated business processes take, in accordance with their designs.

4. Service testing.

Services are required to undergo testing prior to deployment into a production

5. Service deployment

- The implementation stage brings with it the joys of installing and configuring distributed components, service interfaces, and any associated middleware products onto production servers.

6. Service administration

- After services are deployed, standard application management issues come to the forefront

7. SOA delivery strategies.

- The lifecycle stages identified represent a simple, sequential path to building individual services.

- The success of SOA within an enterprise is generally dependent on the extent to which it is standardized when it is phased into business and application domains.

- Three common strategies have emerged.

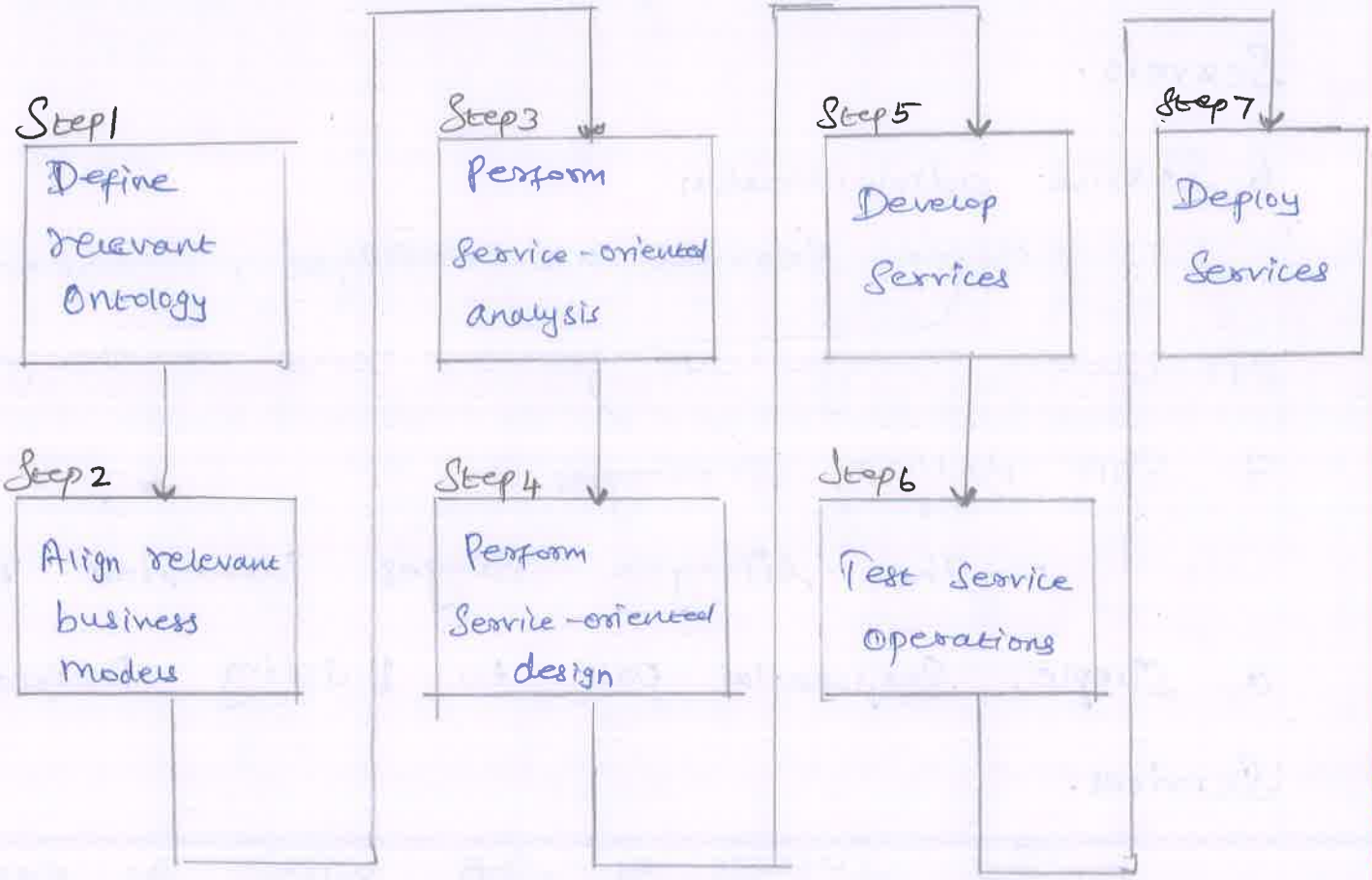
1) Top-down

2) Bottom-up

3) Agile (or meet-in-the-middle)

The top-down Strategy

- This process assumes that business requirements have already been collected and defined.



1. Define relevant enterprise-wide Ontology

- Part of what an Ontology establishes is a classification of information sets processed by an organization.

- Larger organizations with multiple business areas can have several ontologies, each governing a specific division of business.

Step 2: Align relevant business models with new or revised Ontology.

- After the Ontology is established, existing business models may need to be adjusted to properly represent the Vocabulary provided by the Ontology in business modeling terms.

Step 3: Perform Service-oriented analysis

- A Service-oriented analysis phase is completed.

Step 4: Perform Service-oriented design.

- The Service layers are formally defined as part of a Service-oriented design process.

Step 5: Develop the required Services

- Services are developed according to their respective design Specifications and the Service descriptions.

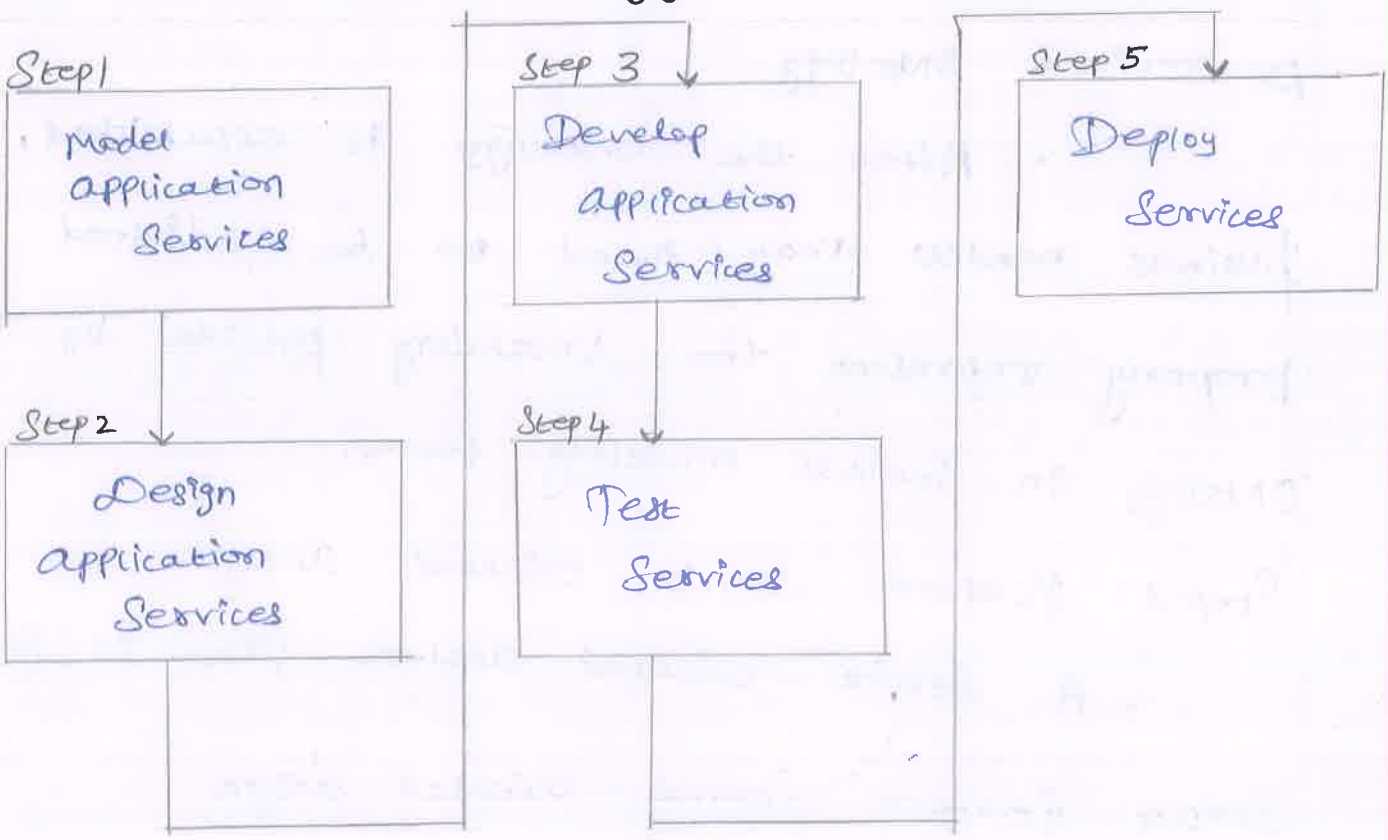
Step 6: Test the Services and all Service operations.

- The testing stage requires that all Service operations undergo necessary quality assurance checks.

7. Deploy the Services.

The Solution is finally deployed into Production.

The Bottom-Up Strategy.



1. Model required application Services.

-This step results in the definition of application requirements that can be fulfilled through the use of Web Services. Typical requirements include the need to establish point-to-point integration channels between legacy systems or B2B solutions.

2. Design the required application Services.

-Custom application Services, though, will need to undergo a design process wherein existing design standards are applied to ensure a level of consistency.

3. Develop the required application Services

to their respective service descriptions and applicable design specifications.

4. Test the Services

Services, their associated solution environment and underlying legacy logic are tested to ensure that processing requirements can be met.

5. Deploy the Services.

— The solution and its application services are deployed into production.

The AGILE STRATEGY

Step 1:

Begin the top-down analysis, focusing first on key parts of the ontology and related business entities.

2.

When the top-down analysis has sufficiently progressed, perform service oriented analysis.

Step 3:

Perform service oriented design.

Step 4, 5 and 6:

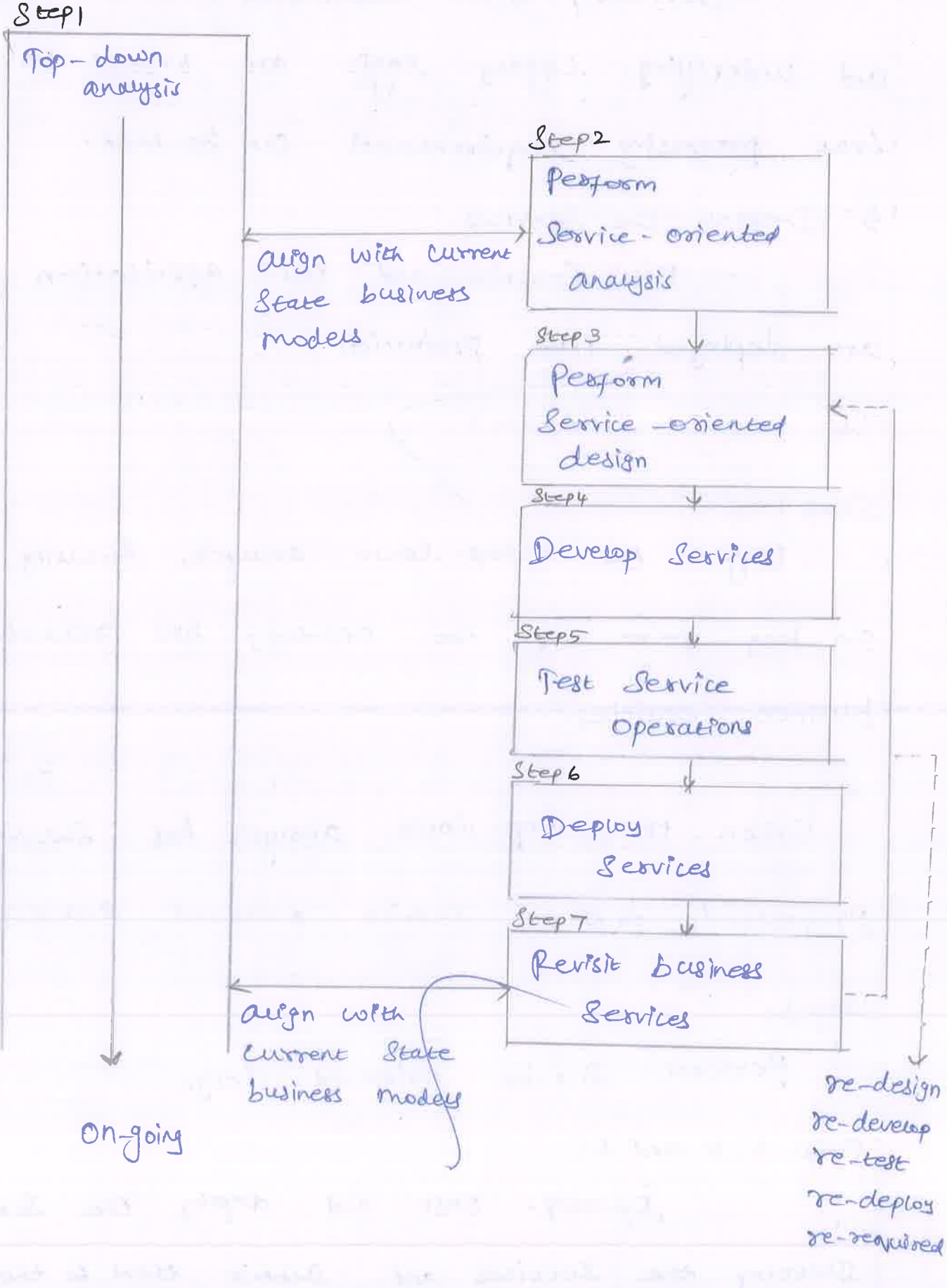
Develop, test and deploy the services.

Develop the services and submit them to the standard

testing and deployment procedures.

Step 7:

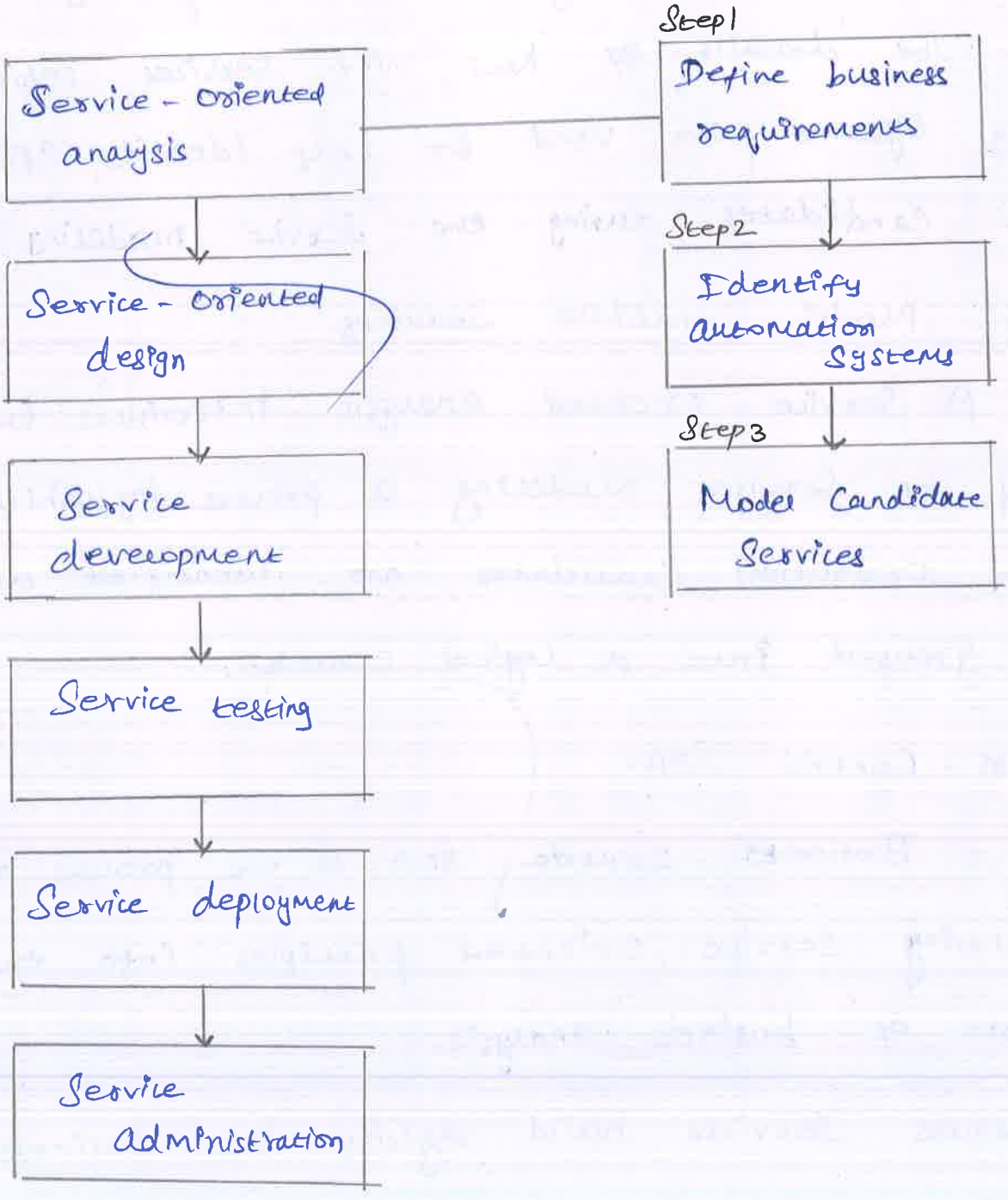
As the top-down analysis continues to progress, revisit business services.



SERVICE - ORIENTED ANALYSIS

- The process of determining how business automation requirements can be represented through service-orientation is the domain of the service-oriented analysis.

- The service-oriented analysis process is a sub-process of the overall SOA delivery life cycle.



Step 1: Define business automation requirements

- business requirements are normally collected
- documentation is required for this analysis process to begin.
- This business process documentation will be used as the starting point of the service modeling process.

Step 2: Identify existing automation systems.

- The details of how Web services relate to existing systems are used to help identify application service candidates during the service modeling process.

Step 3: Model Candidate Services.

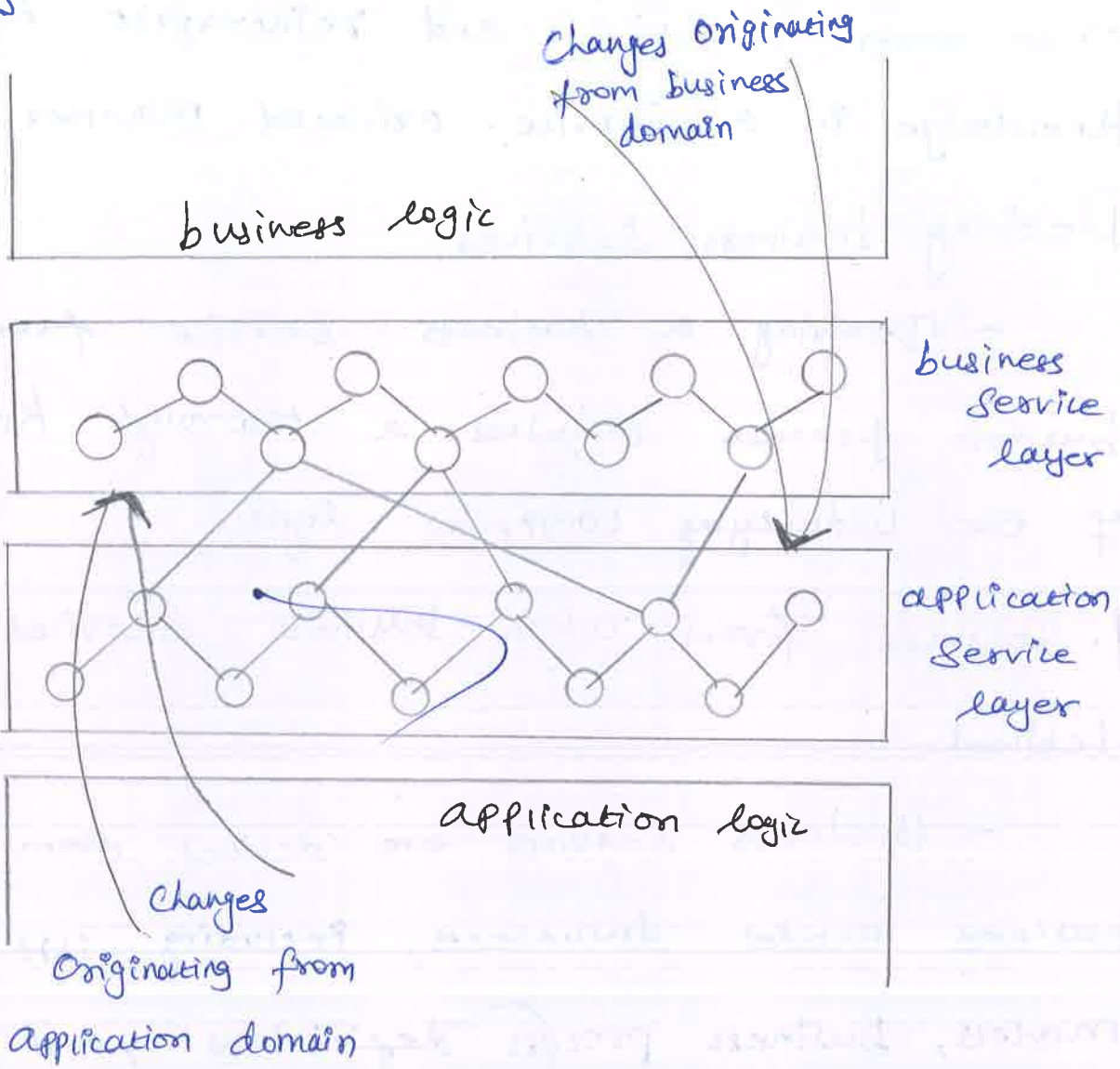
- A service-oriented analysis introduces the concept of service Modeling a process by which service operation candidates are identified and then grouped into a logical content.

Business-Centric SOA.

- Business-Centric SOA is the process of introducing service-oriented principles into the domain of business analysis.

1. Business services build agility into business models.

- Applying service layer abstraction to both business and technology ends establishes the potential for an enterprise to achieve a form of two-way agility.



2. Business Services prepare a process for orchestration

- Orchestration brings with it concepts that, when implemented, lie at the core of SOA.

3. Business Services enable reuse

- The creation of a business service layer promotes reuse in both business and application

Services.

4. Only business services can realize the service-oriented enterprise.

- Applying business services forces an organization to view and reinterpret business knowledge in a service-oriented manner.

Deriving business services

- Deriving a business service from a business process requires a thorough knowledge of the underlying workflow logic.

1. Sources from which business services can be derived.

- Business services are derived from common business model documents, including use-case models, business process definitions, and entity models.

- Business services can be derived from process workflow logic.

2. Types of derived business services.

- Task-centric business services
- Entity-centric business services.

Task-Centric business Services.

- These are Web Services that have been modeled to accommodate a specific business Process.

- Operations are grouped according to their relevance to the execution of a task in support of a process.

Examples:

- Verify Invoice
- Get History Report

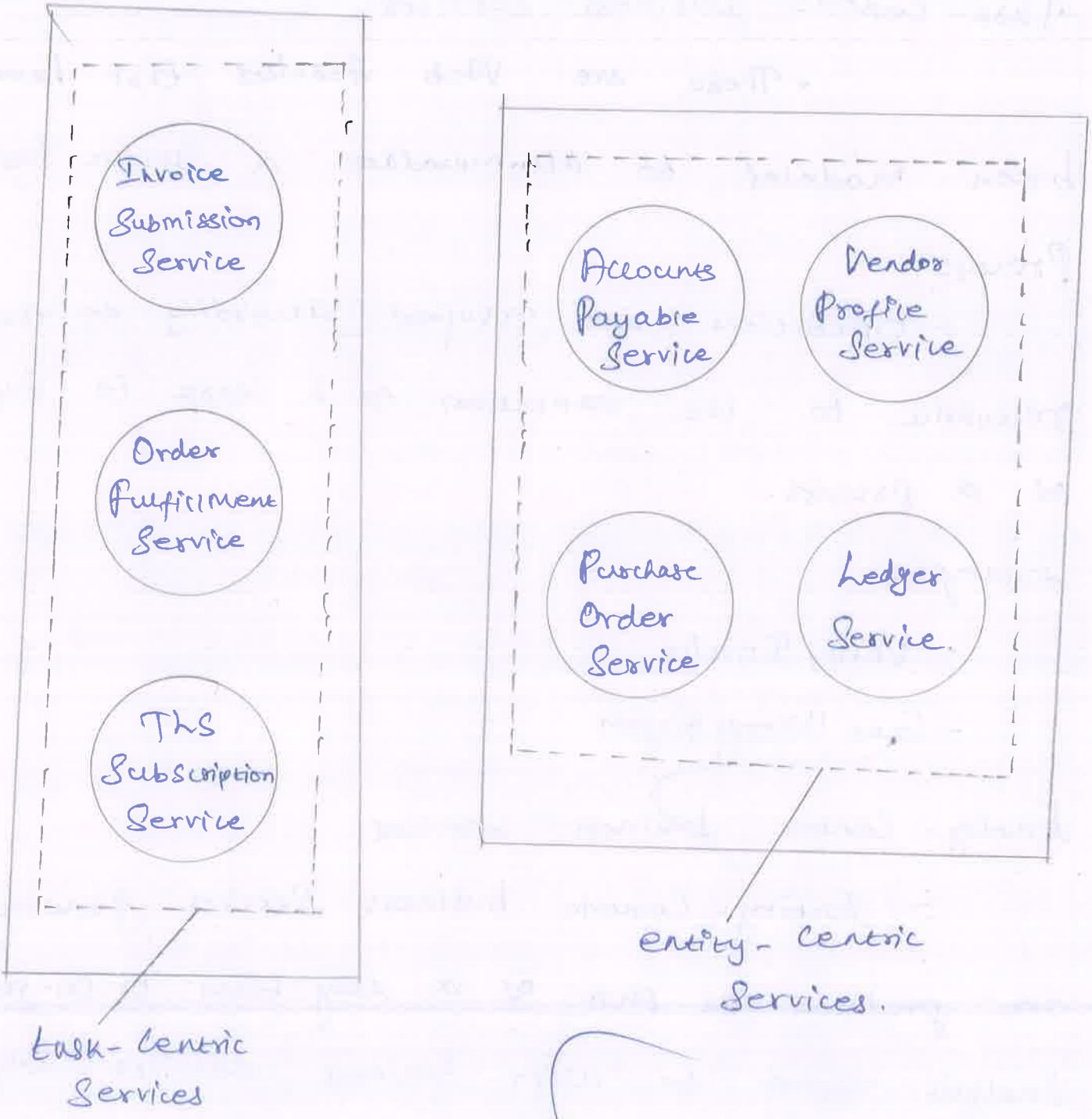
Entity-Centric business Services.

- Entity-Centric business Services generally are produced as part of a long-term or on-going analysis effort to align business services with existing corporate business models.

- Inherent generic nature makes them highly reusable.

- require more up-front analysis.

- increasing both the cost of each service and the time required to produce it.



3. Business Services and Orchestration.

- An orchestration can compose a combination of task-centric and entity-centric business services. The core business model is represented by the entity-centric services, while business logic-related tasks can be implemented

In task-centric services that are designed specifically to supplement the process service.

SERVICE MODELING

- Modeling services is fundamentally a process of gathering and organizing business model information.

1. "Services" versus "Service Candidates"

- Services are defined on a preliminary basis and still subject to a great deal of change and refinement before they are handed over to the service-oriented design project stage responsible for producing physical service contracts.

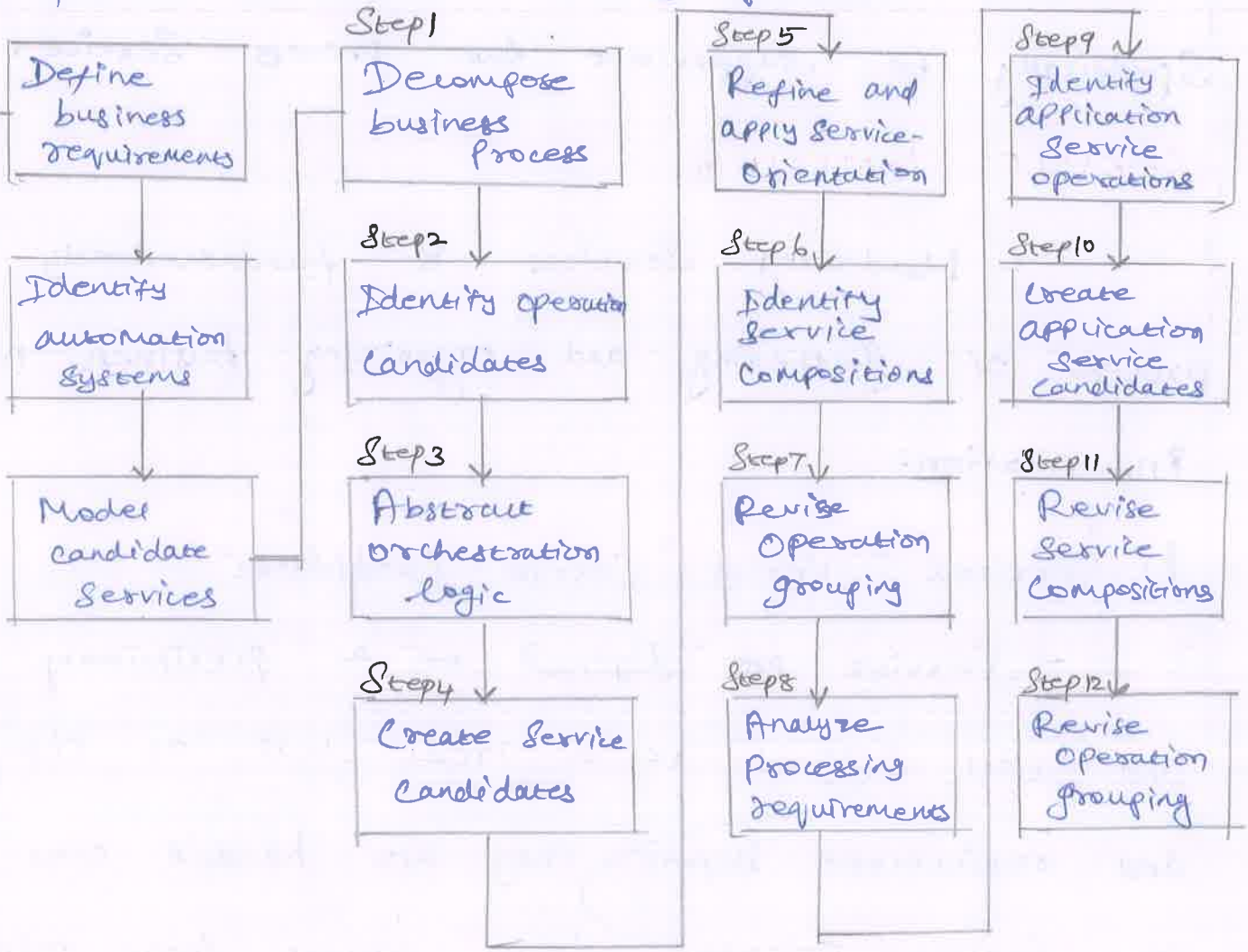
- The service candidate is used to distinguish a conceptualized service from an actual implemented service.

Service candidates and service operation candidates are the end-result of a process called Service Modeling.

2. Process description

- A series of 12 steps that comprise a

proposed Service Modeling process.



Step1: Decompose the business Process

- Take the documented business process and break it down into a series of granular process steps.

Step 2:

Identify business Service operation candidates.

Business Service operation candidates are identified to filter out steps not suitable for Service encapsulation.

Examples:

Manual process steps that cannot or should not be automated.

Step 3: Abstract orchestration logic

- An orchestration layer should identify the parts of the processing logic that this layer would potentially abstract.

- Potential types of logic suitable for this layer include:

  - business rules
  - conditional logic
  - exception logic
  - sequence logic.

Step 4: Create business service candidates.

- Review the processing steps that remain and determine one or more logical contexts with which these steps can be grouped.

Step 5: Refine and apply principles of service-orientation

Each service operation candidate identity is potentially reusable and as autonomous as possible.

- The following four key principles are

  - reusability

- autonomy
- Statelessness
- discoverability.

Step 6: Identify candidate Service compositions

- Identify a set of the most common scenarios that can take place within the boundaries of the business process.

Step 7: Revise business Service operation grouping.

- Based on the results of the composition, revisit the grouping of your business process steps and revise the organization of Service operation candidates as necessary.

Step 8: Analyze application processing requirements

The underlying processing requirements of all Service candidates to abstract any further technology-Centric Service candidates from this view that will complete a preliminary application service layer.

Step 9: Identify application Service operation candidates.

- Breakdown each application logic processing requirement into a series of steps.

Step 10: Create application service candidates.

- Group these processing steps according to a predefined context. With application service candidates, the primary context is a logical relationship between operation candidates.

Step 11: Revise candidate service compositions.

Revise the original scenarios identified and run through them again. Only, this time, incorporate the new application service candidates as well.

Step 12: Revise application service operation grouping.

Going through the motions of mapping the activity scenarios usually will result in changes to the grouping and definition of application service operation candidates.

SERVICE-ORIENTED DESIGN

Service-oriented design is the process by which concrete physical service designs are derived from logical service candidates and then assembled into abstract compositions that implement a business process

- The main focus of the service-oriented design phase is to transform previously modeled service candidates into physical service designs. Step-by-step service design processes are provided.

Objectives of service-oriented design

The overall goals of performing a service-oriented design are as follows:

→ Determine the core set of architectural extensions.

→ Set the boundaries of the architecture.

→ Identify required design standards.

→ Define abstract service interface designs.

The service-oriented design process

Step 1: Compose SOA

- A fundamental quality of SOA is that each instance of a service-oriented architecture is uniquely composable which will implement a common set of shared technologies based on key XML and first-generation Web service specifications.

- This step consists of the following

Three Steps.

1. Choose Service layers.
2. Position core SOA standards
3. Choose SOA extensions.

Step 2: Entity-Centric business service design process.

- Establish the business service layer Based on its functional boundary and context on one or more related business entities.

Step 3: Application service design process.

- Utility services are also known as application services.
- Establish the utility service layer.

Step 4: Task-Centric business service design process

- Task services are also known as Task-Centric business services
- Compose the business service layer

Step 5: Design service-oriented business process.

- This step results in the formal, executable definition of workflow logic, which translates

DESIGN STANDARDS AND COMPOSITION GUIDELINES

- A set of guidelines that can be used as a starting point from which we can derive our own standards.

1. Apply Naming Standards

- Naming standards therefore need to be defined and applied to.

→ Service endpoint names

→ Service operation names

→ Message values.

The key is that whatever standards we choose must be implemented consistently throughout all service-oriented solution environments.

2. Apply a suitable level of Interface Granularity.

- Service Interface granularity is a key strategic decision point that deserves a good deal of attention during the service-oriented design phase.

- Assign coarse-grained interfaces to services designated as solution endpoints and allow finer-

predefined boundaries.

3. Design Service operations to be inherently extensible.

- Business services may need to be extended.

- Depending on the nature of the change, extensibility can sometimes be achieved without breaking the existing service interface.

4. Identify known and potential service requestors.

- Services are almost always built as part of the delivery of a specific automation solution.

- It can be useful and practical to identify any potential future service requestors and to then incorporate their anticipated requirements into the current service design.

Example,

It may be possible to adjust the granularity of service interfaces at the design stage without much impact to the overall project.

5. Consider using modular WSDL documents.

- WSDL service descriptions can be assembled

dynamically at run time through the use of import statements that link to separate files that contain parts of the service definition.

- It also allows us to leverage any existing XSD schema modules that may already have designed.

6. Use namespaces carefully

- A WSDL definition consists of a collection of elements with different origins. Therefore, each definition often will involve a number of different namespaces.

Example,

http://schemas.xmlsoap.org/wsdl/

http://www.w3.org/2001/XMLSchema/

http://schemas.xmlsoap.org/soap/envelope/.

7. Use the SOAP document and literal attribute values.

- There are two specific attributes that establish the SOAP message payload format and the data type system used to represent payload data. These are

- Style attribute used by the soap: binding element and

- Use attribute assigned to the soap: body element.

Both of these elements reside within the WSDL binding construct.

- The Style attribute can be assigned a value of "document" or "rpc".

- The use attribute can be set to a value of "literal" or "encoded".

When considering these two attributes, the following four combinations are possible and supported by SOAP:

→ Style: RPC + Use: encoded

→ Style: RPC + Use: literal

→ Style: document + Use: encoded

→ Style: document + Use: literal

8. Use WS-I profiles even if WS-I compliance isn't required.

If WS-I compliance is not on the list of immediate requirements, it still is recommended that consider using the many standards and best practices provided by the Basic Profile document.

9. Document Services with metadata

- Policies in particular represent an important metadata supplement to WSDL definitions.

For example,

- A policy may express certain security requirements, processing preferences, and behavioral characteristics of a service provider.

- Policies are formally implemented using a set of WS-* specifications policy information should be documented as part of any service design.

→ Starting the service design with the creation of a WSDL definition is a recommended approach to building quality services that adhere to existing interface design standards.

SERVICE DESIGN

- Service design is all about taking a service and making it meet the user's and customer's needs for that service.

- It can be used to improve an existing service or to create a new service from scratch.

Service design overview

- Defining the service interface prior to

the development is important to establishing a highly standardized service-oriented architecture and required to realize a number of the characteristics identified as being part of Contemporary SOA.

- The ultimate goal of these processes is to achieve a balanced service design.

- The four types of service layers are.

→ Entity-centric business services

→ Application services.

→ Task-centric business services

→ Process services.

Design Standards.

- A firm set of design standards is critical to achieving a successful SOA.

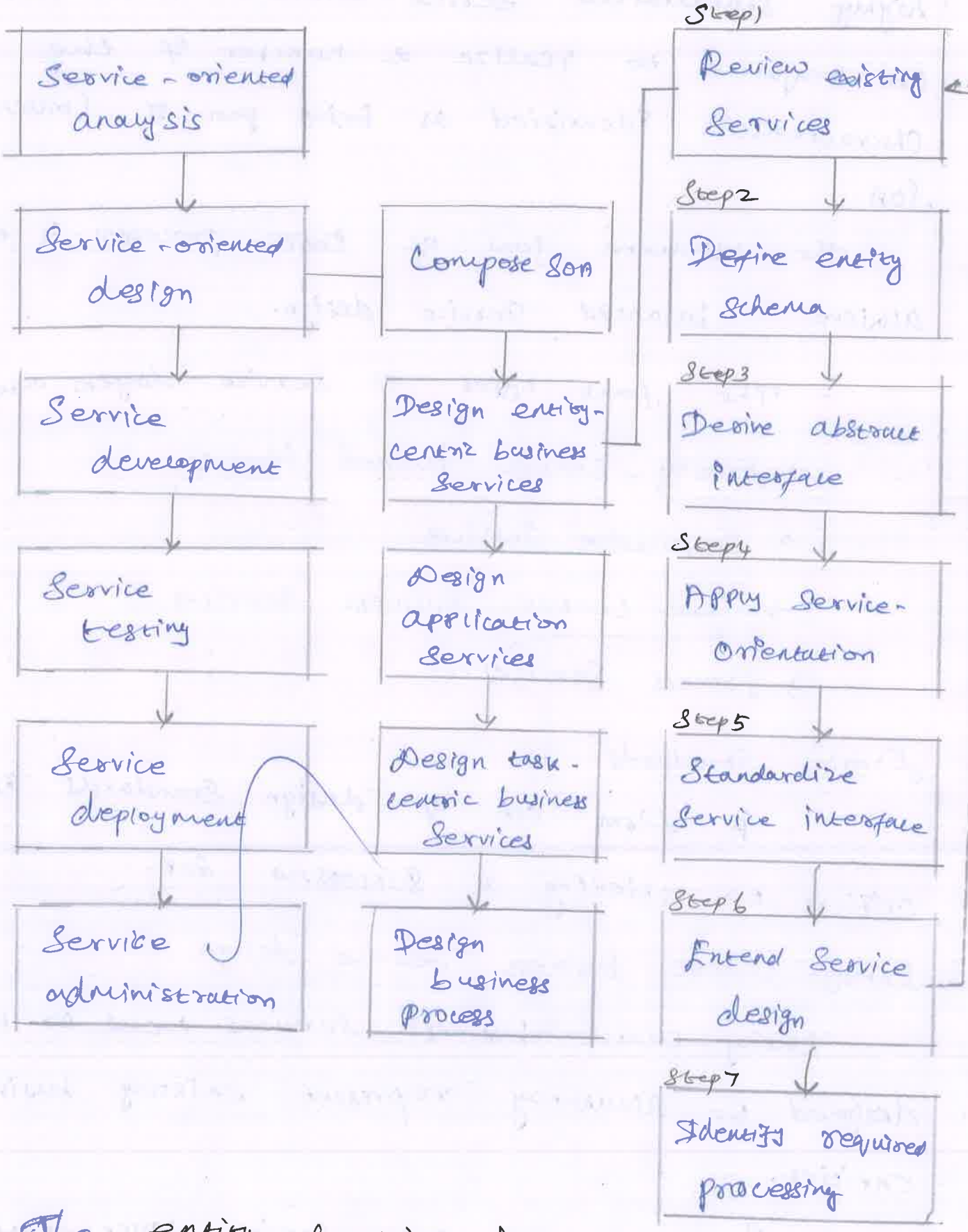
Entity-Centric business service design.

- Entity-centric business services need to be designed to accurately represent existing business entities.

- Represents the one service layer that is the least influenced by others.

- Its purpose is to accurately represent corresponding v data entities defined within an

organizations business models.



The entity-centric business service design process.

Step 1:

Review existing services

- The first step in designing a new service is to confirm whether it is actually even necessary.

Step 2: Define the message schema types.

- SOAP messages carry payload data within the Body section of the SOAP envelope. This data needs to be organized and typed.

- A standalone schema actually can be embedded in the types construct, wherein we can define each of the elements used to represent data within the SOAP body.

Step 3: Derive an abstract service interface.

1. Confirm that each operation candidate is suitably generic and reusable by ensuring that the granularity of the logic encapsulated is appropriate.

2. Create the portType area within the WSDL document and populate it with operation constructs that correspond to operation candidates.

3. Formalize the list of input and output values required to accomodate the processing of

each operation's logic.

Step 4: Apply principles of service orientation

- Service orientation
- Service autonomy
- Service reusability
- Service discoverability.

Step 5: Standardize and refine the service interface.

- Depending on requirements, this can be a multi-faceted step involving a series of design tasks.
- Review existing design standards and guidelines and apply any that are appropriate.

Step 6: Extend the service design

- There are two common ways to implement new functionality:
  - → add new operations
  - → add new parameters to existing operations.

Step 7: Identify required processing

- While the service modeling process from our service-oriented analysis may have identified some key application services, it may not have

been possible to define them all.

Application Service design.

- Application Services are the workhorses of SOA.
- They represent the bottom sub-layer of the composed service layer, responsible for carrying out any of the processing demands dictated to them by the business and orchestration layers.

→ The application service design process.

Step 1: Review existing services.

- It is very necessary to review our existing inventory of application services in search of anything resembling what we are about to design.

Step 2: Confirm the context

- When performing a service-oriented analysis it's natural to be focused on immediate business requirements.

Step 3: Derive an initial service interface.

1. Using the application service candidate as

of the logic partitions represented by the Operation candidates are appropriately generic and reusable.

2. Document the input and output values required for the processing of each operation candidate and define message structures using XSD schema constructs.

Step 4: Apply principles of service orientation

-> Service reusability

-> Service autonomy

-> Service statelessness

-> Service discoverability.

Step 5: Standardize and refine the service interface

- Apply any existing design standards relevant to the service interface.

Step 6: Outfit the service candidate with speculative features.

- For application services, speculative extensions revolve around the type of processing that falls within the service context.

Step 7: Identify technical constraints

First, for each operation, write a list of the processing functions required for the operation to carry out its processing. Then, for every entry on this list, find out exactly how the processing of the function will need to be executed in the existing technical environment.

Task-Centric business service design

- The task-centric business service design process.

Step 1: Define the workflow logic

Task-centric services will contain embedded workflow logic used to coordinate an underlying service composition.

Step 2: Derive the service interface

- Use the application service operation candidates to derive a set of corresponding operations.

- Document the input and output values required for the processing of each operation and populate the types section with XSD schema

types required to process the operations.

Step 3: Apply the principles of service-orientation

→ service reusability

→ service autonomy

→ service discoverability.

Step 4: Standardize and refine the service interface

- Incorporate existing design standards and guidelines.

- Ensure that any chosen contemporary SOA characteristics are fully supported by the service interface design.

Step 5: Identify required processing

- All required supporting application services need to be identified.

BUSINESS PROCESS DESIGN

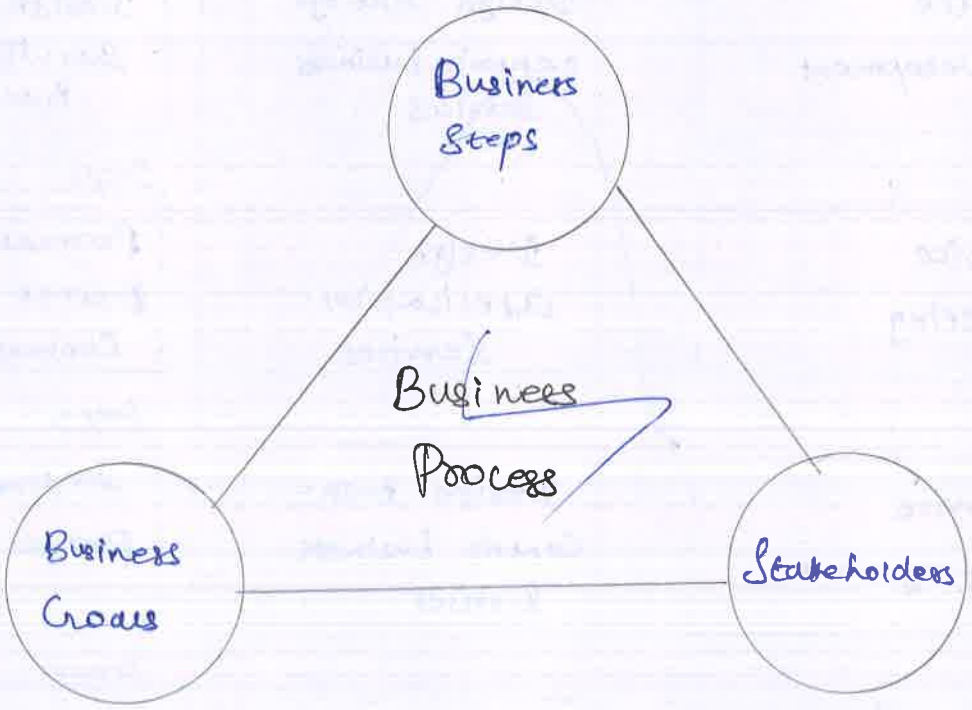
- Business Process design (BPD) is the act of creating a new process or workflow from scratch.

- Designing a process service requires the design of the service interface and the design

of the process definition.

- A business process is a series of steps performed by a group of stakeholders to achieve a concrete goal.

- Each step in a business process denotes a task that is assigned to a participant. It is the fundamental building block for several related ideas such as business process management, process automation, etc.



Business process design steps.

Business process design consists of the following 4 steps.

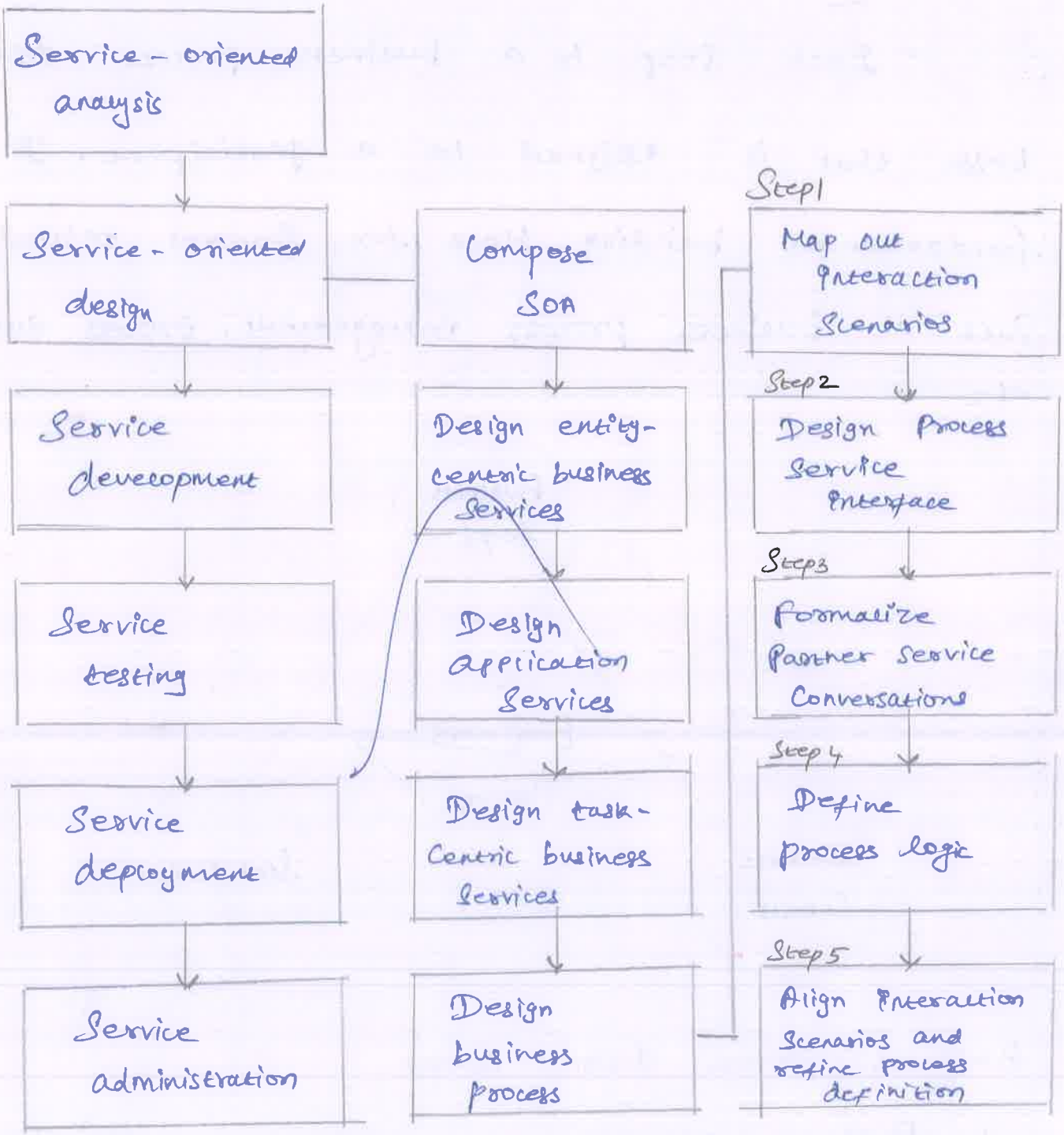
1) Identify and define the problem
2) Identifying Inputs, Outputs, Parties and

procedures.

3) Mapping out the process

4) Testing the process.

- A high-level process for designing business processes.



Business process design is the last step in our overall service-oriented design process.

Step1: Map out Interaction Scenarios

- Available workflow logic produced during the Service modeling process.
- The process service candidate created
- The existing service designs created.

Step 2: Design the process service Interface.

- Document the input and output values required for the processing of each operation, and populate the types section with XSD schema types required to process the operations.
- Add meta information via the documentation element.

Step 3: Formalize partner service Conversations.

1. Define the partner services that will be participating in the process and assign each the role it will be playing within a given message exchange.

2. Define variable elements to represent incoming and outgoing messages exchanged with partner services.

Step 4: Define Process logic

Finally, everything is in place for us to complete the process definition. This step is a process in itself as it requires that all

existing workflow intelligence be transposed and implemented.

Step 5: Align Interaction Scenarios and refine process

This final, optional step encourages to perform two specific tasks:

→ revisit the original interaction scenarios created and

→ review the process definition to look for optimization opportunities.

Case Study.

RailCo Ltd.

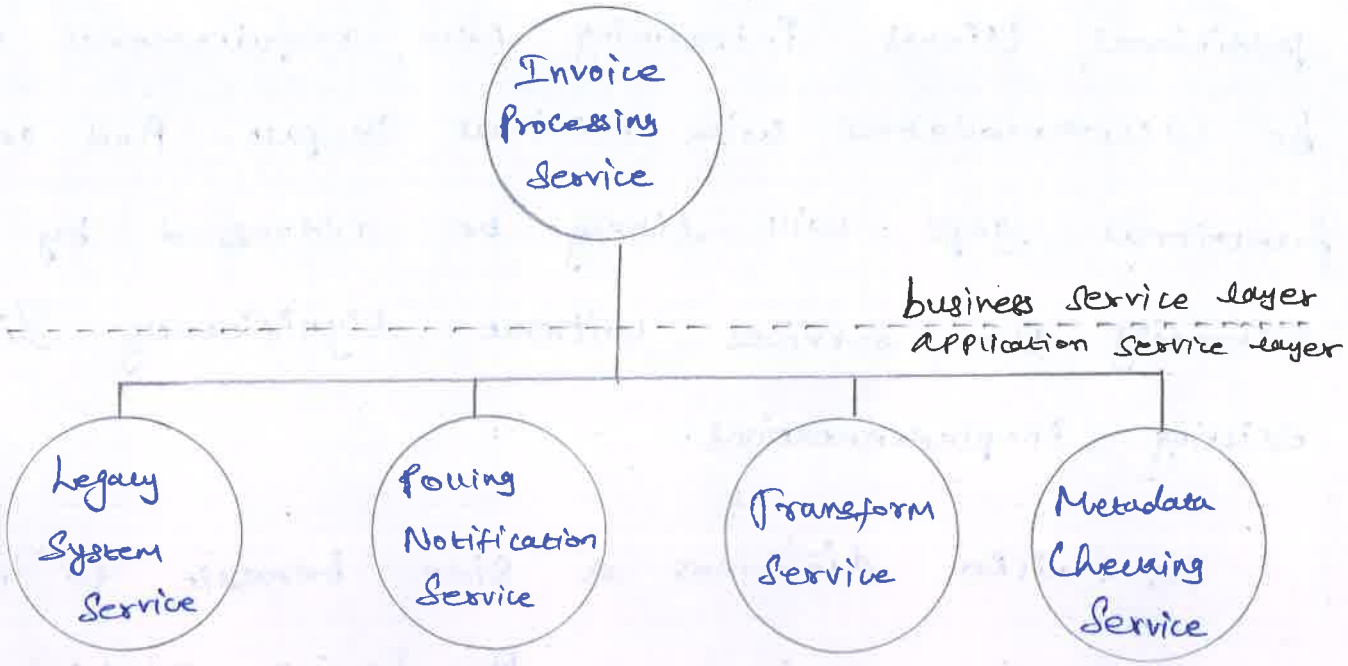
Railco's original goals were to upgrade its automation systems so that it could remain competitive and continue its business relationship with its primary client, TLS.

The two initial Web Services

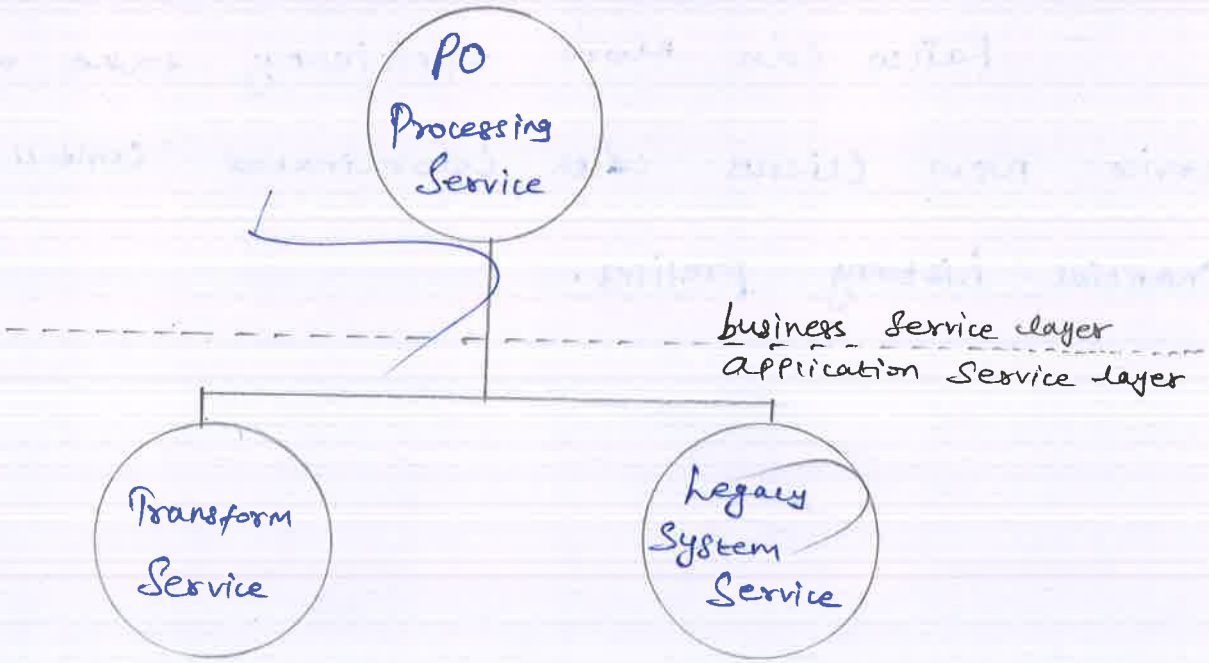
→ Invoice Submission Service

→ Order Fulfilment Service.

Railco's service composition that automates its Invoice Submission Process.



The order fulfillment process is automated by a PO Processing service that composes two reusable application services.



Raico has fulfilled its original goals by producing an SOA that supports two service-oriented solutions. Raico can now continue its online transactions

with TLS while confidently seeking new customers. Additional clients introducing new requirements can be accommodated with minimal impact. And any functional gaps will likely be addressed by extending the services without significantly disrupting existing implementations.

- Railco discovers a side benefit to its new solution environment. By having established the Legacy System Service as part of its application service layer, it has opened up a generic endpoint that can facilitate integration.

- Railco can more efficiently take on and service new clients with coordinated contact and financial history profiles.

TWO MARKS.

1. What are the common phases of an SOA delivery life cycle?.
2. What is service oriented analysis?.
3. What is service oriented design?.
4. List out the strategies in SOA.
5. List out the steps in top-down strategy.
6. List out the steps in bottom-up strategy.
7. What are the steps in agile strategy?.
8. Write the business-centric entry points?.
9. Define entity-centric business service.
10. Define task-centric business service.
11. List out the component specification in service Modeling.
12. Explain the steps in service Modeling.
13. What are the principles applied to service candidate?
14. What are the objectives of service-oriented design?
15. What are the guidelines used in SOA?
16. What is business process design?.
17. What are the steps needed to design business process

SIXTEEN MARKS.

1. Explain the Service oriented analysis and design in detail.
2. Elaborate the Step by Step process of Service Modeling.
2. Explain in detail. SOA delivery Strategies.
4. Explain the Service design and its types.

References.

1. Thomas Erl, "Service oriented architecture"; Concepts, Technology and Design", Pearson Education, 2005.
2. Ron Schmelzer et al, "XML and Web Services", Pearson Education, 2002.
3. Dr. D. Chitra, Prof- A. Kandappan, "Service Oriented Architecture", Technical Publications.

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

IT8074 - SERVICE ORIENTED ARCHITECTURE

IV CSE – VII SEM STUDENT NAME LIST

S.NO	REG. NO	NAME
1	731218104002	ANGAMMAL S
2	731218104004	BOOPATHI S
3	731218104006	GEETHA R
4	731218104008	IYYAPPAN L
5	731218104010	JEEVABHARATHI M
6	731218104011	JOTHIGA S
7	731218104014	MANIKANDAN T
8	731218104015	NIRANJANA M
9	731218104016	NISHA S
10	731218104017	RATHISH D
11	731218104018	SARANYA M
12	731218104019	SIBIN DASS S
13	731218104020	SINDHU S
14	731218104021	SINDHUJA V
15	731218104023	SUBRAMANI N
16	731218104024	THAMARAISELVI R
17	731218104025	UMA D
18	731218104026	VIJAYA KUMAR S
19	731218104028	VINODH L
20	731218104301	KAVIYARASAN.M
21	731218104302	KIRUTHIKA.S

SUBJECT INCHARGE HOD PRINCIPAL

IT8074 SERVICE ORIENTED ARCHITECTURE L T P C

3 0 0 3

OBJECTIVES:

- To learn fundamentals of XML
- To provide an overview of Service Oriented Architecture and Web services and theirimportance
- To learn web services standards and technologies
- To learn service oriented analysis and design for developing SOA based applications

UNIT I XML 9

XML document structure - Well-formed and valid documents - DTD - XML Schema - Parsing XML using DOM, SAX - XPath - XML Transformation and XSL - Xquery

UNIT II SERVICE ORIENTED ARCHITECTURE (SOA) BASICS 9

Characteristics of SOA, Benefits of SOA , Comparing SOA with Client-Server and Distributedarchitectures –- Principles of Service Orientation - Service layers

UNIT III WEB SERVICES (WS) AND STANDARDS 8

Web Services Platform - Service descriptions - WSDL - Messaging with SOAP - Service discovery - UDDI - Service-Level Interaction Patterns - Orchestration and Choreography

UNIT IV WEB SERVICES EXTENSIONS 8

WS-Addressing - WS-ReliableMessaging - WS-Policy - WS-Coordination -WS - Transactions -WS-Security - Examples

UNIT V SERVICE ORIENTED ANALYSIS AND DESIGN 11

SOA delivery strategies - Service oriented analysis - Service Modelling - Service oriented design - Standards and composition guidelines -- Service design - Business process design - CaseStudy

TOTAL: 45 PERIODS

TEXT BOOKS:

1. Thomas Erl, ¯Service Oriented Architecture: Concepts, Technology, and Design‖, PearsonEducation, 2005
2. Sandeep Chatterjee and James Webber, ¯Developing Enterprise Web Services: AnArchitect's Guide‖, Prentice Hall, 2004

REFERENCES:

1. James McGovern, Sameer Tyagi, Michael E Stevens, Sunil Mathew, ¯Java Web ServicesArchitecture‖, Elsevier, 2003.
2. Ron Schmelzer et al. ¯XML and Web Services‖, Pearson Education, 2002.
3. Frank P.Coyle, ¯XML, Web Services and the Data Revolution‖, Pearson Education,2002

J.K.K. MUNIRAJAH COLLEGE OF TECHNOLOGY, T.N.PALAYAM
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
LESSON PLAN

FACULTY NAME : **M.C.SAVITHRI**
DESIGNATION : **AP/ CSE**
SUBJECT CODE / TITLE : **IT8074 / SERVICE ORIENTED ARCHITECTURE**
BRANCH/SEMESTER : **CSE / VII**
YEAR : **IV**

OBJECTIVES:

- To learn fundamentals of XML
- To provide an overview of Service Oriented Architecture and Web services and theirimportance
- To learn web services standards and technologies
- To learn service oriented analysis and design for developing SOA based applications

HOURS	TOPICS TO BE COVERED	DATE	PERIOD	TEACHING METHODOLOGY	TEACHING AID	REMARKS
	UNIT I XML					
1	XML document structure	18/8/21	4	Lecturer	Board & Chalk	
2	Well-formed and valid documents	19/8/21	5	Lecturer	Board & Chalk	
3	DTD	23/8/21	3	Lecturer	Board & Chalk	
4	XML Schema	24/8/21	4	Lecturer	Board & Chalk	

5	ParsingXML using DOM, SAX	25/8/21	4	Lecturer	Board & Chalk	
6	ParsingXML using DOM, SAX	26/8/21	5	Lecturer	Board & Chalk	
7	XPath	31/8/21	4	Lecturer	Board & Chalk	
8	XML Transformation and XSL	1/9/21	4	Lecturer	Board & Chalk	
9	Xquery	2/9/21	5	Lecturer	Board & Chalk	
	UNIT II SERVICE ORIENTED ARCHITECTURE (SOA) BASICS					
10	Characteristics of SOA	6/9/21	3	Lecturer	Board & Chalk	
11	Characteristics of SOA	6/9/21	6	Lecturer	Board & Chalk	
12	Benefits of SOA	7/9/21	4	Lecturer	Board & Chalk	
13	Benefits of SOA	8/9/21	4	Lecturer	Board & Chalk	
14.	Comparing SOA with Client-Server and Distributedarchitectures	8/9/21	4	Lecturer	Board & Chalk	
15	Comparing SOA with Client-Server and Distributedarchitectures	9/9/21	5	Lecturer	Board & Chalk	
16.	Principles of Service Orientation	13/9/21	3	Lecturer	Board & Chalk	
17.	Principles of Service Orientation	13/9/21	6	Lecturer	Board & Chalk	
18	Service layers	14/9/21	4	Lecturer	Board & Chalk	

	UNIT III	**WEB SERVICES (WS) AND STANDARDS**				
19	Web Services Platform	16/9/21	5	Lecturer	Board & Chalk	
20	Service descriptions	20/9/21	3	Lecturer	Board & Chalk	
21.	WSDL	21/9/21	4	Lecturer	Board & Chalk	
22.	Messaging with SOAP	22/9/21	4	Lecturer	Board & Chalk	
23	Servicediscovery	23/9/21	5	Lecturer	Board & Chalk	
24	UDDI	27/9/21	3	Lecturer	Board & Chalk	
25	Service-Level Interaction Patterns	28/9/21	4	Lecturer	Board & Chalk	
26.	Orchestration and Choreography	29/9/21	4	Lecturer	Board & Chalk	
	UNIT IV	**WEB SERVICES EXTENSIONS**				
27.	WS-Addressing	11/10/21	3	Lecturer	Board & Chalk	
28.	WS-ReliableMessaging	11/10/21	6	Lecturer	Board & Chalk	
29.	WS-ReliableMessaging	12/10/21	4	Lecturer	Board & Chalk	
30.	WS-Policy	13/10/21	4	Lecturer	Board & Chalk	
31.	WS-Coordination	20/10/21	4	Lecturer	Board & Chalk	

32.	WS -Transactions	21/10/21	5	Lecturer	Board & Chalk	
33	WS-Security	15/11/21	3	Lecturer	Board & Chalk	
34	Examples	15/11/21	3	Lecturer	Board & Chalk	
UNIT V SERVICE ORIENTED ANALYSIS AND DESIGN						
35.	SOA delivery strategies	15/11/21	6	Lecturer	Board & Chalk	
36.	Service oriented analysis	16/11/21	4	Lecturer	Board & Chalk	
37.	Service oriented analysis	16/11/21	4	Lecturer	Board & Chalk	
38.	Service Modelling	17/11/21	4	Lecturer	Board & Chalk	
39.	Service Modelling	18/11/21	5	Lecturer	Board & Chalk	
40.	Service oriented design	18/11/21	5	Lecturer	Board & Chalk	
41.	Service oriented design	22/11/21	3	Lecturer	Board & Chalk	
42.	Standards and composition guidelines	22/11/21	6	Lecturer	Board & Chalk	
43	Service design	23/11/21	4	Lecturer	Board & Chalk	
44.	Business process design	24/11/21	4	Lecturer	Board & Chalk	
45.	CaseStudy	25/11/21	5	Lecturer	Board & Chalk	

TEXT BOOKS:

1. Thomas Erl, — Service Oriented Architecture: Concepts, Technology, and Design‖, PearsonEducation, 2005
2. Sandeep Chatterjee and James Webber, —Developing Enterprise Web Services: AnArchitect's Guide‖, Prentice Hall, 2004

REFERENCES:

1. James McGovern, Sameer Tyagi, Michael E Stevens, Sunil Mathew, —Java Web ServicesArchitecture‖, Elsevier, 2003.
2. Ron Schmelzer et al. — XML and Web Services‖, Pearson Education, 2002.
3. Frank P.Coyle, —XML, Web Services and the Data Revolution‖, Pearson Education,2002

STAFF IN-CHARGE **HOD** **PRINCIPAL**

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JKKMCT/CIRCULAR/4175/SEP-21 **DATE: 06/09/2021**

CIRCULAR

All the Hods & Tutors are informed that follow the August to December - 2021 for all **UG & PG -Programmes - Except M.C.A (2 Years)** Students Attendance & Assessment **SLOT REPORT ENTRY PERIOD for the *ODD SEMESTER***, as follows.

ALL UG/PG COURSES			
SLOT	***Slot Report Period***	***Test Period***	***Report Entry Period***
I	18-08-2021- 13-09-2021	-	13-09-2021- 18-09-2021
II	14-09-2021- 07-10-2021	01-10-2021- 07-10-2021	07-10-2021- 13-10-2021
III	08-10-2021- 05-11-2021	29-10-2021- 05-11-2021	05-11-2021- 11-11-2021
IV	06-11-2021- 30-11-2021	23-11-2021- 30-11-2021	30-11-2021- 02-12-2021

6/9/21

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JKKMCT/CIRCULAR/4183/SEP-21 **DATE: 20/09/2021**

CIRCULAR

All the Hods and Faculty members are informed that prepare the **2 Set of Question paper** for **II Year, III Year & Final Year Subjects to** modernize the **SecondPeriod of Attendance details &First Internal Marks.** Submit it to Exam cell on or before **30-09-2021,**

1st Internal Assessment dates are: 04-10-2021, 05-10-2021 & 06-10-2021

Assessment Report Entry last date: 13-10-2021

20/9/21
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- **Students Circulations**

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J K K MUNIRAJAH COLLEGE OF TECHNOLOGY
DEPARTMENT OF CSE
INTERNAL ASSESSMENT-I SCHEDULE - OCTOBER- 2021

EXAM TIMING – FN: 10.00 AM TO 11.30 AM **AN: 2.30 PM TO 4.00 PM**

S.NO	DATE	DAY	II YEAR CSE		III YEAR CSE		IV YEAR CSE	
			FN	AN	FN	AN	FN	AN
1	04.10.2021	MONDAY	MA8351 DM	CS8351 DPSD	MA8551 ANT	CS8591 CN	MG8591 POM	CS8792 CNS
2	05.10.2021	TUESDAY	CS8391 DS	CS8392 OOP	EC8691 MP&MC	CS8501 TOC	CS8791 CC	OME752 SCM
3	06.10.2021	WEDNESDAY	EC8395 CE	–	CS8592 OOAD	OMD553 THT	IT8074 SOA	CS8079 HCI
STAFF SIGNATURE								
TUTOR								

EXAM CELL INCHARGE

HOD

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J K K MUNIRAJAH COLLEGE OF TECHNOLOGY

DEPARTMENT OF CSE

INTERNAL ASSESSMENT -I OCTOBER-2021-ODD SEMESTER

DUTY CHART FOR STAFF MEMBERS

S.NO	STAFF NAME	04.10.2021		05.10.2021		06.10.2021		SIGNATURE
		FN	AN	FN	AN	FN	AN	
1	E.Ananth			*				
2	P.Sasireka		*					
3	V.Nirosha			*				
4	M.C.Savithri				*			
5	L.Poornimadevi	*				*		
6	S.Satheesh		*					
7	S.Dharanitharan						*	
8	M.Sivaranjani						*	
9	S.Kiruthika					*		
10	J.E.Jebitha johnsy				*			
11	P.Mahasakthi	*						

NOTE:

1 Staff going for exam duty must present at 9.45 AM for FN & 2.15 for AN.

2 Students should not be allowed to leave the hall before 11.30 AM for FN & 4.00 PM for AN.

3 Students should not be allowed to write exam with out ID card.

4 Students are not permitted to get anything from anybody inside exam hall.

EXAM CELL **HOD** **PRINCIPAL**

REGISTER NUMBER												

J.K.K MUNIRAJAH COLLEGE OF TECHNOLOGY, T.N.PALAYAM

INTERNAL ASSESSMENT- I, OCTOBER-2021

Seventh Semester

B.E - COMPUTERSCIENCE AND ENGINEERING

IT8074–SERVICE ORIENTED ARCHITECTURE

Time:1.30hrs **MaximumMarks:50**

Date: 06.10.2021 **Session:FN**

Answer ALL questions

PARTA-(9X2=18 marks)

S.NO	QUESTION	MARKS	BTL
1	What is XML?	2	L1
2	List the components of XML Document Structure	2	L1
3	Mention the rules applied for XML elements	2	L1
4	Define DOCTYPE	2	L1
5	What is DTD?	2	L1
6	Distinguish between Internal DTD and External DTD	2	L1
7	What is meant by Well-formed documents and mention the rules	2	L1
8	Define Namespace	2	L1
9	Define XML Schema?	2	L1
	PARTB-(2 X16= 32 marks)		
10 a)	Describe the XML Document Structure in detail.	16	L2
	(Or)		
10 b)	Describe DTD in detail.	16	L2

BTL-BLOOMSTAXONOMY LEVEL

11 a)	Explain the characteristics of SOA in detail	16	L2
	(Or)		
11 b)	Explain parsing XML using DOM in detail	16	L2

Preparedby

Sign:

Name:Mrs.M.C.Savithri

Checkedby

HOD

Verifiedby

IQACCOORDINATOR

Approvedby

PRINCIPAL

BTL-BLOOMSTAXONOMY LEVEL

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

IT8074 - SERVICE ORIENTED ARCHITECTURE

IV CSE STUDENTS INTERNAL - I MARK LIST

S.NO	REG. NO	NAME	INTERNAL – I (100)
1	731218104002	ANGAMMAL S	60
2	731218104004	BOOPATHI S	55
3	731218104006	GEETHA R	60
4	731218104008	IYYAPPAN L	36
5	731218104010	JEEVABHARATHI M	32
6	731218104011	JOTHIGA S	50
7	731218104014	MANIKANDAN T	64
8	731218104015	NIRANJANA M	60
9	731218104016	NISHA S	60
10	731218104017	RATHISH D	64
11	731218104018	SARANYA M	66
12	731218104019	SIBIN DASS S	60
13	731218104020	SINDHU S	12
14	731218104021	SINDHUJA V	70
15	731218104023	SUBRAMANI N	50
16	731218104024	THAMARAISELVI R	60
17	731218104025	UMA D	62
18	731218104026	VIJAYA KUMAR S	30
19	731218104028	VINODH L	40
20	731218104301	KAVIYARASAN.M	60
21	731218104302	KIRUTHIKA.S	80

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JKKMCT/CIRCULAR/4193/OCT-21 **DATE: 25/10/2021**

CIRCULAR

All the Hods and Faculty members are informed that prepare the **2 Set of Question paper** for **II Year, III Year & Final Year Subjects to** modernize the **Third Period of Attendance details & Second Internal Marks.** Submit it to Exam cell on or before **28-10-2021,**

2nd Internal Assessment dates are: 01-11-2021, 02-11-2021 & 03-11-2021

Assessment Report Entry last date: 10-11-2021

25/10/21

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J K K MUNIRAJAH COLLEGE OF TECHNOLOGY
DEPARTMENT OF CSE
INTERNAL ASSESSMENT-II SCHEDULE - NOVEMBER - 2021

EXAM TIMING – FN: 10.00 AM TO 11.30 AM **AN: 2.30 PM TO 4.00 PM**

S.NO	DATE	DAY	II YEAR CSE		III YEAR CSE		IV YEAR CSE	
			FN	AN	FN	AN	FN	AN
1	01.11.2021	MONDAY	MA8351 DM	CS8351 DPSD	MA8551 ANT	CS8591 CN	MG8591 POM	CS8792 CNS
2	02.11.2021	TUESDAY	CS8391 DS	CS8392 OOP	EC8691 MP&MC	CS8501 TOC	CS8791 CC	OME752 SCM
3	03.11.2021	WEDNESDAY	EC8395 CE	–	CS8592 OOAD	OMD553 THT	IT8074 SOA	CS8079 HCI
STAFF SIGNATURE								
TUTOR								

E. Arul
EXAM CELL INCHARGE

HOD

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J K K MUNIRAJAH COLLEGE OF TECHNOLOGY

DEPARTMENT OF CSE

INTERNAL ASSESSMENT -II NOVEMBER-2021-ODD SEMESTER

DUTY CHART FOR STAFF MEMBERS

S.NO	STAFF NAME	01.11.2021		02.11.2021		03.11.2021		SIGNATURE
		FN	AN	FN	AN	FN	AN	
1	E.Ananth		*					
2	P.Sasireka	*						
3	V.Nirosha			*			*	
4	M.C.Savithri				*			
5	L.Poornimadevi		*					
6	S.Satheesh			*				
7	S.Dharanitharan	*						
8	M.Sivaranjani					*		
9	S.Kiruthika				*			
10	J.E.Jebitha johnsy						*	
11	P.Mahasakthi					*		

NOTE:

1 Staff going for exam duty must present at 9.45 AM for FN & 2.15 for AN.

2 Students should not be allowed to leave the hall before 11.30 AM for FN & 4.00 PM for AN.

3 Students should not be allowed to write exam with out ID card.

4 Students are not permitted to get anything from anybody inside exam hall.

EXAM CELL **HOD** **PRINCIPAL**

REGISTER NUMBER												

J.K.K MUNIRAJAH COLLEGE OF TECHNOLOGY, T.N.PALAYAM

INTERNAL ASSESSMENT- II, NOVEMBER-2021

Seventh Semester

B.E - COMPUTERSCIENCE AND ENGINEERING

IT8074–SERVICE ORIENTED ARCHITECTURE

Time:1.30hrs **MaximumMarks:50**

Date: 06.11.2021 **Session:FN**

Answer ALL questions

PARTA-(9X2=18 marks)

S.NO	QUESTION	MARKS	BTL
1	What is the Envelope element?	2	L1
2	Give the structure of a SOAP message	2	L1
3	List out the SOA principles supported by Application service design	2	L1
4	What are the steps needed to design the Entity-centric business service?	2	L1
5	Write down the step for Task-centric business service design	2	L1
6	Give the skeleton for the Envelope element	2	L1
7	Draw the Fundamental software technology architecture layers	2	L1
8	Give the Architecture components of J2EE to SOA.	2	L1
9	What is the Fault element?	2	L1
	PARTB-(2 X16= 32 marks)		
10 a)	Compare and contrast SOA and Distributed Internet Architecture	16	L2
	(Or)		
10 b)	Compare and contrast SOA and Client-Server Architecture	16	L2

11 a)	Describe in detail about Messaging with SOAP	16	L2
	(Or)		
11 b)	Explain the principles of service orientation	16	L2

Preparedby	**Checkedby**	**Verifiedby**	**Approvedby**
Sign:			
Name:Mrs.M.C.Savithri	**HOD**	**IQACCOORDINATOR**	**PRINCIPAL**

J.K.K MUNIRAJAHCOLLEGE OF TECHNOLOGY

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

IT8074 - SERVICE ORIENTED ARCHITECTURE

IV CSE STUDENTS INTERNAL - II MARK LIST

S.NO	REG. NO	NAME	INTERNAL – II (100)
1	731218104002	ANGAMMAL S	80
2	731218104004	BOOPATHI S	50
3	731218104006	GEETHA R	86
4	731218104008	IYYAPPAN L	26
5	731218104010	JEEVABHARATHI M	AB
6	731218104011	JOTHIGA S	50
7	731218104014	MANIKANDAN T	82
8	731218104015	NIRANJANA M	50
9	731218104016	NISHA S	84
10	731218104017	RATHISH D	90
11	731218104018	SARANYA M	88
12	731218104019	SIBIN DASS S	84
13	731218104020	SINDHU S	56
14	731218104021	SINDHUJA V	84
15	731218104023	SUBRAMANI N	50
16	731218104024	THAMARAISELVI R	68
17	731218104025	UMA D	66
18	731218104026	VIJAYA KUMAR S	54
19	731218104028	VINODH L	40
20	731218104301	KAVIYARASAN.M	56
21	731218104302	KIRUTHIKA.S	92

SUBJECT INCHARGE HOD PRINCIPAL

J.K.K.MUNIRAJAH
COLLEGE OF TECHNOLOGY
T.N.PALAYAM (PO), GOBI (TK), ERODE (DT) – 638 506

www.jkkmct.edu.in, Landline no: 04285260754 / 260755

JKKMCT/CIRCULAR/4203/NOV-21 **DATE: 22/11/2021**

CIRCULAR

All the Hods and Faculty members are informed that prepare the **2 Set of Question paper** for **II Year, III Year & Final Year Subjects to** modernize the **Fourth Period of Attendance details & Third Internal Marks.** Submit it to Exam cell on or before **24-11-2021,**

3rd Internal Assessment dates are: 26-11-2021, 27-11-2021 & 29-11-2021

Assessment Report Entry last date: 01-12-2021

J.K.K. MUNIRAJAH COLLEGE OF TECHNOLOGY
Gobi (Tk), Erode (Dt) -638 506.
THOOKKANAICKENPALAYAM

22/11/21

PRINCIPAL
Dr.K. SRIDHARAN
Principal
J.K.K. MUNIRAJAH COLLEGE OF TECHNOLOGY
T.N. PALAYAM (PO), GOBI (TK), ERODE (DT).
TAMILNADU, PIN : 638 506.

Copy To,

- **All the HoD's and Faculty Members Circulation**
- **Students Circulations**

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OF TECHNOLOGY
T.N. PALAYAM (Po)-638 506.
GOBI (Tk), ERODE (Dt).

J K K MUNIRAJAH COLLEGE OF TECHNOLOGY
DEPARTMENT OF CSE
INTERNAL ASSESSMENT-III SCHEDULE - NOVEMBER - 2021

EXAM TIMING – FN: 10.00 AM TO 11.30 AM **AN: 2.30 PM TO 4.00 PM**

S.NO	DATE	DAY	II YEAR CSE		III YEAR CSE		IV YEAR CSE	
			FN	AN	FN	AN	FN	AN
1	26.11.2021	FRIDAY	MA8351 DM	CS8351 DPSD	MA8551 ANT	CS8591 CN	MG8591 POM	CS8792 CNS
2	27.11.2021	SATURDAY	CS8391 DS	CS8392 OOP	EC8691 MP&MC	CS8501 TOC	CS8791 CC	OME752 SCM
3	29.11.2021	MONDAY	EC8395 CE	—	CS8592 OOAD	OMD553 THT	IT8074 SOA	CS8079 HCI
STAFF SIGNATURE								
TUTOR								

E. [signature]
EXAM CELL INCHARGE

HOD

PRINCIPAL

J K K MUNIRAJAH COLLEGE OF TECHNOLOGY

DEPARTMENT OF CSE

INTERNAL ASSESSMENT -III NOVEMBER-2021-ODD SEMESTER

DUTY CHART FOR STAFF MEMBERS

S.NO	STAFF NAME	26.11.2021		27.11.2021		29.11.2021		SIGNATURE
		FN	AN	FN	AN	FN	AN	
1	E.Ananth	✱		✱				
2	P.Sasireka		✱					
3	V.Nirosha			✱				
4	M.C.Savithri	✱						
5	L.Poornimadevi						✱	
6	S.Satheesh		✱					
7	S.Dharanitharan				✱			
8	M.Sivaranjani					✱		
9	S.Kiruthika				✱			
10	J.E.Jebitha johnsy					✱		
11	P.Mahasakthi						✱	

NOTE:

1 Staff going for exam duty must present at 9.45 AM for FN & 2.15 for AN.

2 Students should not be allowed to leave the hall before 11.30 AM for FN & 4.00 PM for AN.

3 Students should not be allowed to write exam with out ID card.

4 Students are not permitted to get anything from anybody inside exam hall.

EXAM CELL **HOD** **PRINCIPAL**

REGISTER NUMBER												

J.K.K MUNIRAJAH COLLEGE OF TECHNOLOGY, T.N.PALAYAM

INTERNAL ASSESSMENT- III, NOVEMBER-2021

Seventh Semester

B.E - COMPUTERSCIENCE AND ENGINEERING

IT8074–SERVICE ORIENTED ARCHITECTURE

Time:1.30hrs **MaximumMarks:50**

Date: 06.11.2021 **Session:FN**

Answer ALL questions

PARTA-(9X2=18 marks)

S.NO	QUESTION	MARKS	BTL
1	What is WS-BPEL?	2	L1
2	Define fault handlers.	2	L1
3	What is WS-Choreography?.	2	L1
4	What is WS-policy?	2	L1
5	Why is WS-Security needed?	2	L1
6	Give the basic structure of the XML signature.	2	L1
7	What are channels?	2	L1
8	What is WS-Security?	2	L1
9	Draw the WS-BPEL family tree.	2	L1
	PARTB-(2 X16= 32 marks)		
10 a)	Explain WS-Coordination in detail.	16	L2
	(Or)		
10 b)	Describe in detail WS-Transaction with its types	16	L2

11 a)	Explain briefly about WS-Security.	16	L2
	(Or)		
11 b)	Explain the service oriented analysis and design in detail	16	L2

Prepared by	Checked by	Verified by	Approved by
Sign:			
Name:Mrs.M.C.Savithri	HOD	IQACCOORDINATOR	PRINCIPAL

J.K.K MUNIRAJAHCOLLEGE OF TECHNOLOGY

Approved by AICTE, New Delhi And Affiliated to Anna University, Chennai.

T.N. Palayam (Po), Gobi (Tk), Erode (Dt) – 638 506

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

IT8074 - SERVICE ORIENTED ARCHITECTURE

IV CSE STUDENTS INTERNAL - III MARK LIST

S.NO	REG. NO	NAME	INTERNAL – III (100)
1	731218104002	ANGAMMAL S	70
2	731218104004	BOOPATHI S	70
3	731218104006	GEETHA R	76
4	731218104008	IYYAPPAN L	34
5	731218104010	JEEVABHARATHI M	50
6	731218104011	JOTHIGA S	56
7	731218104014	MANIKANDAN T	66
8	731218104015	NIRANJANA M	64
9	731218104016	NISHA S	84
10	731218104017	RATHISH D	70
11	731218104018	SARANYA M	80
12	731218104019	SIBIN DASS S	78
13	731218104020	SINDHU S	60
14	731218104021	SINDHUJA V	74
15	731218104023	SUBRAMANI N	72
16	731218104024	THAMARAISELVI R	AB
17	731218104025	UMA D	66
18	731218104026	VIJAYA KUMAR S	60
19	731218104028	VINODH L	76
20	731218104301	KAVIYARASAN.M	60
21	731218104302	KIRUTHIKA.S	80

SUBJECT INCHARGE HOD PRINCIPAL

REGISTER NUMBER												

J.K.K MUNIRAJAH COLLEGE OF TECHNOLOGY, T.N.PALAYAM

MODEL EXAMINATION, DECEMBER-2021

Seventh Semester

B.E - COMPUTERSCIENCE AND ENGINEERING

IT8074–SERVICE ORIENTED ARCHITECTURE

Time:3.00hrs **Maximum Marks:100**

Date: 23.12.2022 **Session:FN**

Answer ALL questions

PART A-(10X2=20 marks)

S.NO	QUESTION	MARKS	BTL
1	List the components of XML Document Structure	2	L1
2	Define DOCTYPE.	2	L1
3	Write the steps in parsing XML document using DOM.	2	L1
4	How XSLT is efficient for Document Publishing?	2	L1
5	List out the elements in the WSDL Document Structure	2	L1
6	What is SOAP?	2	L1
7	Give the Specifications of WS-Policy framework	2	L1
8	What is WS-Choreography?	2	L1
9	Define ACID transactions	2	L1
10	What are the common phases of an SOA delivery lifecycle	2	L1
	PART B-(5 X16= 80 marks)		
11 a)	(i) Explain the XML Document Structure in detail. (ii)Explain the Well-formed and valid documents.	16	L2
	(Or)		
11 b)	Describe in detail the steps in Parsing XML document using DOM and SAX	16	L2

12 a)	Explain the characteristics of SOA in detail	16	L2
	(Or)		
12 b)	(i) Explain the principles of service orientation in detail (ii) Explain the layers of abstraction	16	L2
13 a)	(i) Explain the SOAP in detail. (ii) Explain the Service Descriptions	16	L2
	(Or)		
13 b)	(i) Describe in detail the UDDI (ii) Explain the Orchestration in detail	16	L2
14 a)	Explain WS Addressing and Reliable Addressing in detail	16	L2
	(Or)		
14 b)	Explain WS Coordination and Transaction in detail	16	L2
15 a)	Explain the service oriented analysis and modeling in detail	16	L2
	(Or)		
15 b)	Describe in detail the service design and its types	16	L2

Prepared by	Checked by	Verified by	Approved by
Sign:			
Name:Mrs.M.C.Savithri	HOD	IQAC COORDINATOR	PRINCIPAL

BTL-BLOOMSTAXONOMY LEVEL

J.K.K MUNIRAJAHCOLLEGE OF TECHNOLOGY

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T.N. Palayam (Po), Gobi (Tk), Erode (Dt) – 638 506

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

IT8074 - SERVICE ORIENTED ARCHITECTURE

IV CSE STUDENTS MODEL MARK LIST

S.NO	REG. NO	NAME	MODEL (100)
1	731218104002	ANGAMMAL S	66
2	731218104004	BOOPATHI S	50
3	731218104006	GEETHA R	72
4	731218104008	IYYAPPAN L	12
5	731218104010	JEEVABHARATHI M	38
6	731218104011	JOTHIGA S	55
7	731218104014	MANIKANDAN T	51
8	731218104015	NIRANJANA M	51
9	731218104016	NISHA S	62
10	731218104017	RATHISH D	50
11	731218104018	SARANYA M	57
12	731218104019	SIBIN DASS S	64
13	731218104020	SINDHU S	50
14	731218104021	SINDHUJA V	71
15	731218104023	SUBRAMANI N	50
16	731218104024	THAMARAISELVI R	50
17	731218104025	UMA D	50
18	731218104026	VIJAYA KUMAR S	50
19	731218104028	VINODH L	56
20	731218104301	KAVIYARASAN.M	58
21	731218104302	KIRUTHIKA.S	84

SUBJECT INCHARGE HOD PRINCIPAL

Reg. No. : | | | | | | | | | | | | |

Question Paper Code : X 20775

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2020
Seventh/Eighth Semester
Information Technology
IT6801 – SERVICE ORIENTED ARCHITECTURE
(Common to Computer Science and Engineering)
(Regulations 2013)
(Also Common to PTIT 6801 – Service Oriented Architecture B.E. Part Time – Seventh Semester Information Technology – Regulations 2014)

Time : Three Hours | Maximum : 100 Marks

Answer ALL questions

PART – A (10×2=20 Marks)

1. Difference between XML and HTML.
2. Mention the components of Document type declaration.
3. Write the steps in parsing XML document using DOM.
4. Difference between DOM and SAX.
5. List out the requirements is needed to fill QoS gaps between contemporary and primitive SOA.
6. How is loose coupling concept achieved in SOA ?
7. What is Choreography ?
8. Define Loose coupling.
9. List out the standards that web service depends.
10. What is web service composition ?

PART – B (5×13=65 Marks)

11.a) Explain in detail about XML schema.

(OR)

b) i) Write the XML well formed and valid documents. (7)

ii) Explain about Namespaces. (6)

12. a) i) Outline the XML document object model with an example. (7)

ii) Write the working of a SAX parser. (6)

(OR)

b) Describe the XML transformation and XSL with an example.

13. a) i) Write the characteristics of SOA. (7)

ii) Outline the benefits of SOA. (6)

(OR)

b) Compare SOA with Client-Server and Distributed architectures. (13)

14. a) Explain the WSDL document structure with an example. (13)

(OR)

b) i) Draw the message structure of SOAP. (7)

ii) Write short notes on UDDI. (6)

15. a) Give the architecture components of J2EE to SOA and WS policy. (13)

(OR)

b) i) Write short notes on WS-Coordination. (6)

ii) Describe the Service Modeling of SOA. (7)

PART – C (1×15=15 Marks)

16. a) Explain using DTD for Entity Declaration and external DTD.

(OR)

b) Draw the DOM parser for a specific XML-Based application.

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Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 72060

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2017.

Seventh/Eighth Semester

Information Technology

IT 6801 — SERVICE ORIENTED ARCHITECTURE

(Common to Computer Science and Engineering)

(Regulations 2013)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is XML?
2. What are two types of WSDL elements?
3. What is meant by XSL formatting?
4. List out the Characteristics of SOA.
5. What are the benefits of SOA?
6. What do you mean by UDDI?
7. Write about JAX-WS.
8. What is J2EE?
9. What are the Standards that Web service depends on?
10. What do you mean by WS-Security?

PART B — (5 × 16 = 80 marks)

11. (a) Briefly explain the characteristics of Web service framework and web service roles.

Or

(b) Explain the XML document Structure.

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12. (a) Describe in detail about how to create well-formed XML and XSL Transformations.

Or

(b) Describe in detail about the modeling databases in XML.

13. (a) Give an overview of SOA and explain the Characteristics of SOA.

Or

(b) Compare SOA to Client-server and Distributed internet architecture. (16)

14. (a) Briefly explain Messaging with SOAP and service discovery.

Or

(b) Briefly Explain different types of security attacks and Threats and also give the web service security road map.

15. (a) Explain the overview of SOA and the role of web services with .NET and J2EE Interoperability?

Or

(b) Explain the various standards in the development of web services.

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Reg. No. :

Question Paper Code : 41302

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2018

Seventh/Eighth Semester

Information Technology

IT 6801 – SERVICE ORIENTED ARCHITECTURE

(Common to Computer Science and Engineering)

(Regulations 2013)

03/05/18

Time : Three Hours Maximum : 100 Marks

Answer ALL questions

PART – A (10×2=20 Marks)

1. Define Service-oriented architecture.
2. State service component.
3. State the characteristics of Orchestration service layer.
4. Define Soap message.
5. Write the IT-centric entry points.
6. What is the responsibility of the service ?
7. List down the basic platform blocks.
8. Define ASP.NET Web Forms.
9. Mention the three types of Choreography.
10. Define WS-Policy.

PART – B (5×16=80 Marks)

11. a) Explain the characteristics of SOA in detail.

(OR)

b) Mention the principles of service orientation standardized in detail.

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12. a) Discuss on the protocols of Atomic Transaction in detail.

(OR)

b) Describe the elements of Web services platform in detail.

13. a) Explain about the operations in entity centric.

(OR)

b) Compare SOA with distributed client-server architecture. Discuss the anatomy of service oriental architecture.

14. a) Discuss on how SOA is related to the layers of the J2EE platform.

(OR)

b) Mention the benefits of JAX_RPC in detail.

15. a) Describe the Web Services Security Requirements in detail.

(OR)

b) List out the Security Threads in detail.

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Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 53242

29.4-19

AH

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY, 2019.

Seventh/Eighth Semester

Information Technology

IT 6801 — SERVICE ORIENTED ARCHITECTURE

(Common to Computer Science and Engineering)

(Regulation 2013)

(Also common to PTIT 6801 — Service Oriented Architecture for B.E. (Part – Time) — Seventh Semester — Computer Science and Engineering — Regulations 2014)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. How tags in XML are defined? Give example.
2. What is XML document type definition? Give example.
3. Outline the functions performed by an XML parser.
4. What is XSL?
5. Define service oriented architecture.
6. What is a distributed system?
7. Define a Web service.
8. What is UDDI?
9. Define loose coupling.
10. What is Web service composition?

PART B — (5 × 13 = 65 marks)

11. (a) Write about X files. How to identify the valid documents. (13)

Or

(b) (i) Explain XML namespaces with an example. (6)

(ii) Outline an XML schema with an example. (7)

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12. (a) (i) Outline the XML document object model with an example. (7)

(ii) Outline the working of a SAX parser. (6)

Or

(b) Outline the process of modeling databases in XML with an example. (13)

13. (a) What are the components of service oriented architecture? How components in service oriented architecture inter-relate? Give example. (13)

Or

(b) What is service orientation? Outline the common principles of service orientation. (13)

14. (a) What is WSDL? Explain the WSDL document structure with an example. (13)

Or

(b) What is SOAP? Explain the SOAP messaging framework with a diagram. (13)

15. (a) Highlight the features of Web service business process execution language and outline the structure of the same with an example. (13)

Or

(b) What is J2EE? Write a detailed note on SOA support in J2EE. (13)

PART C — ($1 \times 15 = 15$ marks)

16. (a) Develop an XML schema for a "Banking System". State the functional requirements you are considering. (15)

Or

(b) Outline the steps in building an application using service oriented architecture. (15)

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Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 20745

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2018.

Seventh Semester

Information Technology

IT 6801 — SERVICE ORIENTED ARCHITECTURE

(Common to Computer Science and Engineering)

(Regulations 2013)

(Also Common to PTIT 6801 – Service Oriented Architecture for B.E. (Part-Time) – Computer Science and Engineering – Regulations 2014)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. List out the advantages of XML over SGML.
2. Identify some Xpointer functions with their purposes.
3. List the disadvantages of DOM.
4. Mention the advanced features of XSLT.
5. Define service oriented architecture.
6. Give some common principles of service orientation.
7. Show the difference between abstract and concrete service description.
8. Identify some types of Message Exchange Patterns.
9. Mention the goals of performing a service-oriented analysis.
10. Show the structure of common WS-BPEL process definition.

PART B — (5 × 13 = 65 marks)

11. (a) (i) Determine the rules of XML document structure. (6)

(ii) Demonstrate the need of Namespace in XML. (7)

Or

(b) Discriminate the XML schema elements supported by W3C standard.

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12. (a) Outline the use of XSLT for document publishing. Illustrate the process for converting XML document to HTML document.

Or

(b) Derive the process of parsing XML document using SAX. Identify the various error handler methods.

13. (a) (i) List out the primary characteristics of service oriented architecture. (6)

(ii) Summarize the common tangible benefits of SOA. (7)

Or

(b) Give a note on three primary service layers for service oriented architecture.

14. (a) (i) Describe the structure of a SOAP message. (6)

(ii) Outline the concept of UDDI. (7)

Or

(b) Give a detailed note on WS-Atomic transactions.

15. (a) Explain the steps involved in service modeling process.

Or

(b) (i) Give the skeleton of the Coordination Context construct in WS-Coordination. (6)

(ii) Outline the primitive SOA support in J2EE. (7)

PART C — (1 × 15 = 15 marks)

16. (a) Evaluate the steps involved in processing XML database using JAXB with a simple case study.

Or

(b) (i) Summarize the design guidelines for web services. (5)

(ii) Specify the WS-Coordination registration and completion process with neat sketches. (10)

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Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 91777

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2019

Seventh/Eighth Semester

Computer Science and Engineering

IT 6801 – SERVICE ORIENTED ARCHITECTURE

(Common to : Information Technology)

(Regulations – 2013)

(Also Common to : PTIT 6801 – Service Oriented Architecture for B.E. (Part-Time) – Seventh Semester – Computer Science and Engineering)

(Regulations – 2014)

Time : Three Hours | Maximum : 100 Marks

Answer ALL questions

PART – A (10×2=20 Marks)

1. "XML Namespaces provide a method to avoid element name conflicts." Elucidate.
2. What is an XML schema ?
3. Present an outline of SAX.
4. Outline how to transform XML documents to other types of document ?
5. What are loosely coupled systems in SOA ?
6. Outline the steps in creating XML databases with an example.
7. What is orchestration ?
8. Present an outline of WSDL.
9. What is service composition ?
10. Specify the need of WS-Coordination in WS-I.

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PART – B (5×13=65 Marks)

11. a) What is a well-formed XML document ? Create an XML document which contains student register number, name, date of birth, gender and programme admitted. Also define DTD and XSD for the created XML document. (13)

(OR)

b) i) Elaborate how namespaces and DTDs relate to one another with an example. (6)

ii) Elaborate how do schemas refer to other schemas with an example. (7)

12. a) Elaborate the document object model with an example. (13)

(OR)

b) Explain the XML parsing using DOM parser with a suitable illustration. (13)

13. a) i) The Web Services architecture is based upon the interactions between three roles. Outline the roles and operations involved in the interactions. (7)

ii) Outline the benefits of SOA and highlight how SOA differs from client/server and distributed architecture. (6)

(OR)

b) What is service orientation ? Elaborate the principles of service orientation. (13)

14. a) Outline how SOAP enables client applications to easily connect to remote services and invoke remote methods with an example. (13)

(OR)

b) What is UDDI ? Elaborate the UDDI architecture. (13)

15. a) What is BPEL ? Outline the building blocks of BPEL with an example. (13)

(OR)

b) Present an elaborate note on WS Security. (13)

PART – C (1×15=15 Marks)

16. a) Create an XML schema for a "Library management system". State the functional requirements you are considering. (15)

(OR)

b) Outline the steps in building a SOA based application using J2EE. (15)

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INSTRUCTION

1. This is an important document and the faculty in-charge shall keep the entries up-to-date and correct.
2. Attendance shall be marked in the relevant column noting the date, month and period.
3. At the end of each period, the number of absentees should be clearly noted in the last row of the column in each page and installed as a token of check.
4. Topics covered in each period shall be recorded in the space provided.
5. Marks for tests shall be entered in the columns provided.
6. At the end of each report, the entries in the record shall be attested by the HOD of the faculty(the due dates for reports will be announced by the principal)
7. This register shall be handed over to the HOD of the faculty whenever the faculty member goes on long leave or when he/she resigns.
8. At the end of the semester, the faculty handling the subjects shall prepare the list of students who secured less than 75% attendance and send it to the Tutor/Chairman-class committee for consolidating the cases of shortage of attendance.
9. At the end of the semester the entries shall be checked and endorsed by the HOD of the faculty, then by the HOD of students and finally by the principal, signing in the spaces provided for this purpose. Finally the attendance and assessment records shall be under the safe custody of the principal.

Name of the Faculty	M.C. SAVITHRI		
Department	COMPUTER SCIENCE & ENGG.		
Class	IV	Branch Specialization (PG Subject)	M.E.-CSE
Semester	VII		
Sub Code	IT8074	Class Strength	21
Sub Name	SERVICE ORIENTED ARCHITECTURE		

Semester from 16/8/21 to 30/12/21

COURSE TIME TABLE

Day	1	2	3	4	5	6	7	8
Mon			SOA			SOA		
Tue				SOA				
Wed				SOA				
Thu					SOA			
Fri								
Sat								

Internal Assessment Report	1	2	3
Internal Assessment Test Date	06/10/21	3/11/21	29/11/21
Corrected test Papters returned on	11/10/21	8/11/21	1/12/21
% of students with marks <50%	24 %	10 %	5 %
% of students absent	NIL	10 %	5 %
Initials of the HOD of faculty with Date			

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JKK MUNIRAJAH COLLEGE
OF TECHNOLOGY
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ATTENDANCE

Reg.No	Name	M	AUGUST							
		D	18	19	23	23	24	25	26	30
		Hr	4	5	3	6	4	4	5	3
	Cumulative No. of period handled		1	2	3	4	5	6	7	8
731218104002	ANGAMMAL.S		/	/	/	/	/	/	/	/
731218104004	BOOPATHI.S		/	/	/	/	/	/	/	/
731218104006	GEETHA.S		/	/	/	/	/	/	/	/
731218104008	IYYAPPAN.L		/	/	/	/	/	/	/	/
731218104010	JEEVA BHARATHI		/	/	/	/	/	/	/	/
731218104011	JOTHIGA.S		/	/	/	/	/	/	/	/
731218104014	MANIKANDAN.T		/	/	/	/	/	/	/	/
731218104015	NIRANJANA.M		/	/	/	/	/	/	/	/
731218104016	NISHA.S		/	/	/	/	/	/	/	/
731218104017	RATHISH.D		/	/	/	/	/	/	/	/
731218104018	SARANYA.M		/	/	/	/	/	/	/	/
731218104019	SIBINDASS.S		/	/	/	/	/	/	/	/
731218104020	SINDHU.S		/	/	/	/	/	/	/	/
731218104021	SINDHUJA.V		/	/	/	/	/	/	/	/
731218104023	SUBRAMANI.N		/	/	/	/	/	/	/	/
731218104024	THAMARAISELVI		/	/	/	/	/	/	/	/
731218104025	UMA.D		/	/	/	/	/	/	/	/
731218104026	VIJAYAKUMAR.S		/	/	/	/	/	/	/	/
731218104027	VINOTH.L		/	/	/	/	/	/	/	/

M	SEPTEMBER																					
D	30	31			1	2	6	6	7	8	9	13	13	14	15	16	20	20	21	22	23	27
Hr	6	4			4	5	3	6	4	4	5	3	6	4	4	5	3	6	4	4	5	3
	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	/	/			/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
2	/	/			/	/	/	/	a	/	/	/	/	/	/	/	/	/	/	/	/	/
3	/	/			a	/	/	/	/	/	/	/	/	/	/	a	/	/	/	/	/	/
4	/	/			a	/	a	a	/	a	/	/	/	/	/	/	/	/	/	a	/	/
5	/	/			/	a	/	/	a	a	/	/	/	a	/	/	/	a	/	/	a	
6	/	/			a	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
7	/	/			/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
8	/	/			/	/	a	a	/	/	/	/	/	/	/	/	/	/	/		/	/
9	/	/			a	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
10	/	/			/	/	/	/	/	/	/	a	a	/	/	/	/	/	/	/	/	/
11	/	/			/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
12	/	/			a	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
13	/	/			/	/	/	/	/	/	/	/	/	a	/	/	/	/	/	/	/	/
14	/	/			a	a	a	a	a	a	a	/	/	/	/	/	/	/	/	/	/	/
15	/	/			/	a	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
16	/	/			/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
17	/	/			a	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
18	/	/			/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
19	/	/			/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/

PRINCIPAL
JKK MUNIRAJAH COLLEGE
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GOBI (Tk), ERODE (Dt).

OCTOBER

M																							
D	27	28	29	30				4	4	5	6	7	11	11	12	13	20	21	25	25	26	27
Hr	6	4	4	5				3	6	4	4	5	3	6	4	4	4	5	3	6	4	4
	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
1	/	/	/	/				/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
2	/	/	a	/				/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
3	/	/	/	/				/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
4	/	/	/	/				/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
5	/	/	/	/				/	/	/	/	/	a	a	/	/	/	/	/	/	/	/
6	/	/	/	/				/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
7	/	/	/	/				/	/	/	/	/	a	a	a	/	/	/	/	/	/	/
8	/	/	/	a				/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
9	/	/	/	a				/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
10	/	/	/	a				/	/	/	/	/	a	a	a	a	/	/	/	/	/	/
11	/	/	/	/				/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
12	/	/	/	/				/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
13	/	/	/	/				/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
14	/	/	/	/				/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
15	/	/	/	/				/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
16	/	/	/	/				/	/	/	/	/	/	/	/	/	a	/	/	/	/	/
17	/	/	/	/				/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
18	/	/	/	/				/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
19	/	a	/	a				/	/	/	/	/	/	/	/	/	a	/	/	/	/	/

NOVEMBER

M																							
D	23				1	1	2	8	8	9	10	15	15	16	17	18	22	22	23	24	25	29	29
Hr	5				3	6	4	3	6	4	4	3	6	4	4	5	3	6	4	4	5	3	6
	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75
1	/				/	/	/	/	/	/	/	a	a	/	/	/	/	/	/	/	/	/	/
2	/				/	/	/	/	/	/	/	/	/	/	/	a	/	/	/	/	/	/	/
3	/				/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
4	/				/	/	/	/	/	/	/	/	/	/	/	a	/	/	/	/	/	/	/
5	/				/	/	/	a	a	/	/	/	/	/	/	/	/	/	/	/	/	/	/
6	/				/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
7	/				/	/	/	/	/	/	/	a	a	/	/	/	/	/	/	/	/	/	/
8	/				/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
9	/				/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
10	/				/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
11	/				/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
12	/				/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
13	/				/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
14	/				/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
15	/				/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
16	/				/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	a	a
17	/				/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
18	/				/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
19	/				/	/	/	/	/	a	/	/	/	/	/	/	/	/	/	/	/	/	/

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ASSESSMENT

	ASSIGNMENT / SEMINAR					IA Test 1	IA Test 2	IA Test 3	Model 1	Model 2	Attendance	Internal Attendance (Max.....)	Remarks
	I	II	III	IV	V								
1	90					60	80	70	66				
2	86					55	50	70	50				
3	80					60	86	76	72				
4	74					36	26	34	12				
5	60					32	AB	50	38				
6	70					50	50	56	55				
7	76					64	82	66	51				
8	78					60	50	64	51				
9	88					60	84	84	62				
10	90					64	90	70	50				
11	84					66	88	80	57				
12	80					60	84	78	64				
13	90					12	56	60	50				
14	92					70	84	74	71				
15	82					50	50	72	50				
16	80					60	68	AB	50				
17	86					62	66	66	50				
18	76					30	54	60	50				
19	78					40	40	76	50				

ATTENDANCE

Reg.No	Name	M	AUGUST							
		D	18	19	23	23	24	25	26	30
		Hr	4	5	3	6	4	4	5	3
	Cumulative No. of period handled		1	2	3	4	5	6	7	8
731218104301	KAVIYARASAN - M		/	/	/	/	/	/	/	/
731218104302	KIRUTHIKA - S		/	/	/	/	/	/	/	/
	Total No. of Absentees		-	-	-	-	-	-	-	-
	Initials of Faculty.		S	S	S	S	S	S	S	S

PRINCIPAL
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SEPTEMBER

M																							
D	30	31			1	2	6	6	7	8	9	13	13	14	15	18	20	20	21	22	23	27	
Hr	6	4			4	5	3	6	4	4	5	3	6	4	4	5	3	6	4	4	5	3	
	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
1	/	/			a	a	a	a	/	/	/	/	/	/	/	/	/	/	/	/	/	/	
2	/	/			/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	
Absentees	-	-			8	4	4	4	3	3	1	2	1	-	2	1	-	-	1	1	-	1	
Initials																							

OCTOBER

M																							
D	27	28	29	30				4	4	5	6	7	11	11	12	13	20	21	25	25	26	27	
Hr	6	4	4	5				3	6	4	4	5	3	6	4	4	4	5	3	6	4	4	
	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	
1	/	/	/	/				/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	
2	/	/	/	/				/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	
Absentees	-	1	1	4				-	-	-	-	-	3	3	2	1	2	-	-	-	-	-	
Initials																							

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M	NOVEMBER																						
D	28				1	1	2	8	8	9	10	15	15	16	17	18	22	22	23	24	25	29	29
Hr	5				3	6	4	3	6	4	4	3	6	4	4	5	3	6	4	4	5	3	6
	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75
1	1				1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2	1				1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Absentees					-	-	-	1	1	1	-	2	2	-	-	2	-	-	-	-	-	1	1
Friday	2				2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2

ASSESSMENT

ASSIGNMENT / SEMINAR					IA Test 1	IA Test 2	IA Test 3	Model 1	Model 2	Attendance	Internal Attendance (Max.....)	Remarks
I	II	III	IV	V								
82					60	56	60	58				
90					80	92	80	84				

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RECORD OF CLASS WORK

IT8074 – SOA

RECORD OF CLASS WORK

Sl.No.	Date	Period	Topics Covered	Initials
			UNIT – I XML	
1.	18/8/21	4	XML document structure	
2.	19/8/21	5	Well – formed and valid documents.	
3.	23/8/21	3	DTD	
4.	24/8/21	4	XML Schema	
5.	25/8/21	4	Parsing XML using DOM	
6.	26/8/21	5	SAX	
7.	31/8/21	4	XPath	
8.	1/9/21	4	XML Transformation and XSL.	
9.	2/9/21	5	Xquery.	
			UNIT – II SERVICE ORIENTED ARCHITECTURE (SOA) BASICS	
10.	6/9/21	3	Characteristics of SOA	
11.	6/9/21	6	Characteristics of SOA	
12.	7/9/21	4	Benefits of SOA.	
13.	8/9/21	4	Comparing SOA with Client-Server & Distributed Architectures	
14.	9/9/21	5	Comparing SOA with Client-Server & Distributed Architectures	

PRINCIPAL
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RECORD OF CLASS WORK

Sl.No.	Date	Period	Topics Covered	Initials
15.	13/9/21	3	Principles of Service Oriented	
16.	13/9/21	6	Principles of Service orientation	
17.	14/9/21	4	Service Layers.	
18.	15/9/21	4	Service Layers.	
UNIT-III		Web Services (WS) And Standards.		
19.	16/9/21	5	Web Services Platform	
20.	20/9/21	3	Service Descriptions	
21.	21/9/21	4	WSDL	
22.	22/9/21	4	Messaging with SOAP	
23	23/9/21	5	Service Discovery.	
24.	27/9/21	3	UDDI	
25.	28/9/21	4	Service-Level Interaction Patterns.	
26.	29/9/21	4	Orchestration and Choreography.	
UNIT-IV		Web Services Extensions		
27.	11/10/21	3	WS-Addressing.	
28.	11/10/21	6	WS-Reliable Messaging	
29.	12/10/21	4	WS-Reliable Messaging.	

RECORD OF CLASS WORK

Sl.No.	Date	Period	Topics Covered	Initials
30.	13/10/21	4	WS-Policy	
31.	20/10/21	4	WS-Coordination	
32.	21/10/21	5	WS-Transactions	
33.	10/11/21	4	WS-Transactions	
34.	15/11/21	3	WS-Security-Examples	
UNIT-V		Service Oriented Analysis And Design		
35.	15/11/21	6	SOA delivery Strategies	
36.	16/11/21	4	Service oriented analysis	
37.	16/11/21	4	Service oriented analysis	
38.	17/11/21	4	Service Modeling	
39.	18/11/21	5	Service oriented design	
40.	18/11/21	5	Service oriented design	
41.	22/11/21	3	Standards and Composition Guidelines	
42.	22/11/21	6	Service Design	
43.	23/11/21	4	Service Design	
44.	24/11/21	4	Business process design	
45.	25/11/21	5	Case Study.	

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J.K.K MUNIRAJAHCOLLEGE OF TECHNOLOGY

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T.N. Palayam (Po), Gobi (Tk), Erode (Dt) – 638 506

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

IT8074 - SERVICE ORIENTED ARCHITECTURE

IV CSE – VII SEM ASSIGNMENT LIST

S.NO	REG. NO	NAME	ASSIGNMENT TOPIC
1	731218104002	ANGAMMAL S	XML DOCUMENT STRUCTURE & DTD
2	731218104004	BOOPATHI S	
3	731218104006	GEETHA R	
4	731218104008	IYYAPPAN L	
5	731218104010	JEEVABHARATHI M	PARSING XML USING DOM,SAX
6	731218104011	JOTHIGA S	
7	731218104014	MANIKANDAN T	
8	731218104015	NIRANJANA M	
9	731218104016	NISHA S	XML TRANSFORMATION AND XSL - XQUERY
10	731218104017	RATHISH D	
11	731218104018	SARANYA M	
12	731218104019	SIBIN DASS S	
13	731218104020	SINDHU S	PRINCIPLES OF SERVICE ORIENTATION & SERVICE LAYERS
14	731218104021	SINDHUJA V	
15	731218104023	SUBRAMANI N	
16	731218104024	THAMARAISELVI R	
17	731218104025	UMA D	CHARACTERISTICS OF SOA
18	731218104026	VIJAYA KUMAR S	
19	731218104028	VINODH L	
20	731218104301	KAVIYARASAN.M	
21	731218104302	KIRUTHIKA.S	

SUBJECT INCHARGE HOD PRINCIPAL

J.K.K MUNIRAJAHCOLLEGE OF TECHNOLOGY

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

IT8074 - SERVICE ORIENTED ARCHITECTURE

IV CSE – VII SEM ASSIGNMENT MARK

S.NO	REG. NO	NAME	MARKS (100)
1	731218104002	ANGAMMAL S	90
2	731218104004	BOOPATHI S	86
3	731218104006	GEETHA R	80
4	731218104008	IYYAPPAN L	74
5	731218104010	JEEVABHARATHI M	60
6	731218104011	JOTHIGA S	70
7	731218104014	MANIKANDAN T	76
8	731218104015	NIRANJANA M	78
9	731218104016	NISHA S	88
10	731218104017	RATHISH D	90
11	731218104018	SARANYA M	84
12	731218104019	SIBIN DASS S	80
13	731218104020	SINDHU S	90
14	731218104021	SINDHUJA V	92
15	731218104023	SUBRAMANI N	82
16	731218104024	THAMARAISELVI R	80
17	731218104025	UMA D	86
18	731218104026	VIJAYA KUMAR S	76
19	731218104028	VINODH L	78
20	731218104301	KAVIYARASAN.M	82
21	731218104302	KIRUTHIKA.S	90

SUBJECT INCHARGE HOD PRINCIPAL

J.K.K. MUNIRAJAH COLLEGE OF TECHNOLOGY

T.N. PALAYAM

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

CIRCULAR

All the faculty members who are handling classes for second year student members of class committee from second year asked to attend the class committee meeting for second year at 301 class room at 1.30pm on 02/10/21

CLASS COMMITTEE MEETING-II			
CLASS:II YEAR CSE	Date:27/10/2021	Time:1.30PM	Venue: 302 CSE class room
Members: II CSE class handling faculty members & student representatives			

S.NO	AGENDA
1	Course materials
2	Syllabus completion-theory courses
3	Summer project review
4	Class test I, assignment I, internal test I
5	Placement activities
6	General discipline & other activities

CHAIRPERSON

HOD-CSE

NAME OF THE STAFF	DESIGNATION	SIGNATURE
Ms.J.E.JEBITHA JOHNSY	AP/MATHS	
Mrs.M.SIVARANJANI	AP/ECE	
Mrs.P.SASIREKA	AP/CSE	
Mr.K.S.VINOTHAN	AP/CSE	
Mrs.S.KIRUTHIKA	AP/ECE	
Mrs.P.SASIREKA	AP/CSE	

NAME OF THE STUDENT	YEAR	SIGNATURE
ABINAYA.G	II YEAR	
ARAVIND.S	II YEAR	
BALU.R	II YEAR	
CHARLES WILLIAM.L	II YEAR	
DEEPAK.S	II YEAR	
DEEPIKA.S	II YEAR	

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J.K.K. MUNIRAJAH COLLEGE OF TECHNOLOGY

T.N. PALAYAM

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

MINUTES OF CLASS COMMITTEE MEETING -II

CLASS COMMITTEE MEETING-II		ACADEMIC YEAR:(2021-2022) ODD	
CLASS:II YEAR CSE	Date: 27/10/2021	Time:1.30PM	Venue: 302 CSE class room
Members: II CSE class handling faculty members & student representatives			

S.NO	AGENDA
1	Course materials
2	Syllabus complete on-theory courses
3	Summer project review
4	Class test I, assignment I, internal test I
5	Placement activities
6	General discipline & other activities

MEMBERS PRESENT

S.NO	MEMBERS	NAME	DESIGNATION/DEPT	SIGNATURE
1	HEAD OF THE DEPARTMENT	Dr.SATHYABALAJI.N(HOD)	HOD/CSE	
2	CHAIRPERSON	Ms. SAVITHRI.M.C	AP/CSE	
3	FACULTY MEMBERS HANDLING THE COURSE	Mr.VINOTHAN.S	AP/CSE	
4		Ms. SAVITHRI.M.C	AP/CSE	
5		Ms. POORNIMADEVI.L	AP/CSE	
6		Ms. SASIREKA.P	AP/CSE	
7		Mr. SATHEESH.S	AP/CSE	
8		Mr. GNANASEKAR.R	AP/CSE	
9		Mr. DHARANITHARAN.S	AP/CSE	
10		Mr. MANOOJKUMAAR.B	AP/CSE	
11		Mr. ANANTH.E	AP/CSE	
12		Ms. NIROSHA V	AP/CSE	
13	STUDENTS REPRESENTATIVES	ARAVIND.S	II YEAR CSE	

PRINCIPAL
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GOBI (Tk), ERODE (Dt).

J.K.K. MUNIRAJAH COLLEGE OF TECHNOLOGY

T.N. PALAYAM

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

The first class committee meeting I for second year was conducted at final year CSE class room at 1.30pm.the following points were discussed in the meeting

- Students have been informed about the submission of assignments for all the theory courses
- The student members were advised to come to the college regularly and to follow proper dress code.
- Students have been asked to write class tests and assignments.
- Head of the department advised to study properly and score more marks in all subjects
- Students have been enquired about the status of the project. it has been insisted that all the students must visit their guide regularly and should report their progress in their project
- Students have been informed to utilize the placement training hours(aptitude,technical,soft skills)and attend the placement drive for their betterment

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FEEDBACK FROM STUDENTS:

.NO	COURSE CODE	COURSE NAME	NAME OF THE FACULTY	DEPT	SYLLABUS COMPLETION	FEEDBACK FROM STUDENTS	REMEDIAL MEASURES TO BE TAKEN BY THE FACULTY	SIGNATURE OF THE FACULTY
1	MA8351	DISCRETE MATHEMATICS	Ms.J.E.JEBITHA JOHNSY	MATHS	4 Units Completed	Easy to understand the subject	—	
2	CS8351	DIGITAL PRINCIPLES AND SYSTEM DESIGN	Mrs.M.SIVARANJANI	ENGLISH	4 Units Completed	Easy to understand the subject	—	
3	CS8391	DATA STRUCTURES	Mrs.P.SASIREKA	CSE	4 Units Completed	Easy to understand the subject	—	
4	CS8392	OBJECT ORIENTED PROGRAMMING	Mr.K.S.VINOTHAN	CSE	4 Units Completed	Easy to understand the subject	—	
5	EC8395	COMMUNICATION ENGINEERING	Mrs.S.KIRUTHIKA	ECE	4 Units Completed	Easy to understand the subject	—	
6	CS8381	DATA STRUCTURES LABORATORY	Mrs.P.SASIREKA	CSE	4Units Completed	Easy to understand the subject	—	
7	CS8383	OBJECT ORIENTED PROGRAMMING LABORATORY	Mr.K.S.VINOTHAN	CSE	10 Exercises Completed	NIL	—	
8	CS8382	DIGITAL SYSTEMS LABORATORY	Mrs.M.SIVARANJANI	ECE	10 Exercises Completed	NIL	—	
9	HS8381	INTERPERSONAL SKILLS/LISTENING & SPEAKING	Mrs.S.POORNIMA	ENGLISH	10 Exercises Completed	NIL	—	
10		PLACEMENT	Mrs.P.SASIREKA	CSE	Completed	NIL	—	

GRIEVANCES/SUGGESTIONS FROM STUDENTS:

1. Need university question paper?
2. Need 2 marks question paper.
3. Need power point presentation subject-wise.

CHAIRPERSON

HOD/CSE

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
ACTION TAKEN REPORT

CLASS COMMITTEE MEETING-II

CLASS COMMITTEE MEETING-II		ACADEMIC YEAR:(2021-2022) ODD	
CLASS:II YEAR CSE	Date: 27/10/2021	Time:1.30pm	Venue: 302 CSE class room

DATE: 28/10/2021

S.NO	SUGGESTIONS/GRIEVANCES	CORRECTIVE ACTION
1	Need university question paper?	University question paper given
2	Need 2 marks question paper .	2 marks question given.
3	Need power point presentation subject-wise.	Subject-wise power point presentation given

CHAIRPERSON

HOD/CSE

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
CLASS COMMITTEE -1 AND COMMITTEE-II EVIDENCE

Year /Sem: II/03 **Subject Code & Subject Name : CS8391 & Data Structures**

Name of the Faculty : Mrs.P.SASIREKA ., AP/CSE

IMPORTANT UNIVERSITY QUESTIONS

UNIT – I

PART B

1. Design a routine to delete an element in a linked list..
2. What is a linked list? Describe the suitable routine segments for any four operations.

UNIT – II

PART B

1. Identify the array implementation of list and show all its operation..
2. Discuss the creation of a doubly linked list and appending the list. Give relevant coding in C.

UNIT – III

PART B

1. Differentiate single linked list and doubly linked list with an example.
2. Analyze and write C code for circular linked list with create, insert, delete, display operations.
3 Explain the steps involved in insertion and deletion into a singly linked list.

UNIT – IV

PART B

1. Compose an algorithm toReverse the elements of a single linked lists,count the number of nodes in a given singly linked list.
2. Develop a C program to split a linked list into sub lists containing odd and even ordered elements in them respectively..

UNIT – V

PART B

1. Explain and derive full wave and half wave rectifiers with diagram.
2. (i) Find out the in-degree and out-degree of each node in the given graph.
   (ii) Give two applications of graphs..

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T.N. PALAYAM

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
CLASS COMMITTEE EVIDENCE

Year /Sem: II/03 **Subject Code & Subject Name : CS8391 & Data Structures**
Name of the Faculty: Mrs.P.SASIREKA ., AP/CSE

IMPORATNT 2 MARKS QUESTION

UNIT -1

1. Define Data Structures

2. Define Linked Lists Linked list consist

3. List out the advantages of using a linked list

UNIT -2

4.What are the types of queues?

5.List the applications of queues

6.Mention the advantages of representing stacks using linked lists than arrays.

UNIT -3

7.Define a tree.

8.Define depth and height of a node

9.What are the different binary tree traversal techniques?.

UNIT -4

10.Define Graph.

11.What is a minimum spanning tree?

12.Differentiate BFS and DFS.

UNIT-5

13.What do you mean by internal and external sorting?

14.What is binary search?

15.What do you mean by hash table?

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

CIRCULAR

All the faculty members who are handling classes for second year student members of class committee from second year asked to attend the class committee meeting for second year at 301 class room at 1.30pm on 24/08/2021

CLASS COMMITTEE MEETING-I			
CLASS:II YEAR CSE	Date: 27/09/2021	Time:1.30PM	Venue: 301 CSE class room
Members: II CSE class handling faculty members & student representatives			

S.NO	AGENDA
1	Course materials
2	Syllabus completion-theory courses
3	Summer project review
4	Class test I, assignment I, internal test I
5	Placement activities
6	General discipline & other activities

CHAIRPERSON

HOD-CSE

NAME OF THE STAFF	DESIGNATION	SIGNATURE
Ms.J.E.JEBITHA JOHNSY	AP/MATHS	
Mrs.M.SIVARANJANI	AP/ECE	
Mrs.P.SASIREKA	AP/CSE	
Mr.K.S.VINOTHAN	AP/CSE	
Mrs.S.KIRUTHIKA	AP/ECE	
Mrs.P.SASIREKA	AP/CSE	

NAME OF THE STUDENT	YEAR	SIGNATURE
ABINAYA.G	II YEAR	
ARAVIND.S	II YEAR	
BALU.R	II YEAR	
CHARLES WILLIAM.L	II YEAR	
DEEPAK.S	II YEAR	
DEEPIKA.S	II YEAR	

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

MINUTES OF CLASS COMMITTEE MEETING -I

CLASS COMMITTEE MEETING-I		ACADEMIC YEAR:(2021-2022) ODD	
CLASS:II YEAR CSE	Date:27/09/2021	Time:1.30PM	Venue: 301 CSE class room
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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

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- Students have been informed about the submission of assignments for all the theory courses
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FEEDBACK FROM STUDENTS:

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2	CS8351	DIGITAL PRINCIPLES AND SYSTEM DESIGN	Mrs.M.SIVARANJANI	ECE	2 Units Completed	Easy to understand the subject	—	
3	CS8391	DATA STRUCTURES	Mrs.P.SASIREKA	CSE	2 Units Completed	Easy to understand the subject	—	
4	CS8392	OBJECT ORIENTED PROGRAMMING	Mr.K.S.VINOTHAN	CSE	2 Units Completed	Easy to understand the subject	—	
5	EC8395	COMMUNICATION ENGINEERING	Mrs.S.KIRUTHIKA	ECE	2 Units Completed	Easy to understand the subject	—	
6	CS8381	DATA STRUCTURES LABORATORY	Mrs.P.SASIREKA	CSE	2 Units Completed	Easy to understand the subject	—	
7	CS8383	OBJECT ORIENTED PROGRAMMING LABORATORY	Mr.K.S.VINOTHAN	CSE	5 Exercises Completed	NIL	—	
8	CS8382	DIGITAL SYSTEMS LABORATORY	Mrs.M.SIVARANJANI	ECE	5 Exercises Completed	NIL	—	
9	HS8381	INTERPERSONAL SKILLS/LISTENING & SPEAKING	Mrs.S.POORNIMA	CSE	Completed	NIL	—	
10		PLACEMENT	Mrs.P.SASIREKA	CSE	Completed	NIL	—	

GRIEVANCES/SUGGESTIONS FROM STUDENTS:

1. Need university question paper?
2. Need 2 marks question paper?
3. Need power point presentation subject-wise?

CHAIRPERSON

HOD/CSE

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
ACTION TAKEN REPORT

CLASS COMMITTEE MEETING-I

CLASS COMMITTEE MEETING-I		ACADEMIC YEAR:(2021-2022) ODD	
CLASS:II YEAR CSE	Date: 27/09/2021	Time:1.30pm	Venue: 301 CSE class room

DATE: 04/10/2021

S.NO	SUGGESTIONS/GRIEVANCES	CORRECTIVE ACTION
1	Need university question paper?	University question paper given
2	Need 2 marks question paper .	2 marks question given.
3	Need power point presentation subject-wise.	Subject-wise power point presentation given

CHAIRPERSON **HOD/CSE**

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ANNA UNIVERSITY, CHENNAI - 600 025
TIME TABLE-B.E./B.Tech./B.Arch. DEGREE EXAMINATIONS
NOVEMBER/DECEMBER-2022
(REGULATIONS-2017)
CHOICE BASED CREDIT SYSTEM (CBCS)

Branch Name **B.E. Computer Science and Engineering**

Semester	*Subject Code*	*Subject Name*	*Exam Date*	*Session*
01	HS8151	Communicative English	29-DEC-22	A.N.
01	GE8152	Engineering Graphics	09-JAN-23	A.N.
01	GE8151	Problem Solving and Python Programming	10-JAN-23	A.N.
01	CY8151	Engineering Chemistry	11-JAN-23	A.N.
01	PH8151	Engineering Physics	12-JAN-23	A.N.
01	MA8151	Engineering Mathematics - I	13-JAN-23	A.N.
02	GE8291	Environmental Science and Engineering	02-JAN-23	A.N.
02	MA8251	Engineering Mathematics - II	06-JAN-23	A.N.
02	BE8255	Basic Electrical, Electronics and Measurement Engineering	09-JAN-23	F.N.
02	PH8252	Physics for Information Science	10-JAN-23	F.N.
02	CS8251	Programming in C	11-JAN-23	F.N.
02	HS8251	Technical English	13-JAN-23	F.N.
03	CS8392	Object Oriented Programming	12-DEC-22	F.N.
03	MA8351	Discrete Mathematics	15-DEC-22	F.N.
03	CS8391	Data Structures	21-DEC-22	A.N.
03	CS8351	Digital Principles and System Design	23-DEC-22	F.N.
03	EC8395	Communication Engineering	26-DEC-22	F.N.
04	CS8494	Software Engineering	10-DEC-22	A.N.
04	CS8493	Operating Systems	12-DEC-22	A.N.
04	CS8451	Design and Analysis of Algorithms	13-DEC-22	A.N.
04	CS8492	Database Management Systems	26-DEC-22	A.N.
04	MA8402	Probability and Queueing Theory	04-JAN-23	A.N.
04	CS8491	Computer Architecture	06-JAN-23	F.N.
05	MA8551	Algebra and Number Theory	08-DEC-22	F.N.
05	CS8591	Computer Networks	13-DEC-22	F.N.
05	CS8501	Theory of Computation	15-DEC-22	A.N.
05	CS8592	Object Oriented Analysis and Design	17-DEC-22	F.N.
05	EC8691	Microprocessors and Microcontrollers	23-DEC-22	A.N.
05	OTL553	Telecommunication Network Management	29-DEC-22	F.N.
05	OBT551	Introduction to Bioenergy and Biofuels	29-DEC-22	F.N.
05	OCH551	Industrial Nanotechnology	29-DEC-22	F.N.
05	OCE552	Geographic Information System	29-DEC-22	F.N.
05	OBT552	Basics of Bioinformatics	29-DEC-22	F.N.
05	OMD551	Basic of Biomedical Instrumentation	29-DEC-22	F.N.
05	OCE551	Air Pollution and Control Engineering	29-DEC-22	F.N.
05	OML552	Microscopy	29-DEC-22	F.N.
05	OTL552	Digital Audio Engineering	29-DEC-22	F.N.
05	OME551	Energy Conservation and Management	29-DEC-22	F.N.

Candidates registered for 8th semester (advance) courses in 7th semester may refer to 8th semester schedule

FN: FORENOON (10.00 A.M. TO 01.00 P.M.)
AN:AFTERNOON (2.00 P.M. TO 5.00 P.M.)

CONTROLLER OF EXAMINATIONS

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ANNA UNIVERSITY, CHENNAI - 600 025
TIME TABLE-B.E./B.Tech./B.Arch. DEGREE EXAMINATIONS
NOVEMBER/DECEMBER-2022
(REGULATIONS-2017)
CHOICE BASED CREDIT SYSTEM (CBCS)

Branch Name **B.E. Computer Science and Engineering**

Semester	*Subject Code*	*Subject Name*	*Exam Date*	*Session*
05	OBT553	Fundamentals of Nutrition	29-DEC-22	F.N.
05	OMD552	Hospital Waste Management	29-DEC-22	F.N.
05	OME553	Industrial Safety Engineering	29-DEC-22	F.N.
05	OBM552	Medical Physics	29-DEC-22	F.N.
05	OBT554	Principles of Food Preservation	29-DEC-22	F.N.
05	OMF551	Product Design and Development	29-DEC-22	F.N.
05	OAN551	Sensors and Transducers	29-DEC-22	F.N.
05	OEC552	Soft Computing	29-DEC-22	F.N.
05	OMD553	Telehealth Technology	29-DEC-22	F.N.
05	OIM551	World Class Manufacturing	29-DEC-22	F.N.
06	CS8603	Distributed Systems	14-DEC-22	A.N.
06	CS8651	Internet Programming	16-DEC-22	A.N.
06	CS8602	Compiler Design	17-DEC-22	A.N.
06	CS8601	Mobile Computing	19-DEC-22	A.N.
06	CS8072	Agile Methodologies	22-DEC-22	F.N.
06	IT8071	Digital Signal Processing	22-DEC-22	F.N.
06	IT8072	Embedded Systems	22-DEC-22	F.N.
06	CS8075	Data Warehousing and Data Mining	22-DEC-22	F.N.
06	GE8075	Intellectual Property Rights	22-DEC-22	F.N.
06	IT8076	Software Testing	22-DEC-22	F.N.
06	CS8077	Graph Theory and Applications	22-DEC-22	F.N.
06	CS8691	Artificial Intelligence	28-DEC-22	F.N.
07	CS8791	Cloud Computing	09-DEC-22	F.N.
07	CS8079	Human Computer Interaction	14-DEC-22	F.N.
07	CS8083	Multi-core Architectures and Programming	14-DEC-22	F.N.
07	CS8088	Wireless Adhoc and Sensor Networks	14-DEC-22	F.N.
07	GE8071	Disaster Management	14-DEC-22	F.N.
07	CS8071	Advanced Topics on Databases	14-DEC-22	F.N.
07	CS8073	C# and .Net Programming	14-DEC-22	F.N.
07	MG8591	Principles of Management	16-DEC-22	F.N.
07	GE8074	Human Rights	20-DEC-22	F.N.
07	GE8072	Foundation Skills in Integrated Product Development	20-DEC-22	A.N.
07	CS8092	Computer Graphics and Multimedia	21-DEC-22	F.N.
07	IT8075	Software Project Management	27-DEC-22	A.N.
07	GE8077	Total Quality Management	27-DEC-22	A.N.
07	IT8074	Service Oriented Architecture	27-DEC-22	A.N.
07	CS8082	Machine Learning Techniques	28-DEC-22	A.N.
07	CS8081	Internet of Things	28-DEC-22	A.N.

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NOVEMBER/DECEMBER-2022
(REGULATIONS-2017)
CHOICE BASED CREDIT SYSTEM (CBCS)

Branch Name B.E. Computer Science and Engineering

Semester	*Subject Code*	*Subject Name*	*Exam Date*	*Session*
07	OEC753	Signals and Systems	30-DEC-22	F.N.
07	OBM752	Hospital Management	30-DEC-22	F.N.
07	OAI751	Agricultural Finance, Banking and Co-operation	30-DEC-22	F.N.
07	OAN751	Low Cost Automation	30-DEC-22	F.N.
07	OBM751	Basics of Human Anatomy and Physiology	30-DEC-22	F.N.
07	OBT753	Introduction of Cell Biology	30-DEC-22	F.N.
07	OCY751	Waste Water Treatment	30-DEC-22	F.N.
07	OEC751	Electronic Devices	30-DEC-22	F.N.
07	OCE751	Environmental and Social Impact Assessment	30-DEC-22	F.N.
07	OEE751	Basic Circuit Theory	30-DEC-22	F.N.
07	OIE751	Robotics	30-DEC-22	F.N.
07	OME753	Systems Engineering	30-DEC-22	F.N.
07	OMF751	Lean Six Sigma	30-DEC-22	F.N.
07	OML752	Electronics Materials	30-DEC-22	F.N.
07	OEE752	Introduction to Renewable Energy Systems	30-DEC-22	F.N.
07	OCH752	Energy Technology	30-DEC-22	F.N.
07	OGI751	Climate Change and its Impact	30-DEC-22	F.N.
07	OME752	Supply Chain Management	30-DEC-22	F.N.
07	OPY751	Clinical Trials	30-DEC-22	F.N.
07	OEN751	Green Building Design	30-DEC-22	F.N.
07	OEC754	Medical Electronics	30-DEC-22	F.N.
07	OEC756	MEMS and NEMS	30-DEC-22	F.N.
07	CS8792	Cryptography and Network Security	04-JAN-23	F.N.
07	CS8091	Big Data Analytics	05-JAN-23	A.N.
08	CS8086	Soft Computing	09-DEC-22	A.N.
08	CS8085	Social Network Analysis	10-DEC-22	F.N.
08	IT8073	Information Security	10-DEC-22	F.N.
08	CS8087	Software Defined Networks	10-DEC-22	F.N.
08	EC8093	Digital Image Processing	10-DEC-22	F.N.
08	IT8077	Speech Processing	22-DEC-22	A.N.
08	CS8080	Information Retrieval Techniques	22-DEC-22	A.N.
08	CS8076	GPU Architecture and Programming	22-DEC-22	A.N.
08	CS8001	Parallel Algorithms	22-DEC-22	A.N.
08	CS8078	Green Computing	22-DEC-22	A.N.
08	GE8073	Fundamentals of Nano Science	22-DEC-22	A.N.
08	CS8084	Natural Language Processing	22-DEC-22	A.N.
08	CS8074	Cyber Forensics	07-JAN-23	A.N.
08	GE8076	Professional Ethics in Engineering	07-JAN-23	A.N.

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PRINCIPAL
JKK MUNIRAJAH COLLEGE
OF TECHNOLOGY
T.N. PALAYAM (Po)-638 506.
GOBI (Tk), ERODE (Dt).

REQUISITION LETTER

From,

Head of the Department,

Computer Science and Engineering,

JKK Munirajah College of Technology,

T.N.Palayam.

Permitted
24/8/21

To,

The Principal,

JKK Munirajah College of Technology,

T.N.Palayam.

Respected Sir,

Sub: Seeking permission for conducting a Certificate Program- Reg

We have planned to conduct a certificate program for II, III and IV year Computer Science students on **"FULL STACK WEB DEVELOPMENT"** from 31.08.2021 to 07.09.2021 by Program Coordinator **M.C.SAVITHRI M.E.,** So, I request you to kindly provide a permission to conduct the certificate program.

Thanking You,

24/8/21

Yours Truly,

Place: T.N.Palayam

Date:24.08.2021

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JKKMCT/CIRCULAR/AUG-21 **19/08/2021**

CIRCULAR

The Department of Computer Science and Engineering is planning to organize a Certificate Program on **"FULL STACK WEB DEVELOPMENT" (36 Hours)** for the benefit of the students from **31.08.2021 (Monday)** to **07.09.2021 (Tuesday)**. Students those who are willing to attend the Program can enroll their names to their class in-charges respectively on or before **24.08.2021**

19/8/21
PRINCIPAL

Copy To,
All the HODs and Staff Members,
All the Students,
Notice Board, File

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

PROGRAM SYLLABUS

Name of the Certificate Program : FULL STACK WEB DEVELOPMENT

Program Code : 21CSEFSWD01

Name of the Program Coordinator : M.C.SAVITHRI

Academic Year: 2021-2022

Program Contents **Total Hours: 36**

Chapter 1: Introduction to Full Stack Web Development (HTML, CSS)

- Web development basics-html
- Advanced html concepts
- Introduction to case cadding style sheet(CSS)
- Advanced css
- Java script concepts
- Java query concepts
- Bootstrap basics
- Google chrome extension project

Chapter 2: Full Stack Web Development -Basic and Advanced HTML

- HTML Document Structure
- HTML elements - div and span
- HTML elements - i, b, p, and a
- HTML elements - ul, li, and ol
- HTML elements - header and footer
- HTML elements - section, main, and article
- HTML elements - h1-h6 and aside

- HTML tables
- Advanced HTML Images
- Advanced HTML Forms
- Advanced HTML Inputs
- Advanced HTML Checkboxes
- Advanced HTML Radio buttons
- Advanced HTML Select, option, and buttons
- Advanced HTML HTML5 videos
- Advanced HTML HTML5 audio
- Advanced HTML Doctypes
- Advanced HTML Meta tags

Chapter 3: CASE CADDING STYLE SHEET (CSS)

- Targeting color and background
- Element specificity
- ID targeting, margin, and border
- Padding, margin, and float
- Max-width and background-image
- Switching over to an IDE
- Font weight, style, and family
- Text decorations
- Text spacing
- Text decoration modification
- Text shadow

Chapter 4: JAVA SCRIPT CONCEPTS

- Introduction to JavaScript
- Alerts and console logging
- Integers, strings, and variables
- Undefined variables and modifying values of variables
- Boolean operators
- Comparing values
- If statements
- For loops
- Defining functions
- Event handling
- Setting an elements inner HTML

Chapter 5: Java query concepts

- jQuery setup
- Targeting elements
- Event handling
- Dropdown menus
- Making our dropdown disappear
- Multiple targets, events, and attr method
- Prepend, append, and html
- preventDefault
- event.which and switch properties
- Custom context menu, page Y, and page X

Chapter 6 : Bootstrap Basics

- Bootstrap setup
- Navbar pt.1
- Navbar pt.2
- Forms pt.1
- Forms pt.2
- Buttons

Chapter 7 : Google chrome extension project

- Problem solving
- Manifest files
- Basic setup
- Getting video URLs
- Injecting JavaScript
- Getting pretty objects for each URL
- Creating download options list
- Communicating between the page and extension
- Chrome downloads API and background scripts
- Receiving messages and downloading files
- Styling our extension and publishing

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GOBI (Tk), ERODE (Dt).

Prepared by:

Name: M. C. SAVITHRI

Designation: AP / CSE

27/8/21
PROGRAM COORDINATOR

HOD

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

PROGRAM SCHEDULE

Name of the Certificate Program : FULL STACK WEB DEVELOPMENT

Program Code : 21CSEFSWD01

Name of the Program Coordinator : M.C.SAVITHRI

Program Period: 31.08.2021 to 07.09.2021

Date/ Time	9:30AMto 11:30AM (2 Hours)		11.45 AM to 12.45PM (1 Hour)		1:30 PM to 4.30 PM (3 Hours)
31-08-2021	Inauguration Introduction to full stack web development, Web development basics html.	BREAK	HTML Document Structure, HTML elements - div and span- i, b, p, and a ,ul, li, and ol , header and footer section	LUNCH	HTML elements - h1-h6 and aside HTML tables , Images HTML Forms, Inputs, Checkboxes, Radio buttons, Select option, and buttons
01-09-2021	HTML5 videos, audio. Doctypes, Meta tags, Targeting color and background,		Element specificity, ID targeting, margin, and border, Padding, margin.		float, ax-width and background-image, Switching over to an IDE Font weight, style, and family.
02-09-2021	Text decorations, Spacing, decoration, modification shadow		Introduction to JavaScript, Alerts and console logging. Integers, strings, and variables,		Defined variables and modifying values of variables, Boolean operators, Comparing values.
03-09-2021	If statementsFor loops, Defining functions,Event handling		Setting an elements inner HTML, jQuery setup Targeting elements		Event handling, Dropdow, Menus, Making our dropdown disappear
06-09-2021	Multiple targets, events, and append, html, prevent, Defaultevent. switch properties Custom context menu		pageY, and pageX, is method, Bootstrap,setup,Navbarpt.1, Navbarpt.2,Formspt.1, Forms pt.2		Problem solving Manifest files,Basic setup,Getting video URLs,Injecting JavaScript,Gettin pretty objects for each URL.
07-09-2021	Creating download options list Communicating between the page and extension, Chrome downloads.		API and background scripts,Receiving messages and downloading files Styling our extension and publishing		Feedback and Discussion

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27/8/21

PROGRAM COORDINATOR HOD PRINCIPAL

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

RESOURCE PERSON PROFILE

Title of the Programme	FULL STACK WEB DEVELOPMENT
Duration and Timing of the Programme	36 Hours and 9.30 AM to 4.30 PM
Name of the Resource Person	M.C SAVITHIRI
Photo Image of the Resource Person	
E-mail	savithrimc@jkkmct.edu.in
Mobile No:	9361537250
Designation	Assistant Professor/ CSE
Official Address	JKK Munirajah College of Technology, T.N.Palayam, Gobi (TK), Erode (Dt) -638506
Educational Qualification	B.E (Computer Science andEngineering), M.E (Computer Science andEngineering)
Experience	15 years of Experience as Assistant Professor
Field of Interest	Object Oriented Programming,Service Oriented Architecture,Software Engineering

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

ACADEMIC YEAR 2021-2022

WILLING STUDENTS NAMELIST

CERTIFICATE PROGRAM ON FULL STACK WEB DEVELOPMENT

S.NO	REGISTER NUMBER	NAME	WILLINGNESS		
			YES	NO	SIGN
IV YEAR					
1	731218104002	ANGAMMAL S	✓		S Angml.
2	731218104004	BOOPATHI S	✓		S: Bmy.
3	731218104006	GEETHA R	✓		R. Geetha.
4	731218104008	IYYAPPAN L	✓		L. Bmy.
5	731218104010	JEEVABHARATHI M	✓		M. JeevaBhathi
6	731218104011	JOTHIGA S	✓		S. Jothiga
7	731218104014	MANIKANDAN T	✓		T. Manikandan
8	731218104015	NIRANJANA M	✓		M. Niranj
9	731218104016	NISHA S	✓		S. Nisha
10	731218104017	RATHISH D	✓		D. Rathish
11	731218104018	SARANYA M	✓		Saranya.m.
12	731218104019	SIBIN DASS S	✓		Sibin S.
13	731218104020	SINDHU S	✓		S. Sindhu
14	731218104021	SINDHUJA V	✓		V Bmy
15	731218104023	SUBRAMANI N	✓		N. Sub.
16	731218104024	THAMARAISELVI R	✓		R. Thmy.
17	731218104025	UMA D	✓		D Vmy.
18	731218104026	VIJAYA KUMAR S	✓		S. Vmy
19	731218104028	VINODH L	✓		L. Vmy.

20	731218104301	KAVIYARASAN.M	✓		
21	731218104302	KIRUTHIKA.S	✓		
		III YEAR			
22	731219104004	BALAKRISHNAN.V	✓		
23	731219104005	BHUVANESHWARI.M	✓		
24	731219104006	DHATCHANA MOORTHI.A.P	✓		
25	731219104007	ELAKKIYA.D		✓	
26	731219104010	INDHUMATHI.P	✓		
27	731219104011	MADHAN.M		✓	
28	731219104012	MAHESHWARI.M	✓		
29	731219104014	MOHANRAJ.S		✓	
30	731219104015	PAVITHRA.R	✓		
31	731219104016	PRATHAP.N	✓		
32	731219104017	PRAVIN.S	✓		
33	731219104018	PRIYA.S	✓		
34	731219104019	RAMYA.V	✓		
35	731219104021	SANTHA MOORTHI.R		✓	
36	731219104022	SENTHIL KUMAR.V	✓		
37	731219104023	SUBASH CHANDRAN.P	✓		
38	731219104024	SUDHA DHARANI.R	✓		
39	731219104025	SURIYA.R	✓		
40	731219104026	SURIYA SARASWATHI.M	✓		
41	731219104027	TAMILSELVAN.A	✓		
42	731219104028	VENNILA.C	✓		

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II YEAR					
43	731220104001	ABINAYA G	✓		
44	731220104003	BALU R	✓		
45	731220104004	CHARLES WILLIAM.L	✓		
46	731220104005	DEEPAK.S	✓		
47	731220104006	DEEPIKA.S	✓		
48	731220104007	DHARANISELVI. M	✓		
49	731220104008	DODDAMMA.P		✓	
50	731220104009	JAGATHESWARAN.P	✓		
51	731220104010	KARUNYAA.M	✓		
52	731220104011	KATHIRESAN.K		✓	
53	731220104012	KAVIN.M	✓		
54	731220104014	LOGANATHAN.T		✓	
55	731220104015	MAGESH.S	✓		
56	731220104019	NIRMALRAJ.S	✓		
57	731220104021	RAMYA.S	✓		
58	731220104022	ROHITH.R	✓		
59	731220104023	ROSHMA I	✓		
60	731220104024	SIVALINGAM.K	✓		
61	731220104025	SUNDARAGANESAN.K		✓	
62	731220104026	THENMOZHI.B	✓		
63	731220104028	VIGNESH.M	✓		
64	731220104029	VINISHA.T	✓		
65	731220104030	VINITHA.A	✓		
66	731220104031	VINOTHKUMAR.R	✓		

67	731220104301	BOOPALAN.M		✓	
68	731220104302	DHAMODARAN.G	✓		Dhamodaran.G
69	731220104303	SANTHOSH.L		✓	
M.E CSE I YEAR					
70	731221405001	ARUNKUMAR R	✓		R. Arun
71	731221405002	CHARLY S	✓		S.Charly
72	731221405003	DEEPA G	✓		Deepa.
73	731221405004	DEEPARANI P	✓		P.Dhanthi
74	731221405005	GAYATHRI S	✓		S. Gayu.
75	731221405006	INDHIRAN R	✓		R. Indhu.
76	731221405007	LOGARAJA S	✓		S Logaraja.
77	731221405008	NAVEEN S	✓		Naveen S.
78	731221405009	PONMANI A	✓		A. Ponmani.
79	731221405010	RAJESH KUMAR A	✓		A. Rajesh
80	731221405011	RANJANI R	✓		Ranji R.
81	731221405012	SATHISH KUMAR V	✓		S. Sathish
82	731221405013	SAVITHA K	✓		K Savitha.
83	731221405014	SURESHKUMAR P	✓		P. Suresh
84	731221405015	VINOTHINI C	✓		C Vinothini
M.E CSE II YEAR					
85	731220405001	ANUKRISHNAN K R	✓		Anukrishnan

PROGRAM COORDINATOR

HOD

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

ACADEMIC YEAR 2021-2022

CERTIFICATE PROGRAM ON FULL STACK WEB DEVELOPMENT

ENROLLED STUDENTS NAMELIST

DATE: 31.08.2021 to 07.09.2021

S.NO	REG. NO	NAME
IV YEAR		
1	731218104002	ANGAMMAL S
2	731218104004	BOOPATHI S
3	731218104006	GEETHA R
4	731218104008	IYYAPPAN L
5	731218104010	JEEVABHARATHI M
6	731218104011	JOTHIGA S
7	731218104014	MANIKANDAN T
8	731218104015	NIRANJANA M
9	731218104016	NISHA S
10	731218104017	RATHISH D
11	731218104018	SARANYA M
12	731218104019	SIBIN DASS S
13	731218104020	SINDHU S
14	731218104021	SINDHUJA V
15	731218104023	SUBRAMANI N
16	731218104024	THAMARAISELVI R
17	731218104025	UMA D
18	731218104026	VIJAYA KUMAR S
19	731218104028	VINODH L
20	731218104301	KAVIYARASAN.M
21	731218104302	KIRUTHIKA.S
III YEAR		
22	731219104004	BALAKRISHNAN.V
23	731219104005	BHUVANESHWARI.M
24	731219104006	DHATCHANA MOORTHI.A.P

25	731219104010	INDHUMATHI.P
26	731219104012	MAHESHWARI.M
27	731219104015	PAVITHRA.R
28	731219104016	PRATHAP.N
29	731219104017	PRAVIN.S
30	731219104018	PRIYA.S
31	731219104019	RAMYA.V
32	731219104021	SANTHA MOORTHI.R
33	731219104022	SENTHIL KUMAR.V
34	731219104023	SUBASH CHANDRAN.P
35	731219104024	SUDHA DHARANI.R
36	731219104025	SURIYA.R
37	731219104026	SURIYA SARASWATHI.M
38	731219104027	TAMILSELVAN.A
39	731219104028	VENNILA.C
		II YEAR
40	731220104001	ABINAYA G
41	731220104003	BALU R
42	731220104004	CHARLES WILLIAM.L
43	731220104005	DEEPAK.S
44	731220104006	DEEPIKA.S
45	731220104007	DHARANISELVI. M
46	731220104009	JAGATHESWARAN.P
47	731220104010	KARUNYAA.M
48	731220104012	KAVIN.M
49	731220104015	MAGESH.S
50	731220104019	NIRMALRAJ.S
51	731220104021	RAMYA.S
52	731220104022	ROHITH.R

53	731220104023	ROSHMA I
54	731220104024	SIVALINGAM.K
55	731220104026	THENMOZHI.B
56	731220104028	VIGNESH.M
57	731220104029	VINISHA.T
58	731220104030	VINITHA.A
59	731220104031	VINOTHKUMAR.R
60	731220104302	DHAMODARAN.G
ME CSE I YEAR		
61	731221405001	ARUNKUMAR R
62	731221405002	CHARLY S
63	731221405003	DEEPA G
64	731221405004	DEEPARANI P
65	731221405005	GAYATHRI S
66	731221405006	INDHIRAN R
67	731221405007	LOGARAJA S
68	731221405008	NAVEEN S
69	731221405009	PONMANI A
70	731221405010	RAJESH KUMAR A
71	731221405011	RANJANI R
72	731221405012	SATHISH KUMAR V
73	731221405013	SAVITHA K
74	731221405014	SURESHKUMAR P
75	731221405015	VINOTHINI C
ME CSE II YEAR		
76	731220405001	ANUKRISHNAN K R

PROGRAM COORDINATOR HOD PRINCIPAL

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

ACADEMIC YEAR 2021-2022

CERTIFICATE PROGRAM ON FULL STACK WEB DEVELOPMENT

ATTENDANCE SHEET

S.NO	REGISTER NO	NAME	ATTENDANCE OF THE PARTICIPANTS											
			31/8/2021		01/9/2021		2/9/2021		3/9/2021		6/9/2021		7/9/2021	
			FN	AN	FN	AN	FN	AN	FN	AN	FN	AN	FN	AN
IV YEAR														
1	731218104002	ANGAMMAL S	/	/	/	/	/	/	/	/	/	/	/	/
2	731218104004	BOOPATHI S	/	/	/	/	/	/	/	/	/	/	/	/
3	731218104006	GEETHA R	/	/	/	/	/	/	/	/	/	/	/	/
4	731218104008	IYYAPPAN L	/	/	/	/	/	/	/	/	/	/	/	/
5	731218104010	JEEVABHARATHI M	/	/	/	/	/	/	/	/	/	/	/	/
6	731218104011	JOTHIGA S	/	/	/	/	/	/	/	/	/	/	/	/
7	731218104014	MANIKANDAN T	/	/	/	/	/	/	/	/	/	/	/	/
8	731218104015	NIRANJANA M	/	/	/	/	/	/	/	/	/	/	/	/
9	731218104016	NISHA S	/	/	/	/	/	/	/	/	/	/	/	/
10	731218104017	RATHISH D	/	/	/	/	/	/	/	/	/	/	/	/
11	731218104018	SARANYA M	/	/	/	/	/	/	/	/	/	/	/	/
12	731218104019	SIBIN DASS S	/	/	/	/	/	/	/	/	/	/	/	/
13	731218104020	SINDHU S	/	/	/	/	/	/	/	/	/	/	/	/
14	731218104021	SINDHUJA V	/	/	/	/	/	/	/	/	/	/	/	/
15	731218104023	SUBRAMANI N	/	/	/	/	/	/	/	/	/	/	/	/
16	731218104024	THAMARAISELVI R	/	/	/	/	/	/	/	/	/	/	/	/
17	731218104025	UMA D	/	/	/	/	/	/	/	/	/	/	/	/
18	731218104026	VIJAYA KUMAR S	/	/	/	/	/	/	/	/	/	/	/	/
19	731218104028	VINODH L	/	/	/	/	/	/	/	/	/	/	/	/

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T.N. Palayam (Po), Gobi (Tk), Erode (Dt) – 638 506

20	731218104301	KAVIYARASAN.M	/	/	/	/	/	/	/	/	/	/	/	/		
21	731218104302	KIRUTHIKA.S	/	/	/	/	/	/	/	/	/	/	/	/		
III YEAR																
22	731219104004	BALAKRISHNAN.V	/	/	/	/	/	/	/	/	/	/	/	/		
23	731219104005	BHUVANESHWARI.M	/	/	/	/	/	/	/	/	/	/	/	/		
24	731219104006	DHATCHANA MOORTHI.A.P	/	/	/	/	/	/	/	/	/	/	/	/		
25	731219104010	INDHUMATHI.P	/	/	/	/	/	/	/	/	/	/	/	/		
26	731219104012	MAHESHWARI.M	/	/	/	/	/	/	/	/	CL	CL	/	/		
27	731219104015	PAVITHRA.R	/	/	/	/	/	/	/	/	/	/	/	/		
28	731219104016	PRATHAP.N	/	/	/	/	/	/	/	/	/	/	/	/		
29	731219104017	PRAVIN.S	/	/	/	/	/	/	/	/	/	/	/	/		
30	731219104018	PRIYA.S	/	/	/	/	/	/	/	/	/	/	/	/		
31	731219104019	RAMYA.V	/	/	/	/	/	/	/	/	/	/	/	/		
32	731219104021	SANTHA MOORTHI.R	/	/	/	/	/	/	/	/	/	/	/	/		
33	731219104022	SENTHIL KUMAR.V	/	/	/	/	/	/	/	/	/	/	/	/		
34	731219104023	SUBASH CHANDRAN.P	/	/	/	/	/	/	/	/	/	/	/	/		
35	731219104024	SUDHA DHARANI.R	/	/	/	/	/	/	/	/	/	/	/	/		
36	731219104025	SURIYA.R	/	/	/	/	/	/	/	/	/	/	/	/		
37	731219104026	SURIYA SARASWATHI.M	/	/	/	/	/	/	/	/	/	/	/	/		
38	731219104027	TAMILSELVAN.A	/	/	/	/	/	/	/	/	/	/	/	/		
39	731219104028	VENNILA.C	/	/	/	/	/	/	/	/	/	/	/	/		
II YEAR																
40	731220104001	ABINAYA G	/	/	/	/	/	/	/	/	/	/	/	/		
41	731220104003	BALU R	/	/	/	/	/	/	/	/	/	/	/	/		

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42	731220104004	CHARLES WILLIAM.L	/	/	/	/	/	/	/	/	/	/	/	/
43	731220104005	DEEPAK.S	/	/	/	/	/	/	/	/	/	/	/	/
44	731220104006	DEEPIKA.S	/	/	/	/	/	/	/	/	/	/	/	/
45	731220104007	DHARANISELVI. M	/	/	/	/	/	/	/	/	/	/	/	/
46	731220104009	JAGATHESWARAN.P	/	/	/	/	/	/	/	/	/	/	/	/
47	731220104010	KARUNYAA.M	/	/	/	/	/	/	/	/	/	/	/	/
48	731220104012	KAVIN.M	/	/	/	/	/	/	/	/	/	/	/	/
49	731220104015	MAGESH.S	/	/	/	/	/	/	/	/	/	/	/	/
50	731220104019	NIRMALRAJ.S	/	/	/	/	/	/	/	/	/	/	/	/
51	731220104021	RAMYA.S	/	/	/	/	/	/	/	/	/	/	/	/
52	731220104022	ROHITH.R	/	/	/	/	/	/	/	/	/	/	/	/
53	731220104023	ROSHMA I	/	/	/	/	/	/	/	/	/	/	/	/
54	731220104024	SIVALINGAM.K	/	/	/	/	a	a	/	/	/	/	/	/
55	731220104026	THENMOZHI.B	/	/	/	/	/	/	/	/	a	a	/	/
56	731220104028	VIGNESH.M	/	/	/	/	/	/	/	/	/	/	/	/
57	731220104029	VINISHA.T	/	/	/	/	/	/	/	/	/	/	/	/
58	731220104030	VINITHA.A	/	/	/	/	/	/	/	/	/	/	/	/
59	731220104031	VINOTHKUMAR.R	/	/	/	/	/	/	/	/	/	/	/	/
60	731220104302	DHAMODARAN.G	/	/	/	/	/	/	/	/	/	/	/	/
M.E-CSE - I YEAR														
61	731221405001	ARUNKUMAR R	/	/	/	/	/	/	/	/	/	/	/	/
62	731221405002	CHARLY S	/	/	/	/	/	/	/	/	/	/	/	/
63	731221405003	DEEPA G	/	/	/	/	/	/	/	/	/	/	/	/
64	731221405004	DEEPARANI P	/	/	/	/	/	/	/	/	/	/	/	/
65	731221405005	GAYATHRI S	/	/	/	/	/	/	/	/	/	/	/	/
66	731221405006	INDHIRAN R	/	/	/	/	/	/	/	/	/	/	/	/

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67	731221405007	LOGARAJA S	/	/	/	/	/	/	/	/	/	/	/	/
68	731221405008	NAVEEN S	/	/	/	/	/	/	/	/	/	/	/	/
69	731221405009	PONMANI A	/	/	/	/	/	/	/	/	/	/	/	/
70	731221405010	RAJESH KUMAR A	/	/	/	/	/	/	/	/	/	/	/	/
71	731221405011	RANJANI R	/	/	/	/	/	/	/	/	/	/	/	/
72	731221405012	SATHISH KUMAR V	/	/	/	/	/	/	/	/	/	/	/	/
73	731221405013	SAVITHA K	/	/	/	/	/	/	/	/	/	/	/	/
74	731221405014	SURESHKUMAR P	/	/	/	/	/	/	/	/	/	/	/	/
75	731221405015	VINOTHINI C	/	/	/	/	/	/	/	/	/	/	/	/
M.E-CSE - II YEAR														
76	731220405001	ANUKRISHNAN K R	/	/	/	/	/	/	/	/	/	/	/	/
TOTAL NO OF STUDENTS PRESENT			76	76	76	76	75	75	76	76	74	74	76	76
TOTAL NO OF STUDENTS ABSENT			Nil	Nil	Nil	Nil	01	01	Nil	Nil	02	02	Nil	Nil
SIGNATURE OF THE PROGRAM COORDINATOR														
SIGNATURE OF THE HOD														

PROGRAM COORDINATOR **HOD** **PRINCIPAL**

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

ACADEMIC YEAR 2021-2022

FULL STACK WEB DEVELOPMENT

ASSESSMENT

ANSWER ALL QUESTIONS (30*1=30 MARKS)

1) What is the preferred way for adding a background color in HTML?

a.) <body background="yellow">

b.) <background>yellow</background>

c.) < body style="background-color:yellow">

d.) <background color="yellow">text<background>

2) What is the correct HTML for creating a hyperlink?

a.) A

b.) <a>B

c.) example

d.) example

3) How can you create an e-mail link?

a.) <mail href="a@b">

b.) <mail>a@b</mail>

c.) <a href="a@b">

d.) <a href="mailto:a@b.com">

4) How can you open a link in a new browser window?

a.) <a href="url" new>

b.) <a href="url" target="new">

c.) <a href="url" target="_blank">

d.) <a href="url" target="">

5) Which of these tags are all <table> tags?

a.) <table><head><tfoot>

b.) <table><tr><td>

c.) <table><tr><tt>

d.) <thead><body><tr>

6) Which of the following JavaScript cannot do?

a.) JavaScript can react to events

b.) JavaScript can manipulate HTML elements

c.) JavaScript can be use to validate data

d.) All of the Above

7) Whats so great about XML?

a.) Easy data exchange

b.) High speed on network

c.) Only B.is correct

d.) Both A & B

8) Which is not a property of attribute Behaviour of <Marquee> tag?

a.) alternate

b.) blur

c.) scroll

d.) slide

9) _____ keyword is used to declare variables in javascript.

a.) Var

b.) Dim

c.) String

d.) None of the above

10) The attribute used to define a new namespace is.

a.) XMLNS

b.) XmlNameSpace

c.) Xmlns

d.) XmlNs

11) How can you make a list that lists the items with numbers?

a.)

b.) <list>

c.)

d.) <dl>

12) What is the correct HTML for making a checkbox?

a.) <checkbox>

b.) <input type="checkbox" />

c.) <input type="check" />

d.) <check>

13) What is the correct HTML for making a text input field?

a.) <input type="textfield" />

b.) <textinput type="text" />

c.) <textfield>

d.) <input type="text" />

14) What is the correct HTML for making a drop-down list?

a.) <input type="list" />

b.) <select>

c.) <list>

d.) <input type="dropdown" />

15) What is the correct HTML for making a text area?

a.) <input type="textarea" />

b.) <input type="textbox" />

c.) <textarea>

d.) None of these

16) What is the correct HTML for inserting an image?

a.) <image src="image.gif" alt="MyImage" />

b.)

c.)

d.) <img alt="MyImage">image.gif

17) colspan=n can be added to only what tag?

a.) <table>

b.) <td>

c.) <tr>

d.) <thead>

18) What tag adds a paragraph break after the text ?

a.) <PARAGRAPH>

b.) <P>

c.)

d.) <pr>

19) All HTML comment tags are enclosed in what ?

a.) <>

b.) <? and ?>

c.) # and #

d.) <!-- and -->

20) The TFOOT section of a table must appear before the TBODY section.

a.) FALSE

b.) TRUE

21) ActiveX can be disabled via browser settings.

a.) TRUE

b.) FALSE

22) What do you add to a template in order to control where page content goes?

a.) Text Frames

b.) HTML Controllers

c.) Editable Regions

d.) Page Content Controllers

23) Which of the following is NOT a Style?

a.) Linked

b.) Embedded

c.) Inline

d.)Orthogonal

24) Which of the following is NOT a Hotspot tool?

a.) Orthogonal Hotspot Tool

b.) Rectangular Hotspot Tool

c.) Oval Hotspot Tool

d.) Polygon Hotspot Tool

25) Which of the following is not supported by older browsers?

a.) CSS

b.) Layers

c.) Frames

d.) All of the above

26) Which of the following is the HTML tag to start a Heading Level 3?

a.) <H3>

b.) </H3>

c.) <#H3>

d.) <H3/>

27) Which type of style should you use if you want to use the formats on multiple pages?

a.) Linked

b.) Embedded

c.) Inline

d.) Orthogonal

28) Orkut.com is owned by _____

a.) Google

b.) Yahoo

c.) Microsoft

d.) Apple

29) What is the correct HTML for referring to an external style sheet?

a.) <style src="mystyle.css">

b.) <stylesheet>mystyle.css

c.) <link rel="stylesheet" type="text/css" href="mystyle.css">

30) **Where in an HTML document is the correct place to refer to an external style sheet?**

a.) At the top of the document

b.) At the end of the document

c.) In the section

d.) In the <head> section

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

ACADEMIC YEAR 2021-2022

CERTIFICATE PROGRAM ON "FULL STACK WEB DEVELOPMENT"

STUDENTS MARKLIST

DATE: 31.08.2021 to 07.09.2021

S.NO	REG. NO	NAME	MARKS
		IV YEAR	
1	731218104002	ANGAMMAL S	98
2	731218104004	BOOPATHI S	86
3	731218104006	GEETHA R	85
4	731218104008	IYYAPPAN L	76
5	731218104010	JEEVABHARATHI M	68
6	731218104011	JOTHIGA S	69
7	731218104014	MANIKANDAN T	89
8	731218104015	NIRANJANA M	73
9	731218104016	NISHA S	95
10	731218104017	RATHISH D	90
11	731218104018	SARANYA M	83
12	731218104019	SIBIN DASS S	92
13	731218104020	SINDHU S	76
14	731218104021	SINDHUJA V	80
15	731218104023	SUBRAMANI N	86
16	731218104024	THAMARAISELVI R	79
17	731218104025	UMA D	80
18	731218104026	VIJAYA KUMAR S	87
19	731218104028	VINODH L	82
20	731218104301	KAVIYARASAN.M	84
21	731218104302	KIRUTHIKA.S	96
		III YEAR	
22	731219104004	BALAKRISHNAN.V	43
23	731219104005	BHUVANESHWARI.M	96
24	731219104006	DHATCHANA MOORTHI.A.P	84

25	731219104010	INDHUMATHI.P	64
26	731219104012	MAHESHWARI.M	69
27	731219104015	PAVITHRA.R	70
28	731219104016	PRATHAP.N	72
29	731219104017	PRAVIN.S	84
30	731219104018	PRIYA.S	77
31	731219104019	RAMYA.V	79
32	731219104021	SANTHA MOORTHI.R	46
33	731219104022	SENTHIL KUMAR.V	68
34	731219104023	SUBASH CHANDRAN.P	63
35	731219104024	SUDHA DHARANI.R	90
36	731219104025	SURIYA.R	93
37	731219104026	SURIYA SARASWATHI.M	95
38	731219104027	TAMILSELVAN.A	82
39	731219104028	VENNILA.C	86
		II YEAR	
40	731220104001	ABINAYA G	76
41	731220104003	BALU R	94
42	731220104004	CHARLES WILLIAM.L	66
43	731220104005	DEEPAK.S	78
44	731220104006	DEEPIKA.S	85
45	731220104007	DHARANISELVI. M	73
46	731220104009	JAGATHESWARAN.P	46
47	731220104010	KARUNYAA.M	82
48	731220104012	KAVIN.M	84
49	731220104015	MAGESH.S	40
50	731220104019	NIRMALRAJ.S	93
51	731220104021	RAMYA.S	90
52	731220104022	ROHITH.R	88

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53	731220104023	ROSHMA I	75
54	731220104024	SIVALINGAM.K	47
55	731220104026	THENMOZHI.B	88
56	731220104028	VIGNESH.M	86
57	731220104029	VINISHA.T	99
58	731220104030	VINITHA.A	92
59	731220104031	VINOTHKUMAR.R	98
60	731220104302	DHAMODARAN.G	44
ME CSE I YEAR			
61	731221405001	ARUNKUMAR R	90
62	731221405002	CHARLY S	88
63	731221405003	DEEPA G	76
64	731221405004	DEEPARANI P	73
65	731221405005	GAYATHRI S	99
66	731221405006	INDHIRAN R	85
67	731221405007	LOGARAJA S	81
68	731221405008	NAVEEN S	79
69	731221405009	PONMANI A	95
70	731221405010	RAJESH KUMAR A	98
71	731221405011	RANJANI R	95
72	731221405012	SATHISH KUMAR V	72
73	731221405013	SAVITHA K	76
74	731221405014	SURESHKUMAR P	63
75	731221405015	VINOTHINI C	61
ME CSE II YEAR			
76	731220405001	ANUKRISHNAN K R	92

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Note: The students those who have secured above 50 Marks and above are consider eligible for program completion.

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

ACADEMIC YEAR 2021-2022

SUMMARY/ OUTCOME REPORT

Name of the Certificate Program : **FULL STACK WEB DEVELOPMENT**

Program Code : 21CSEFSWD01

Name of the Program Coordinator: M.C.SAVITHRI

Duration : 36 Hours

Number of Students Enrolled : 76

Number of Students Completed : 70

I hereby affirm that the entire Program contents in the Certificate Program **"Full Stack Web Development"** listed in the Syllabus have been actually learned by the students as the part of the prescribed co-curricular activities through Certificate Program.

I confirmed that the Certificate Program title as **Full Stack Web Development** Work Bench was done by me in the beginning of this semester and Program delivery with attendance of the students were recorded.

I confirmed that all registered students for this Certificate Program were actively attended and learned well throughout the duration of this Program. And all students were successfully completed and eligible to receive the participation certificate.

OUTCOME: Students shall be able to gain the knowledge in

i) Structure and implement HTML/CSS.

ii) Develop a fully functioning website and deploy on a web server.

iii) Develop JavaScript applications that transition between states.

iv) Distinguishing trends in multi-device implementation.

v) Create visualizations in accordance with UI/UX theories.

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Name : Mrs.M.C.SAVITHRI

Designation: Assistant Professor/CSE

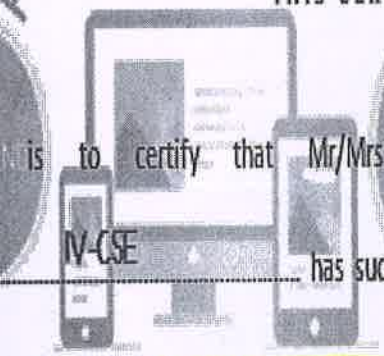
PROGRAM COORDINATOR HOD PRINCIPAL

Certificate

OF ACHIEVEMENT

FULL STACK DEVELOPER

THIS CERTIFICATE IS PRESENTED TO



This is to certify that Mr/Mrs VINODH L of IV-CSE has successfully completed the Add on course titled "FULL STACK WEB DEVELOPMENT" organized by Department of Computer Science and Engineering.

Duration: 31.8.2021 to 07.09.2021

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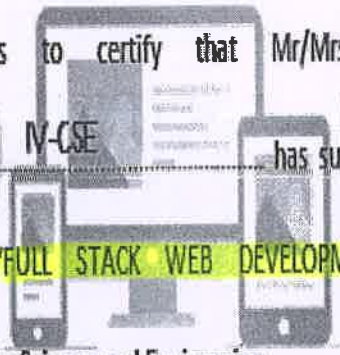

Duration: 31.8.2021 to 07.09.2021

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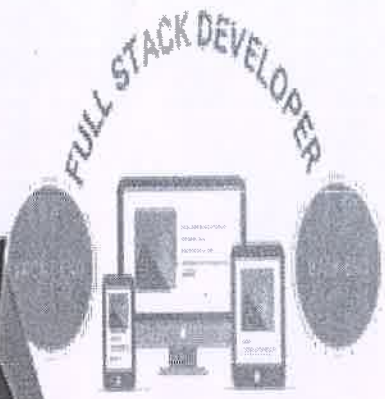

THIS CERTIFICATE IS PRESENTED TO

This is to certify that Mr/Mrs. THAMARAISELVI R of IV-CSE has successfully completed the Add on course titled "FULL STACK WEB DEVELOPMENT" organized by Department of Computer Science and Engineering.

Duration: 31.8.2021 to 07.09.2021

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This is to certify that Mr/Mrs. SUBRAMANIN of M-CSE has successfully completed the Add on course titled "FULL STACK WEB DEVELOPMENT" organized by Department of Computer Science and Engineering.

Duration: 31.8.2021 to 07.09.2021

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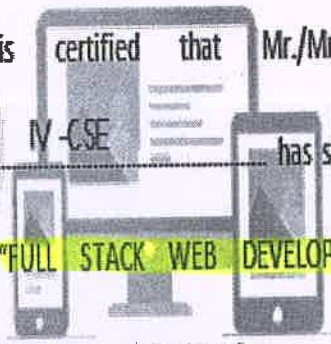

This is certified that Mr./Mrs. SINDHU S of IV-CSE has successfully completed the Add on course titled "FULL STACK WEB DEVELOPMENT" organized by Department of Computer Science and Engineering.

Duration: 30.8.2021 to 07.09.2021

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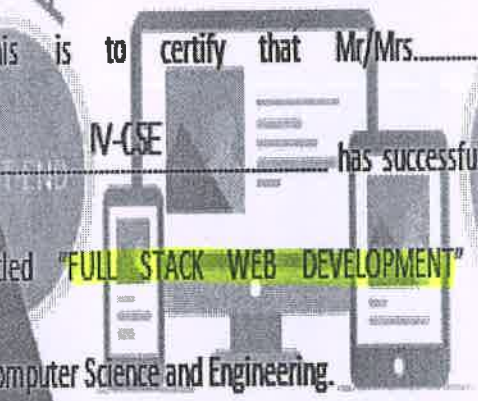
This is to certify that Mr/Mrs. SINDHUJA V of IV-CSE has successfully completed the Add on course titled "FULL STACK WEB DEVELOPMENT" organized by Department of Computer Science and Engineering.



Duration: 31.8.2021 to 07.09.2021

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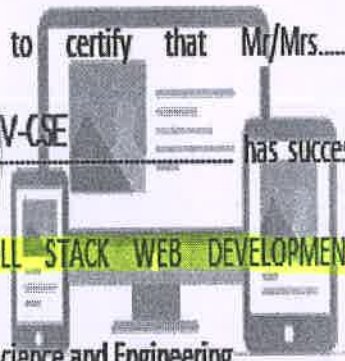
This is to certify that Mr/Mrs. SARANYA M of IV-CSE has successfully completed the Add on course titled "FULL STACK WEB DEVELOPMENT" organized by Department of Computer Science and Engineering.



Duration: 31.8.2021 to 07.09.2021

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FULL STACK DEVELOPER

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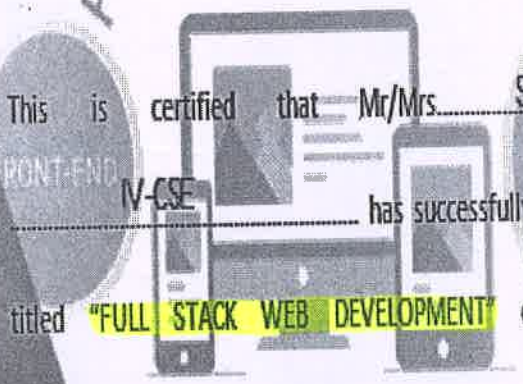

This is certified that Mr/Mrs. SIBIN DASS S of IV-CSE has successfully completed the Add on course titled "FULL STACK WEB DEVELOPMENT" organized by Department of Computer Science and Engineering.

Duration: 31.8.2021 to 07.09.2021

COORDINATOR HOD PRINCIPAL

PRINCIPAL
JKK MUNIRAJAH COLLEGE
OF TECHNOLOGY
T.N. PALAYAM (Po)-638 506.
GOBI (Tk), ERODE (Dt).

Certificate

OF ACHIEVEMENT

FULL STACK DEVELOPER

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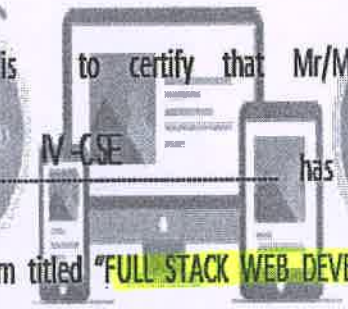

This is to certify that Mr/Mrs. RATHISH D of IV-CSE has successfully completed the Certificate Program titled "FULL STACK WEB DEVELOPMENT" organized by Department of Computer Science and Engineering.

Duration: 31.8.2021 to 07.09.2021

COORDINATOR HOD PRINCIPAL

PRINCIPAL
JKK MUNIRAJAH COLLEGE
OF TECHNOLOGY
T.N. PALAYAM (Po)-638 506.
GOBI (Tk), ERODE (Dt).

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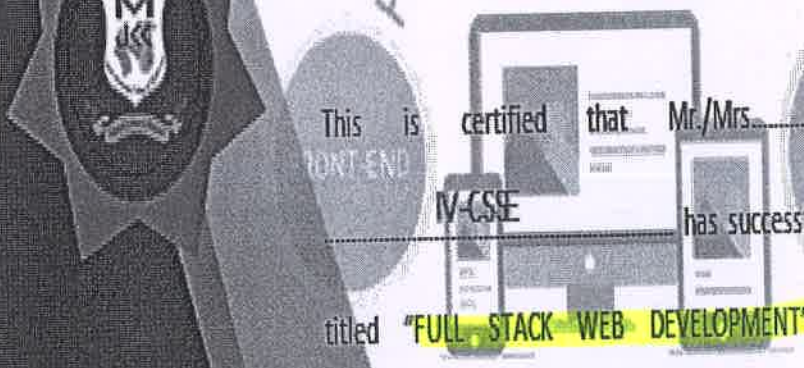

This is certified that Mr./Mrs. NISHA S of IV-CSE has successfully completed the Add on course titled "FULL STACK WEB DEVELOPMENT" organized by Department of Computer Science and Engineering.

Duration: 31.8.2021 to 07.09.2021

COORDINATOR

HOD

PRINCIPAL

PRINCIPAL
JKK MUNIRAJAH COLLEGE
OF TECHNOLOGY
T.N. PALAYAM (Po)-638 506.
GOBI (Tk), ERODE (Dt).

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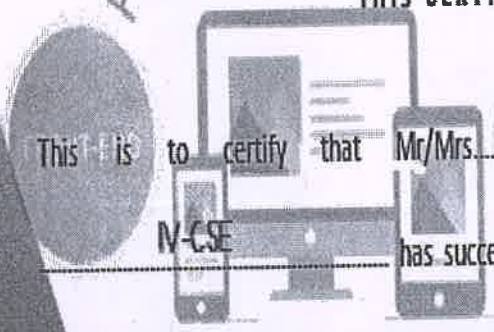

This is to certify that Mr/Mrs. NIRANJANAM of IV-CSE has successfully completed the Add on course titled "FULL STACK WEB DEVELOPMENT" organized by Department of Computer Science and Engineering.

DATABASE

Duration: 31.8.2021 to 07.09.2021

COORDINATOR HOD PRINCIPAL

PRINCIPAL
JKK MUNIRAJAH COLLEGE
OF TECHNOLOGY
T.N. PALAYAM (Po)-638 506.
GOBI (Tk), ERODE (Dt).

Certificate

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FULL STACK DEVELOPER

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This is to certify that Mr/Mrs. MANKANDANT of M-CSE has successfully completed the Add on course titled "FULL STACK WEB DEVELOPMENT" organized by Department of Computer Science and Engineering.

Duration: 31.8.2021 to 07.09.2021

COORDINATOR HOD PRINCIPAL

PRINCIPAL
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T.N. PALAYAM (Po)-638 506.
GOBI (Tk), ERODE (Dt).

Certificate

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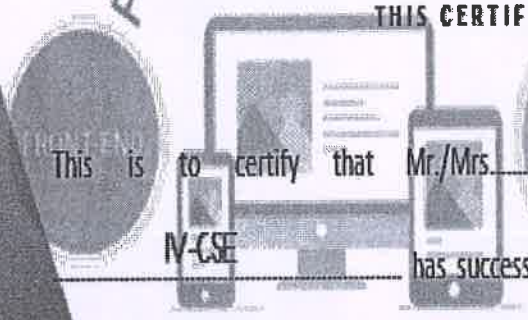
FULL STACK DEVELOPER



THIS CERTIFICATE IS PRESENTED TO

This is to certify that Mr./Mrs. KRUTHIKA S of IV-CSE has successfully completed the Add on course titled "FULL STACK WEB DEVELOPMENT" organized by Department of Computer Science and Engineering.

Duration: 31.8.2021 to 07.09.2021

COORDINATOR HOD PRINCIPAL

PRINCIPAL
JKK MUNIRAJAH COLLEGE
OF TECHNOLOGY
T.N. PALAYAM (Po)-638 506.
GOBI (Tk), ERODE (Dt).

Certificate

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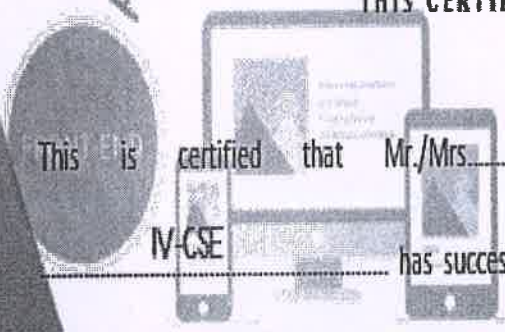

This is certified that Mr./Mrs. KAVIYARASAN. M of IV-CSE has successfully completed the Add on course titled "FULL STACK WEB DEVELOPMENT" organized by Department of Computer Science and Engineering.

Duration: 31.8.2021 to 07.09.2021

COORDINATOR HOD PRINCIPAL

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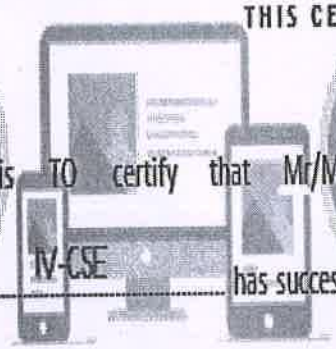

This is TO certify that Mr/Mrs. JOTHIGA S of IV-CSE has successfully completed the Add on course titled "FULL STACK WEB DEVELOPMENT" organized by Department of Computer Science and Engineering.

Duration: 31.8.2021 to 07.09.2021

COORDINATOR

HOD

PRINCIPAL
JKKMCT

PRINCIPAL
JKK MUNIRAJAH COLLEGE
OF TECHNOLOGY
T.N. PALAYAM (Po)-638 506.
GOBI (Tk), ERODE (Dt).

Certificate

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FULL STACK DEVELOPER

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This is to certify that Mr/Mrs. JEEVABHARATHI M of IV-CSE has successfully completed the Add on course titled "FULL STACK WEB DEVELOPMENT" organized by Department of Computer Science and Engineering.

Duration: 31.8.2021 to 07.09.2021

DATABASE

COORDINATOR HOD PRINCIPAL

PRINCIPAL
JKK MUNIRAJAH COLLEGE
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T.N. PALAYAM (Po)-638 506.
GOBI (Tk), ERODE (Dt).

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This is to certify that Mr/Mrs. IYYAPPAN L of IV-CSE has successfully completed the Add on course titled "FULL STACK WEB DEVELOPMENT" organized by Department of Computer Science and Engineering.

Duration: 31.8.2021 to 07.09.2021

COORDINATOR HOD PRINCIPAL

PRINCIPAL
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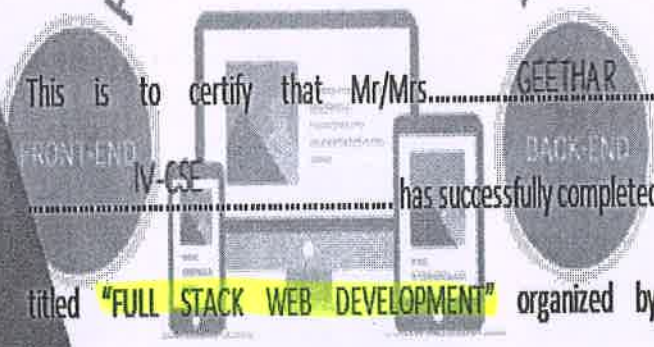

This is to certify that Mr/Mrs. GEETHA R of IV-CSE has successfully completed the Add on course titled "FULL STACK WEB DEVELOPMENT" organized by Department of Computer Science and Engineering.

Duration: 31.8.2021 to 07.09.2021

COORDINATOR HOD PRINCIPAL

PRINCIPAL
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T.N. PALAYAM (Po)-638 506.
GOBI (Tk), ERODE (Dt).

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This is to certify that Mr/Mrs. BOOPATHS of IV-CSE has successfully completed the Add on course titled "FULL STACK WEB DEVELOPMENT" organized by Department of Computer Science and Engineering.

Duration: 31.8.2021 to 07.09.2021

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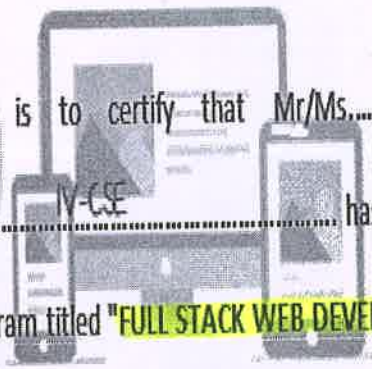

This is to certify that Mr/Ms. ANGAMMAL S of IV-CSE has successfully completed the Certificate Program titled "FULL STACK WEB DEVELOPMENT" organized by Department of Computer Science and Engineering.

Duration: 31.8.2021 to 07.09.2021

COORDINATOR HOD PRINCIPAL

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JKK MUNIRAJAH COLLEGE
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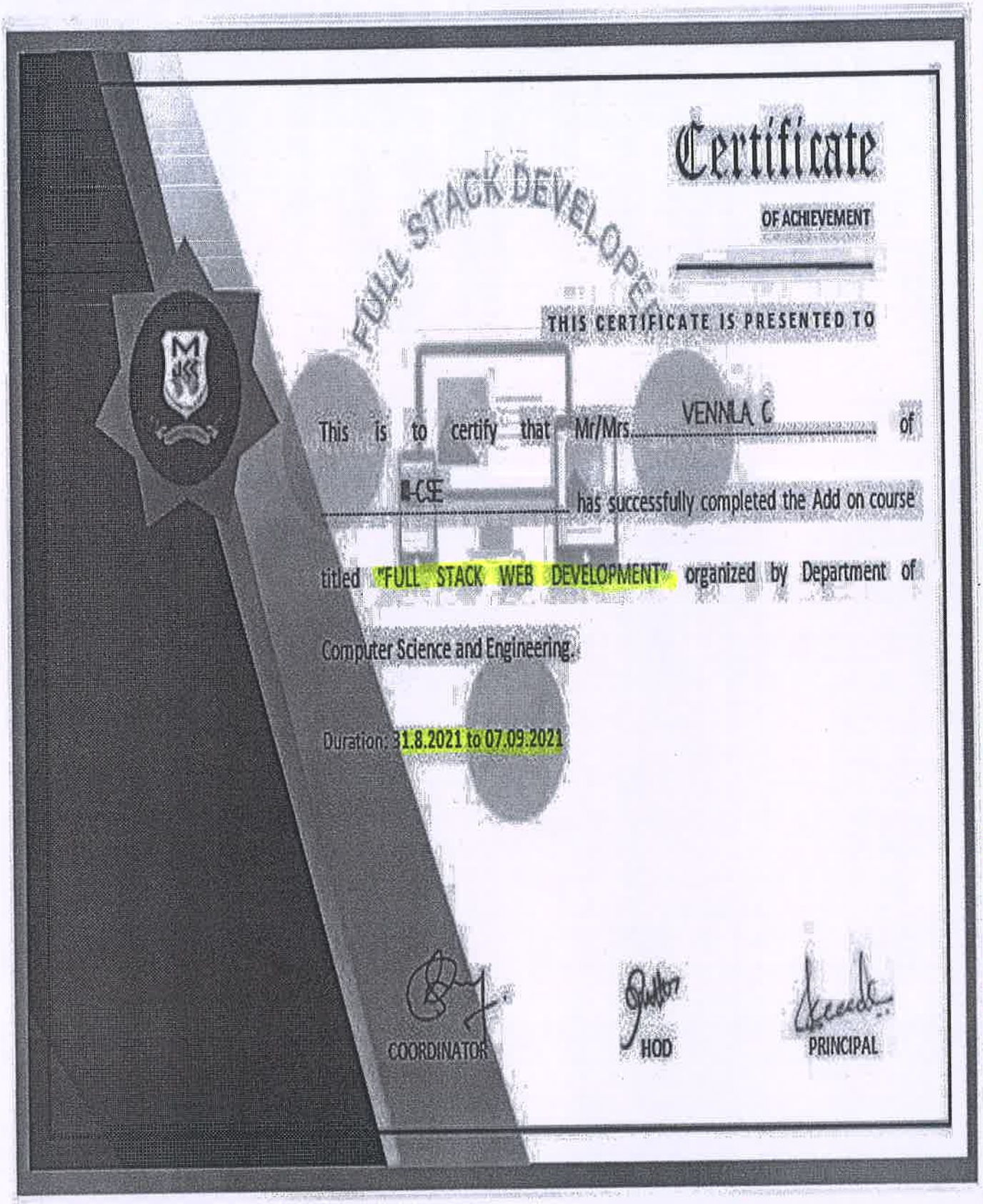
T.N. PALAYAM (Po)-638 506.
GOBI (Tk), ERODE (Dt).



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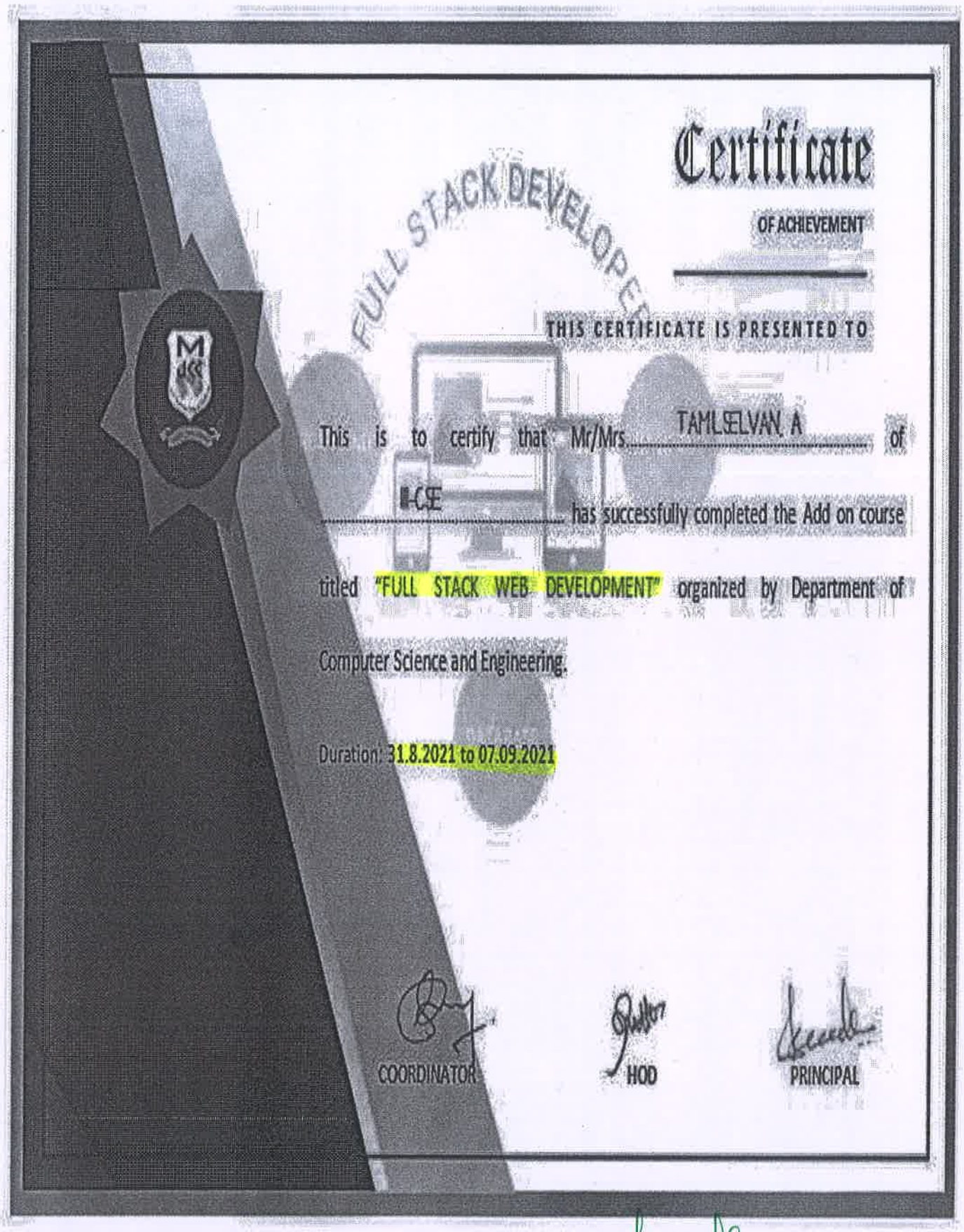

Certificate

OF ACHIEVEMENT

THIS CERTIFICATE IS PRESENTED TO

This is to certify that Mr/Mrs. TAMILSELVAN. A of II-CSE has successfully completed the Add on course titled "FULL STACK WEB DEVELOPMENT" organized by Department of Computer Science and Engineering.

Duration: 31.8.2021 to 07.09.2021

COORDINATOR HOD PRINCIPAL

PRINCIPAL
JKK MUNIRAJAH COLLEGE
OF TECHNOLOGY
T.N. PALAYAM (Po)-638 506.
GOBI (Tk), ERODE (Dt).

Certificate

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FULL STACK DEVELOPER

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This is to certify that Mr/Mrs. SURIYA R of II-CSE has successfully completed the Add on course titled "FULL STACK WEB DEVELOPMENT" organized by Department of Computer Science and Engineering.

Duration: 31.8.2021 to 07.09.2021

COORDINATOR HOD PRINCIPAL

PRINCIPAL
JKK MUNIRAJAH COLLEGE
OF TECHNOLOGY
T.N. PALAYAM (Po)-638 506.
GOBI (Tk), ERODE (Dt).

Certificate

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FULL STACK DEVELOPER

THIS CERTIFICATE IS PRESENTED TO

This is to certify that Mr/Mrs. SURIYA SARASWATHI. M of

II-CSE has successfully completed the Add on course

titled "FULL STACK WEB DEVELOPMENT" organized by Department of

Computer Science and Engineering.

Duration: 31.08.2021 to 07.09.2021

COORDINATOR HOD PRINCIPAL

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T.N. PALAYAM (Po)-638 506.
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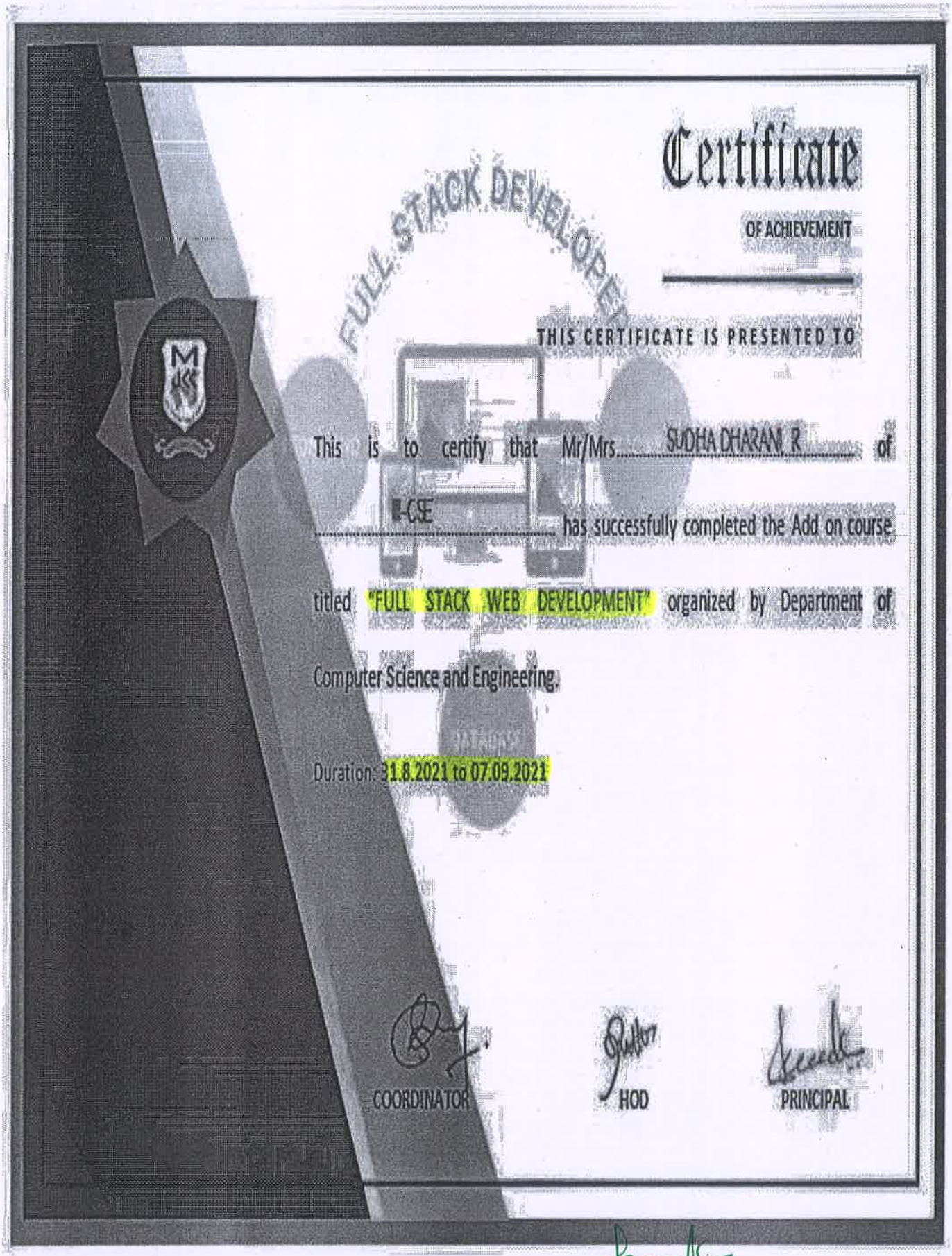

Certificate

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This is to certify that Mr/Mrs. SUDHA DHARANI R of II-CSE has successfully completed the Add on course titled "FULL STACK WEB DEVELOPMENT" organized by Department of Computer Science and Engineering.

Duration: 31.8.2021 to 07.09.2021

COORDINATOR HOD PRINCIPAL

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T.N. PALAYAM (Po)-638 506.
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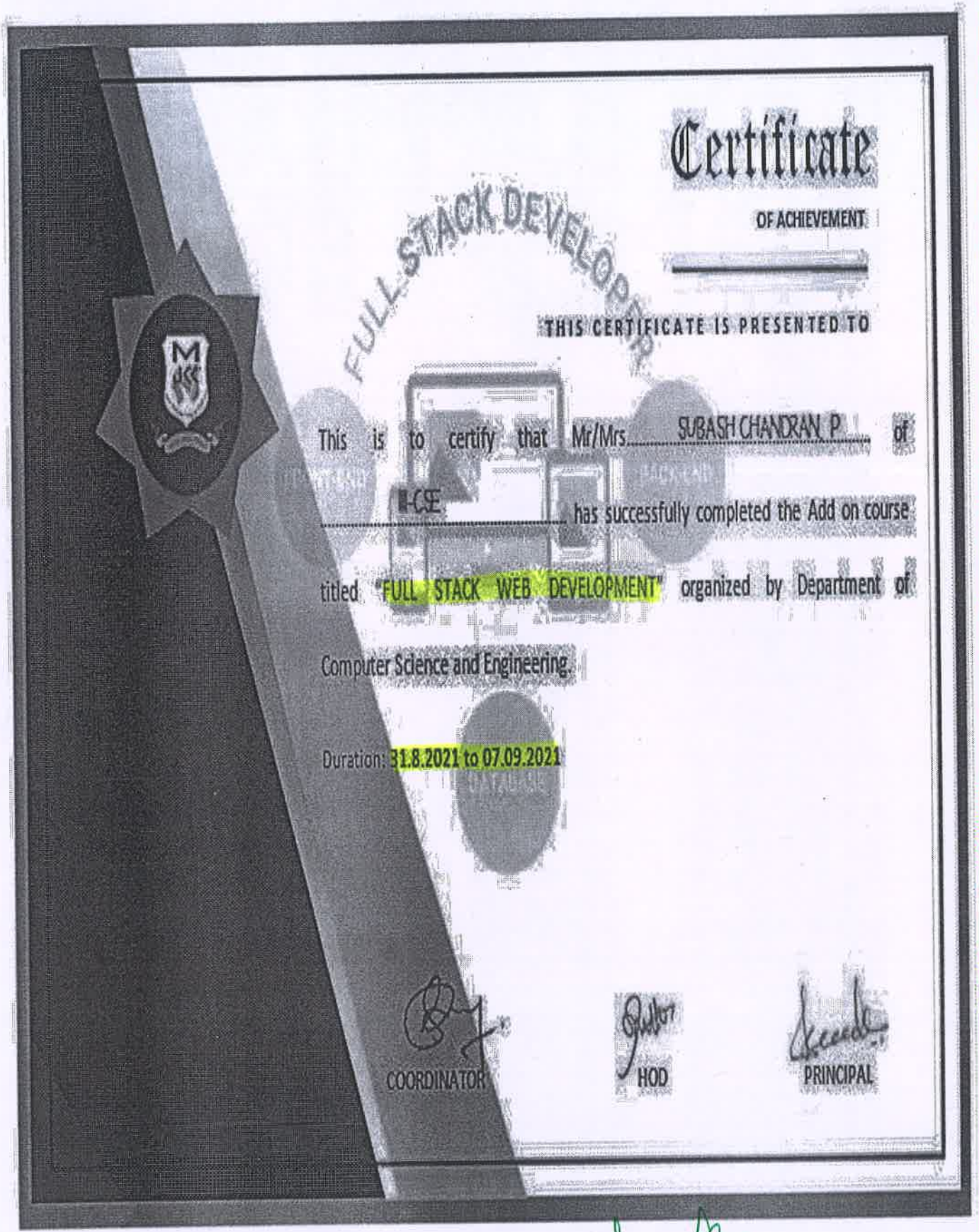

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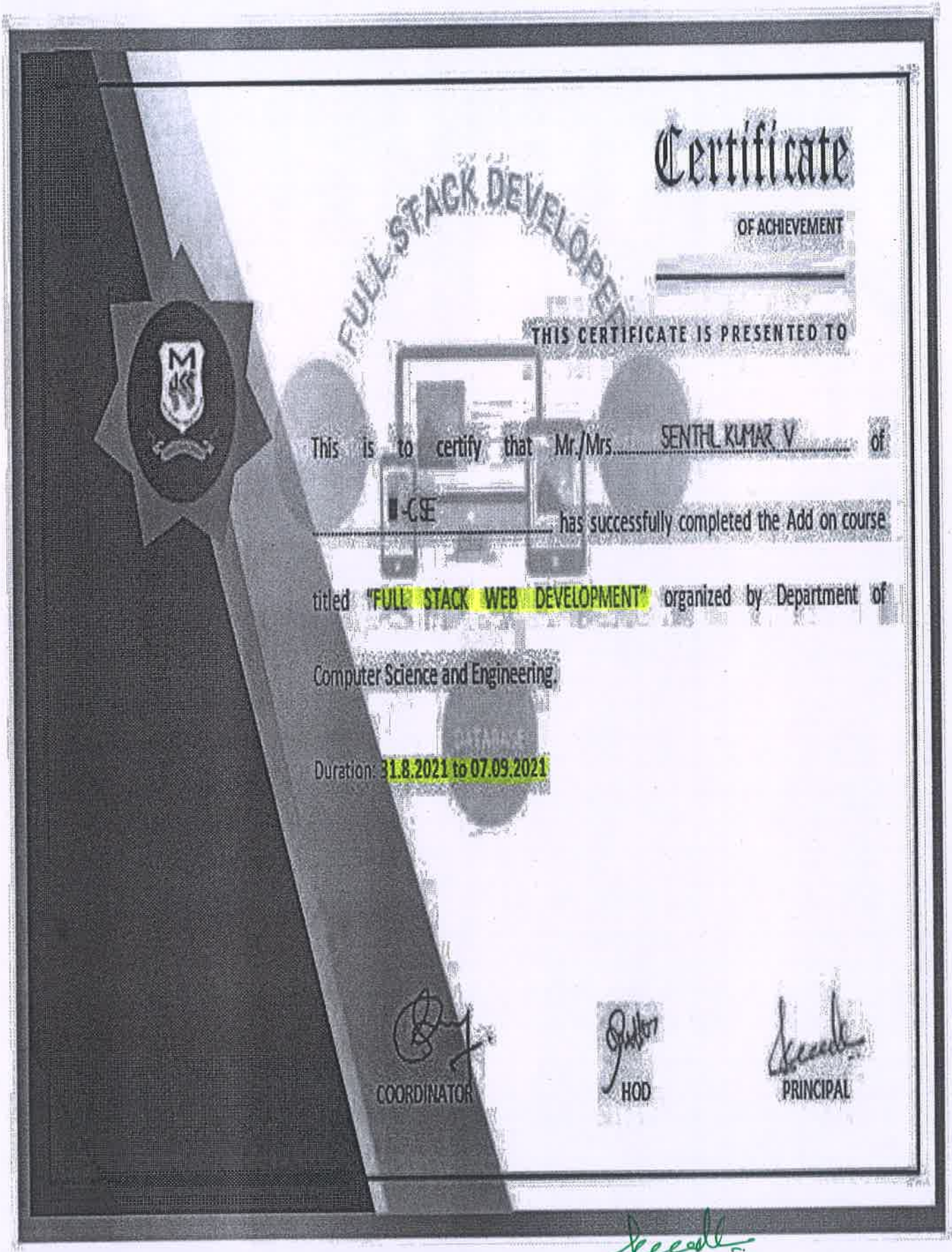

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T.N. PALAYAM (Po)-638 506.
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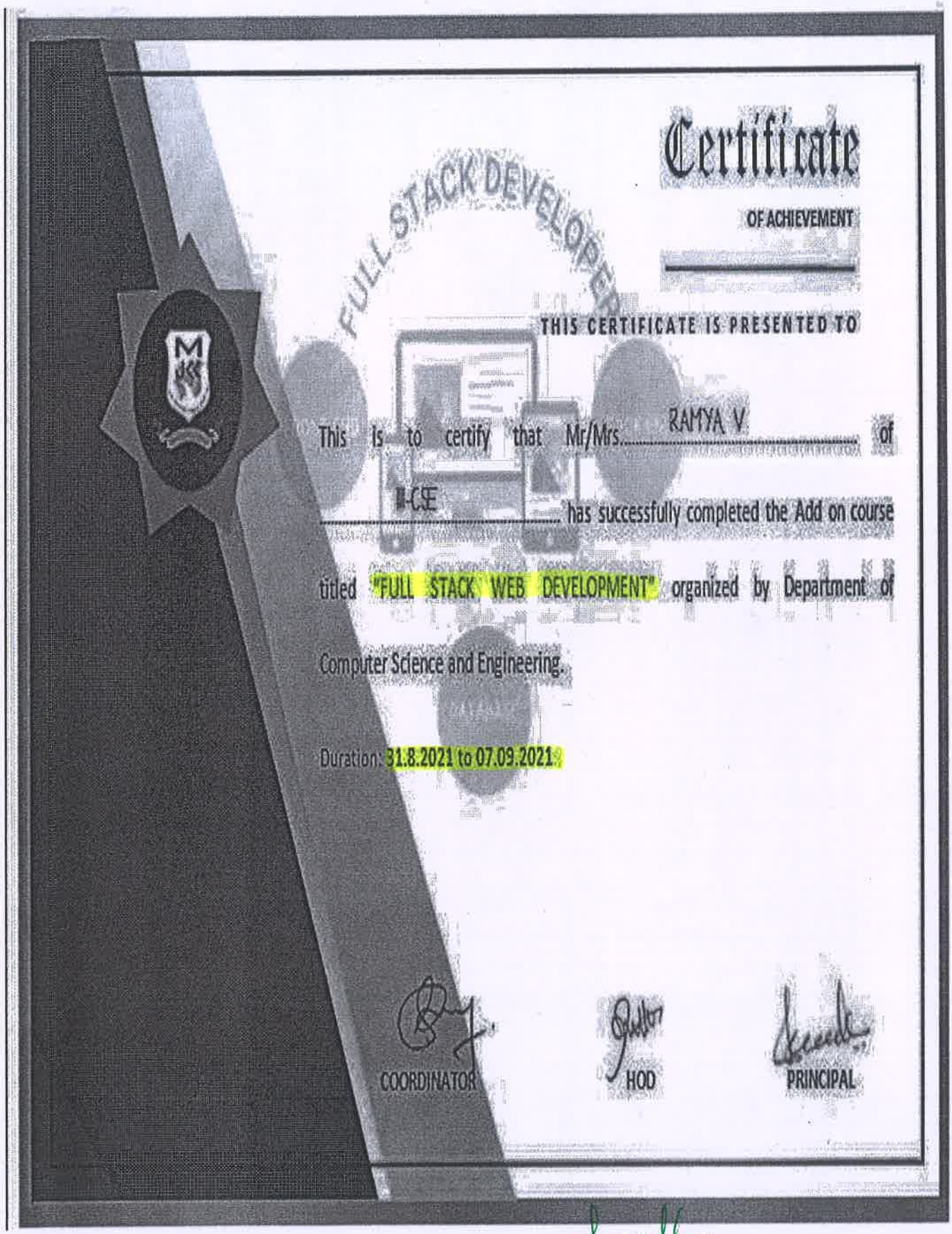

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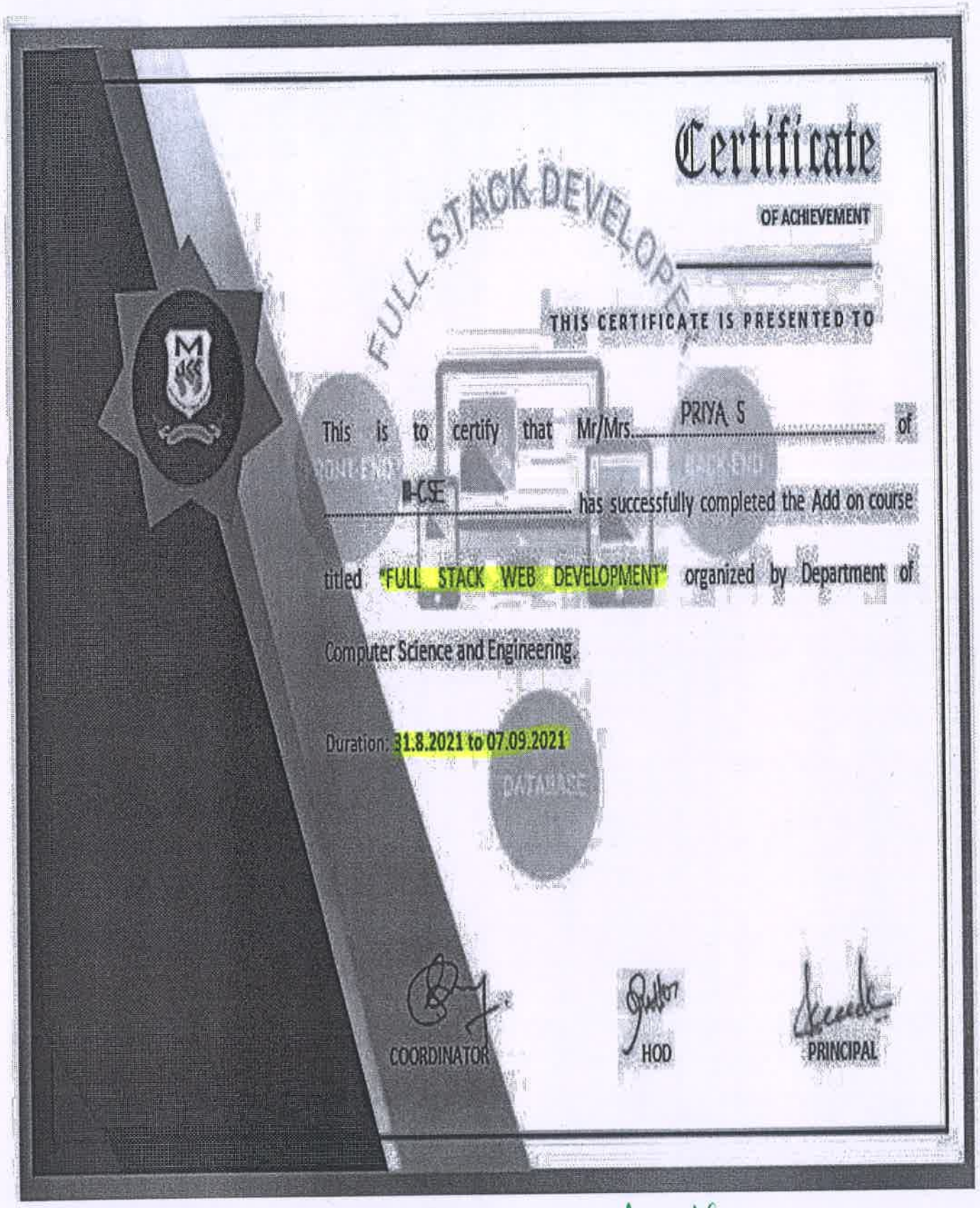

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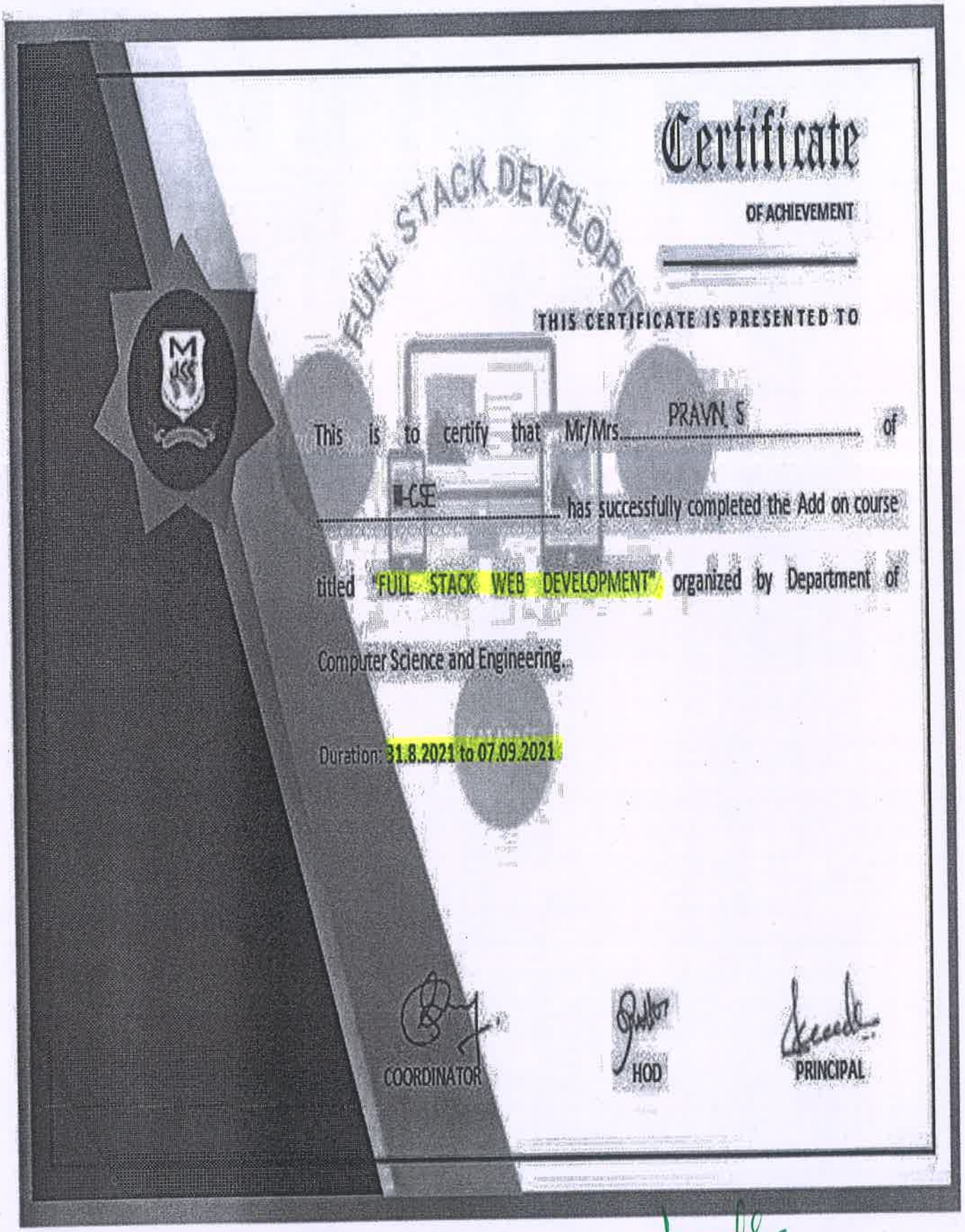

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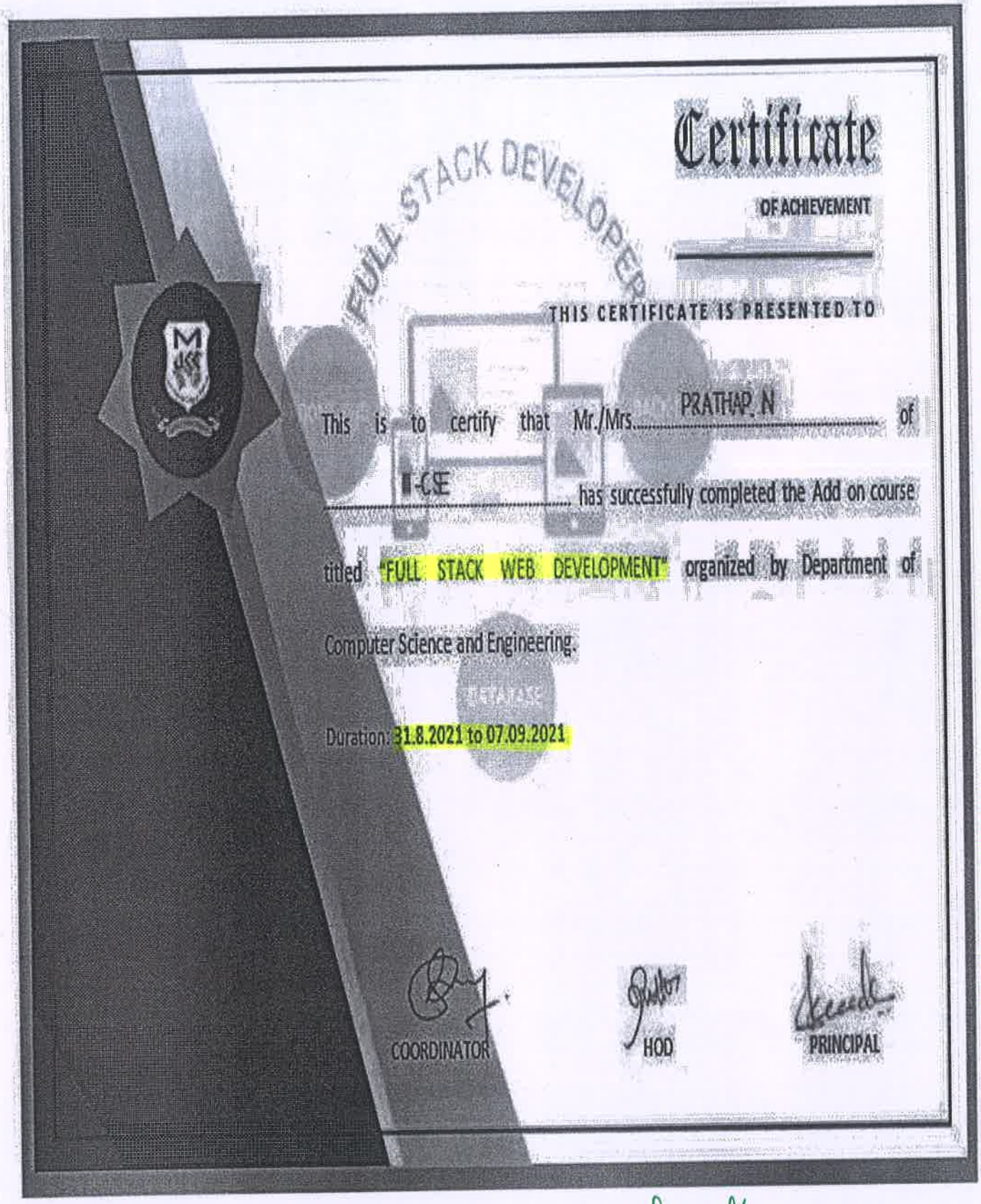

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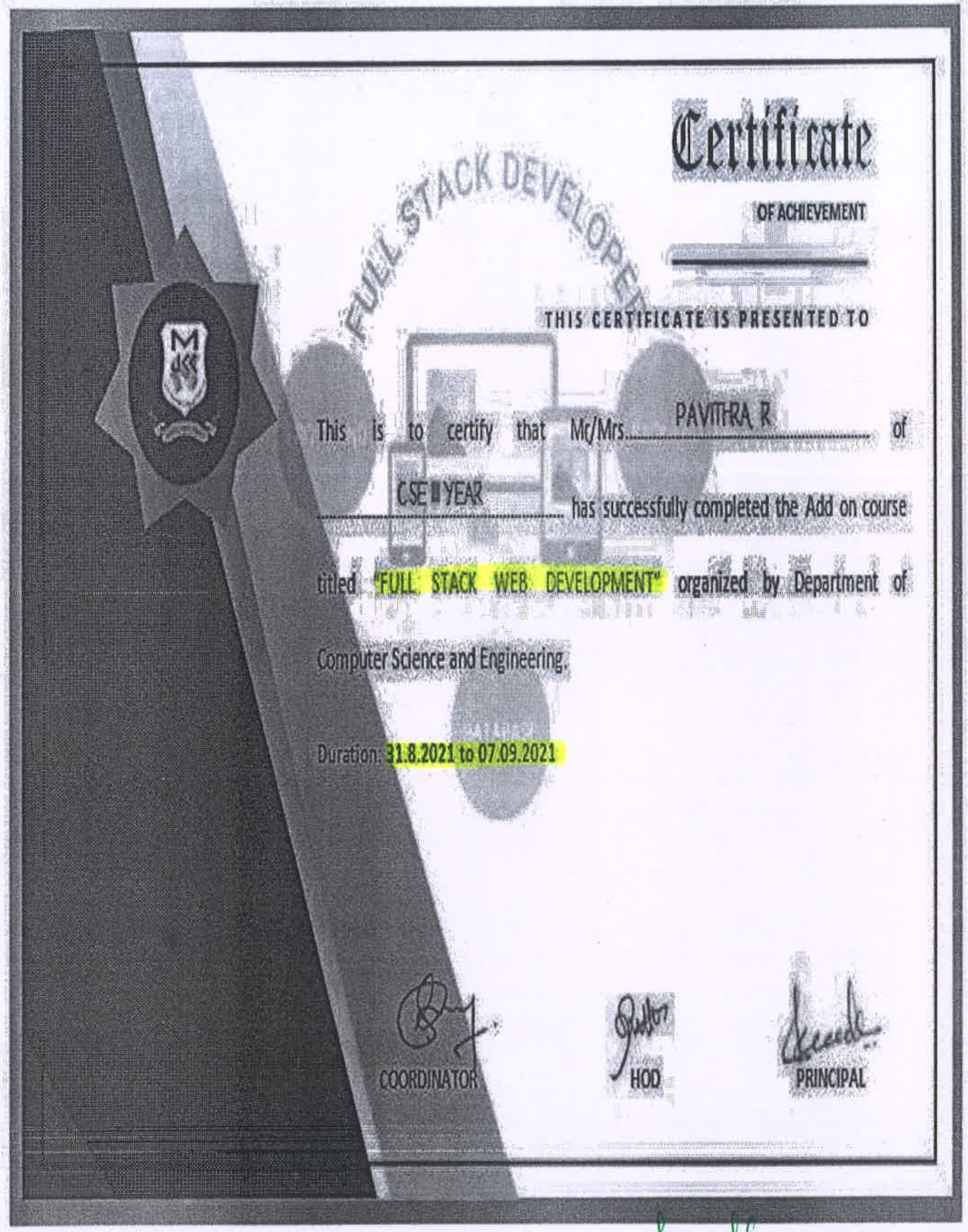

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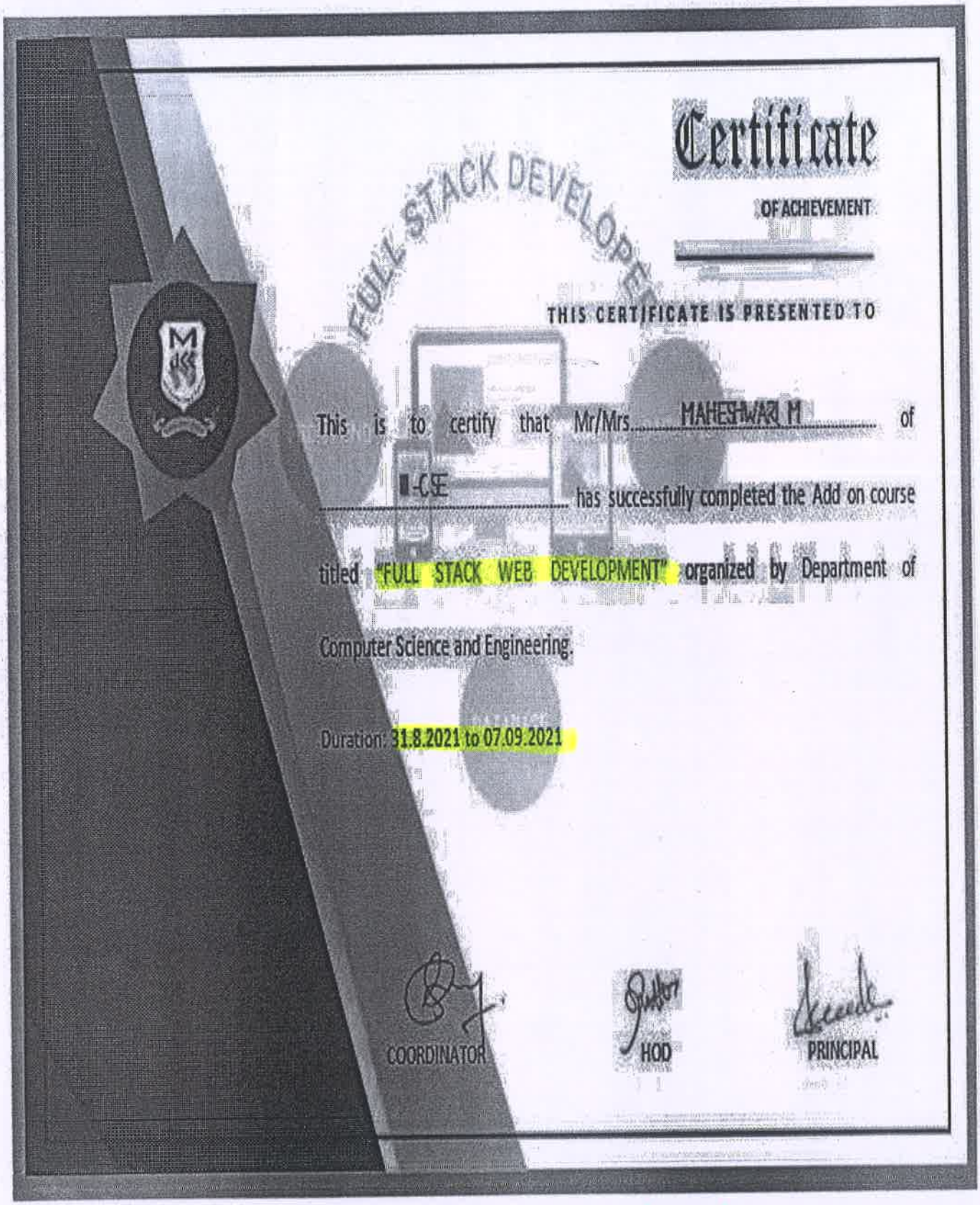

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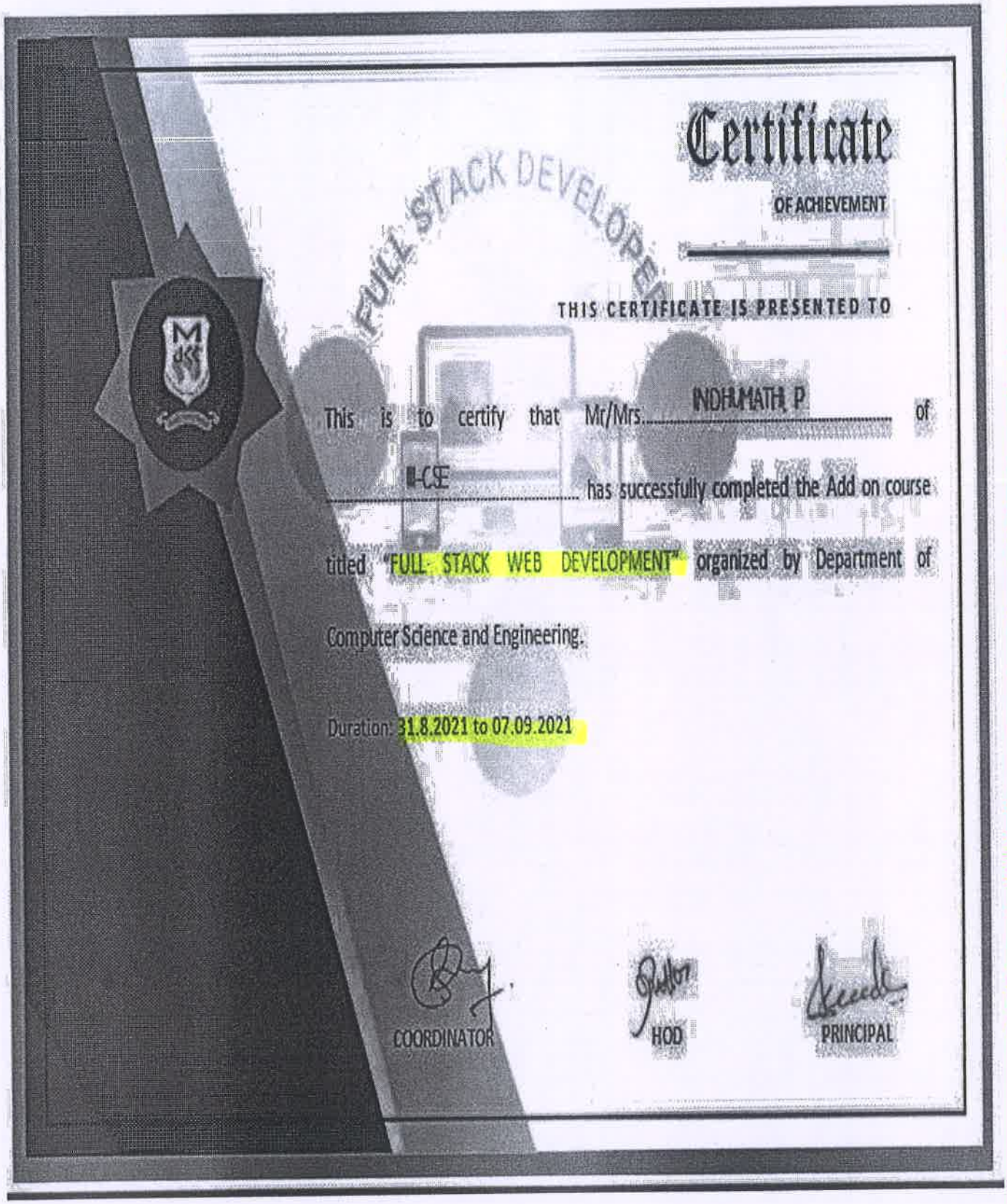

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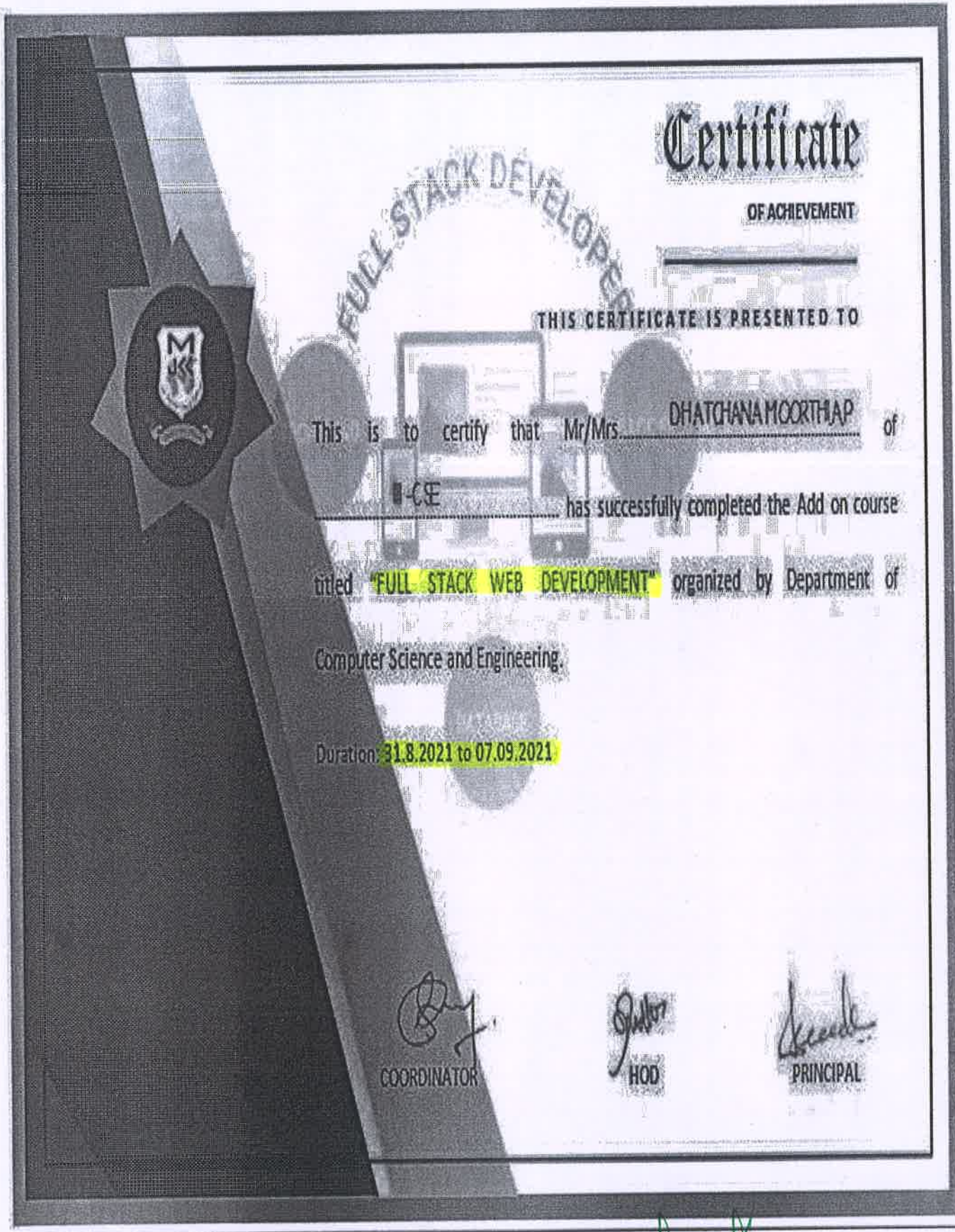

Certificate

OF ACHIEVEMENT

THIS CERTIFICATE IS PRESENTED TO

This is to certify that Mr/Mrs. DHATCHANAMOORTHI A.P of B-CSE has successfully completed the Add on course titled "FULL STACK WEB DEVELOPMENT" organized by Department of Computer Science and Engineering.

Duration: 31.8.2021 to 07.09.2021

COORDINATOR

HOD

PRINCIPAL

PRINCIPAL
JKK MUNIRAJAH COLLEGE
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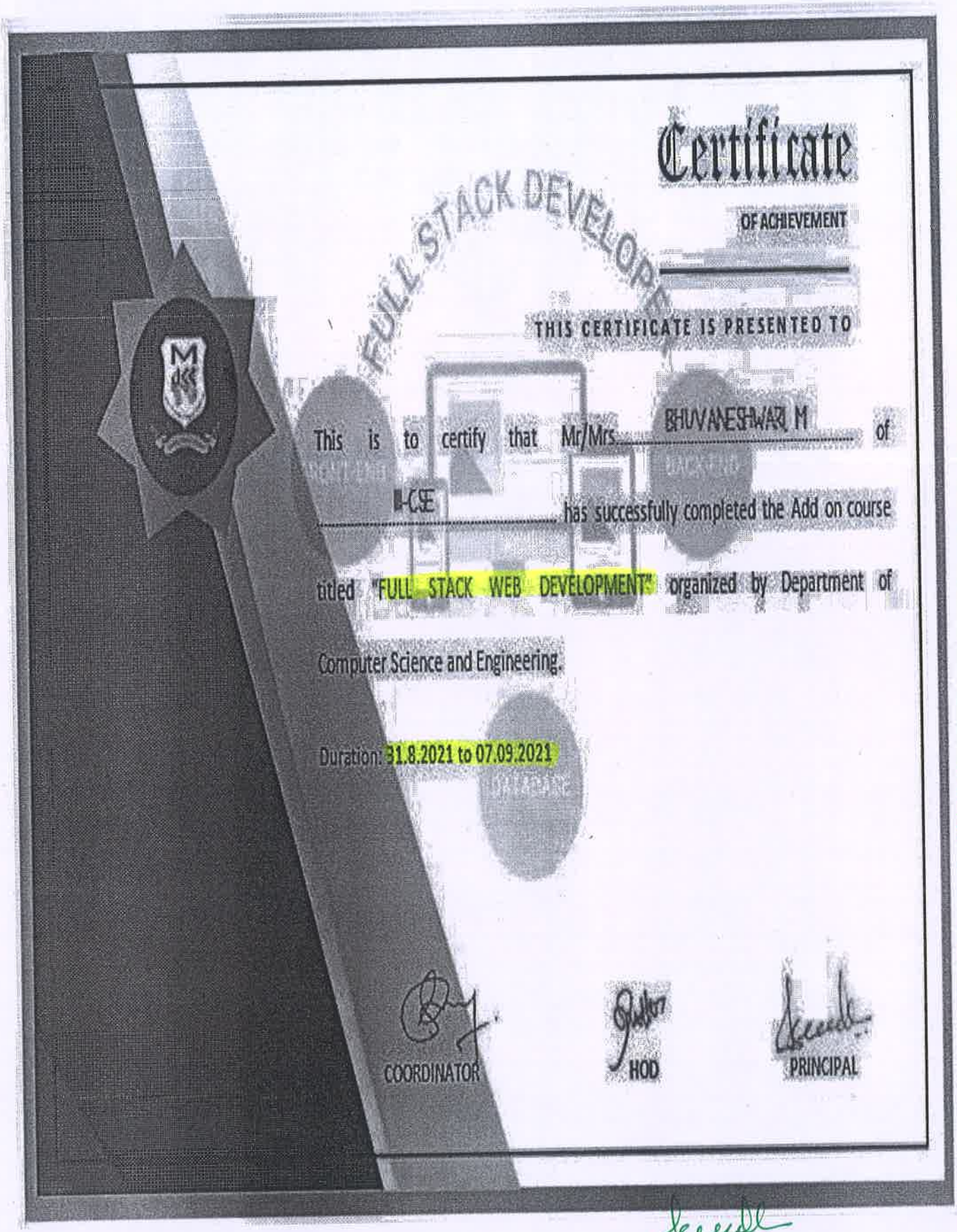
T.N. PALAYAM (Po)-638 506.
GOBI (Tk), ERODE (Dt).



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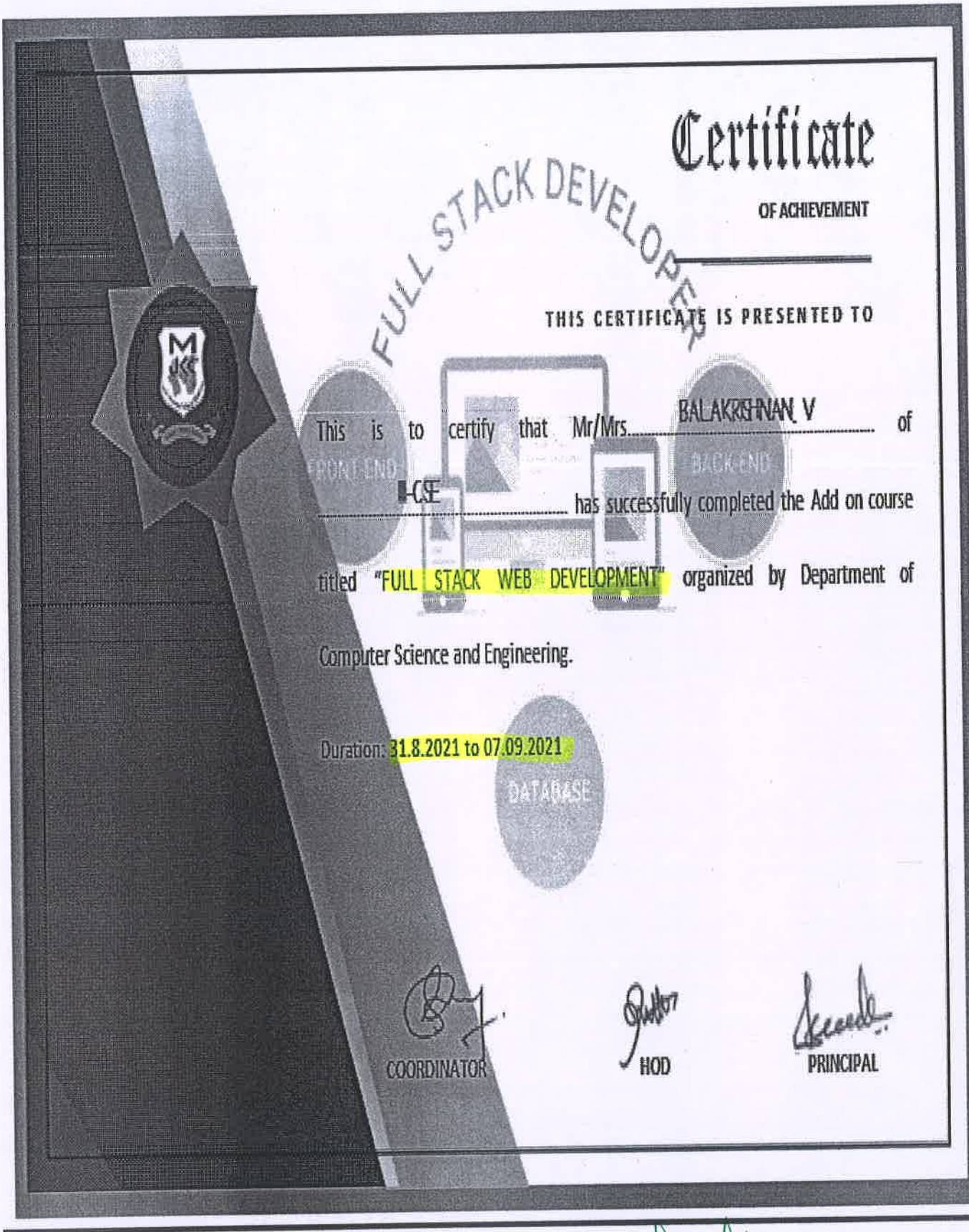

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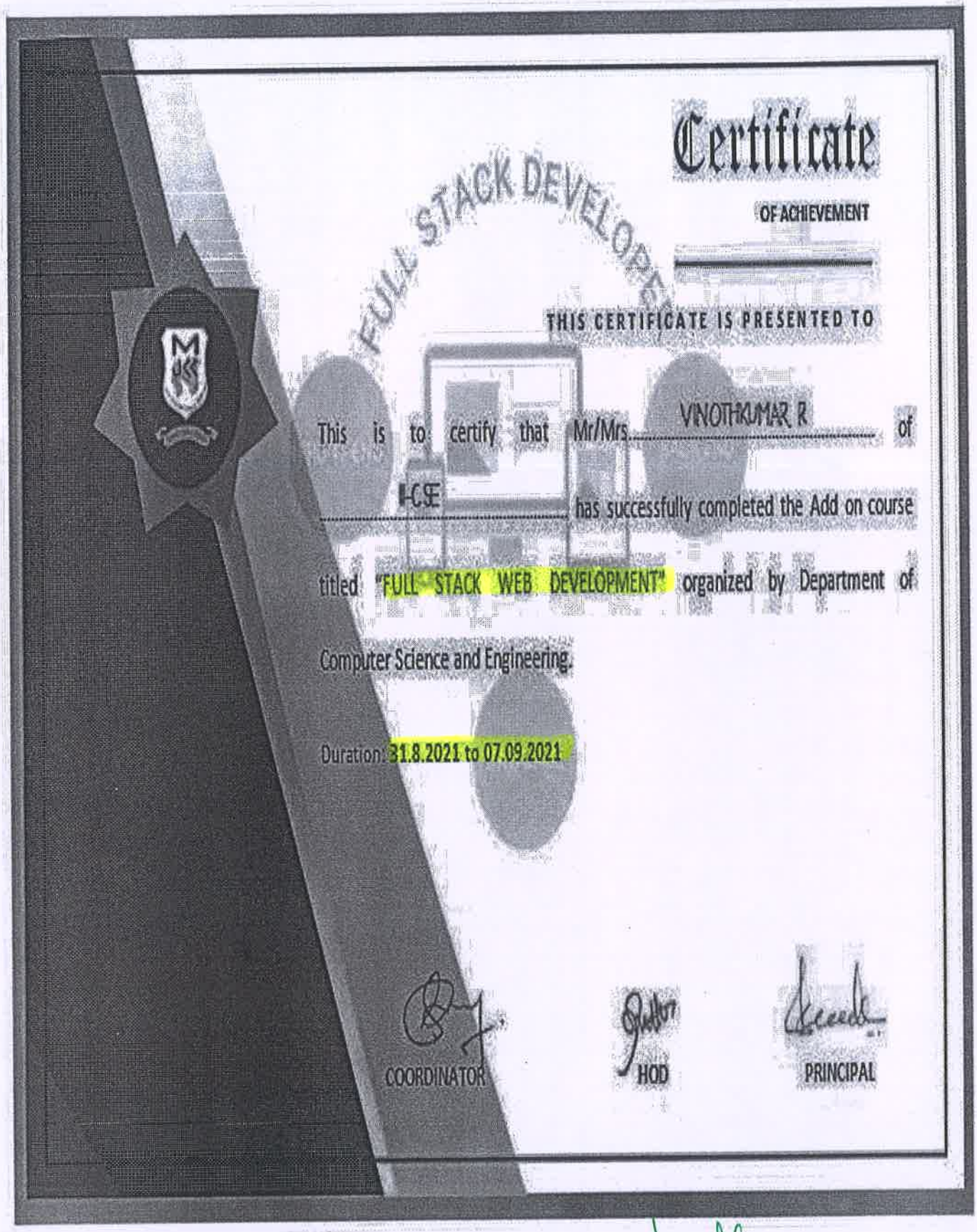

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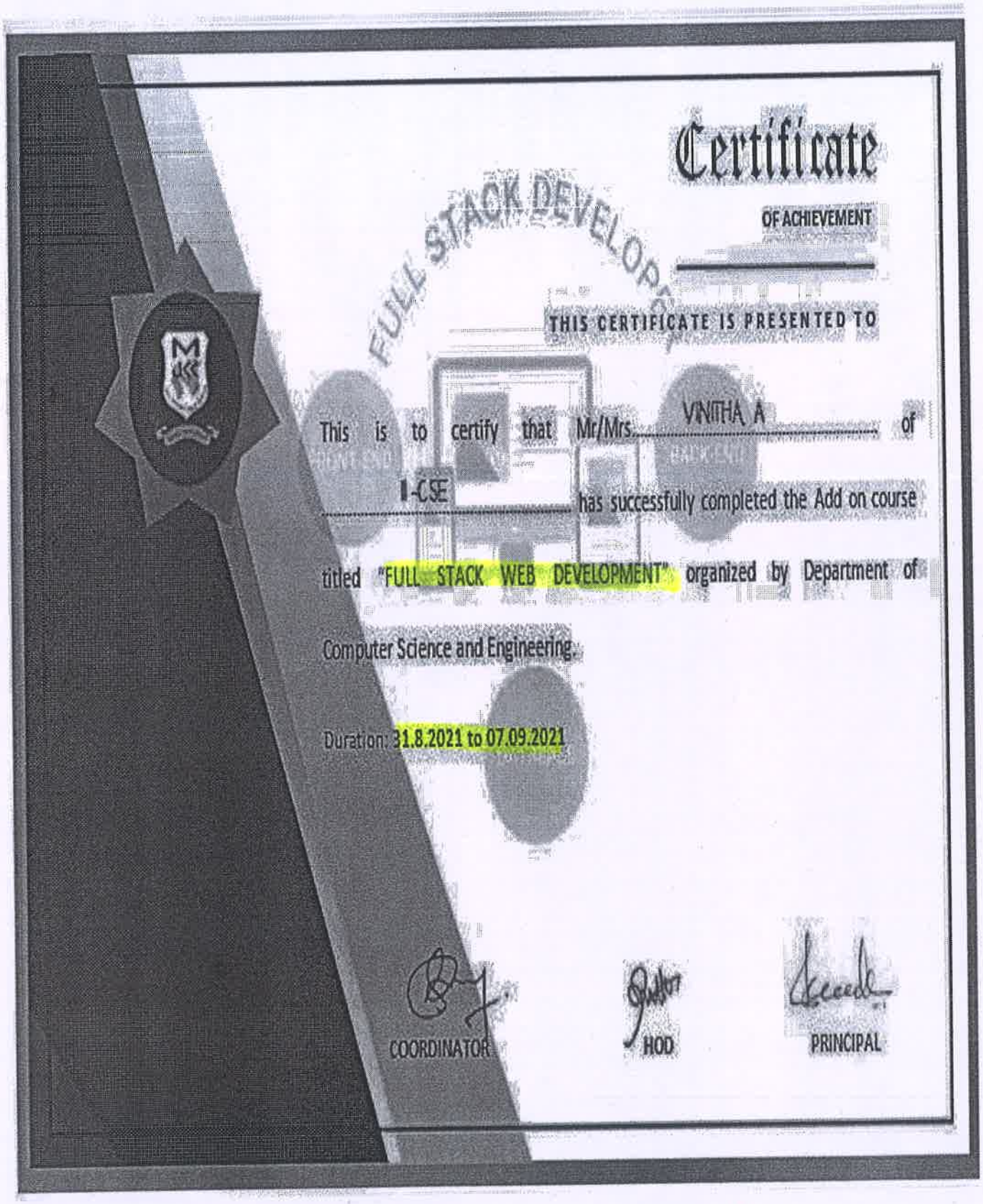

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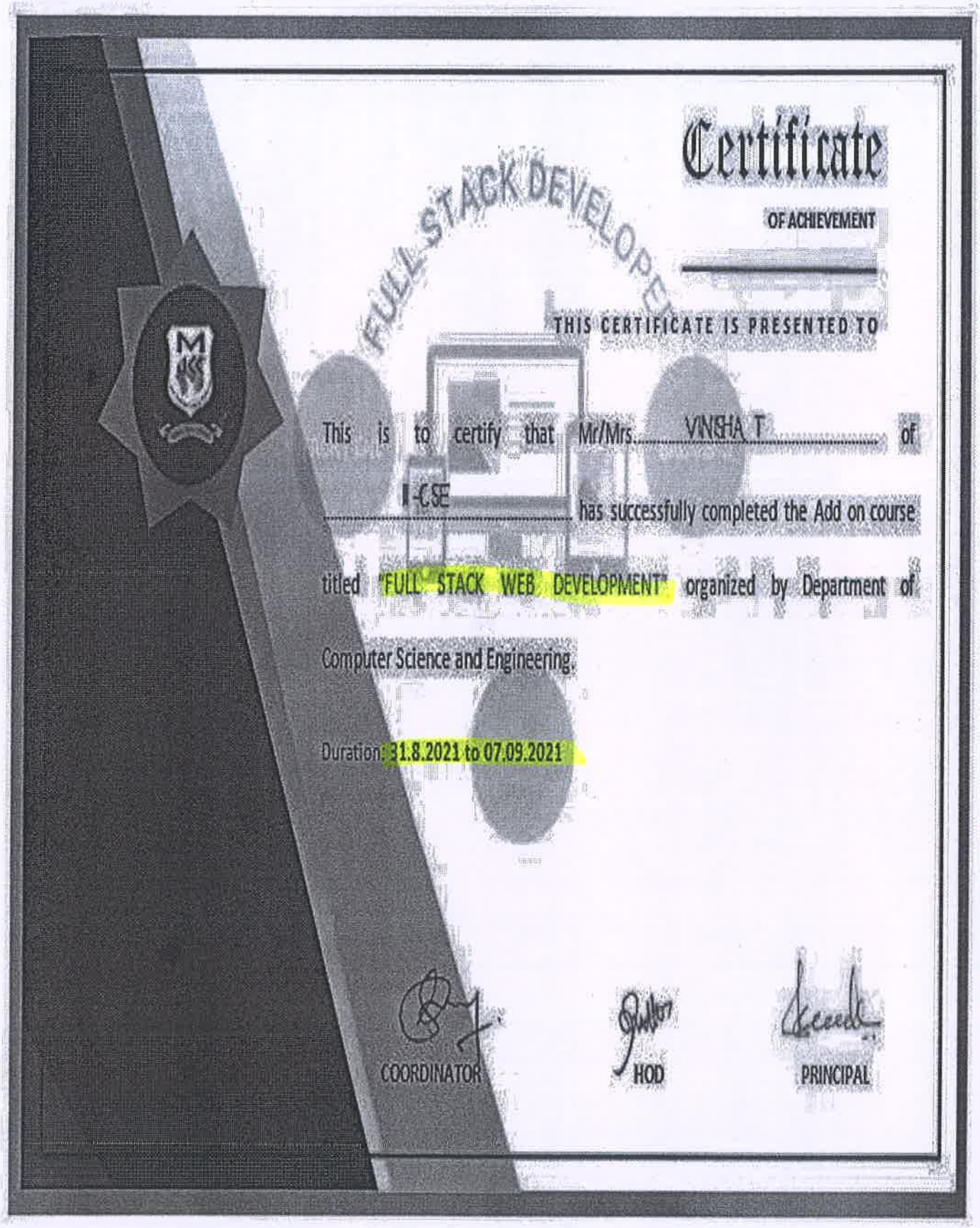

Certificate

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Duration: 31.8.2021 to 07.09.2021

COORDINATOR HOD PRINCIPAL

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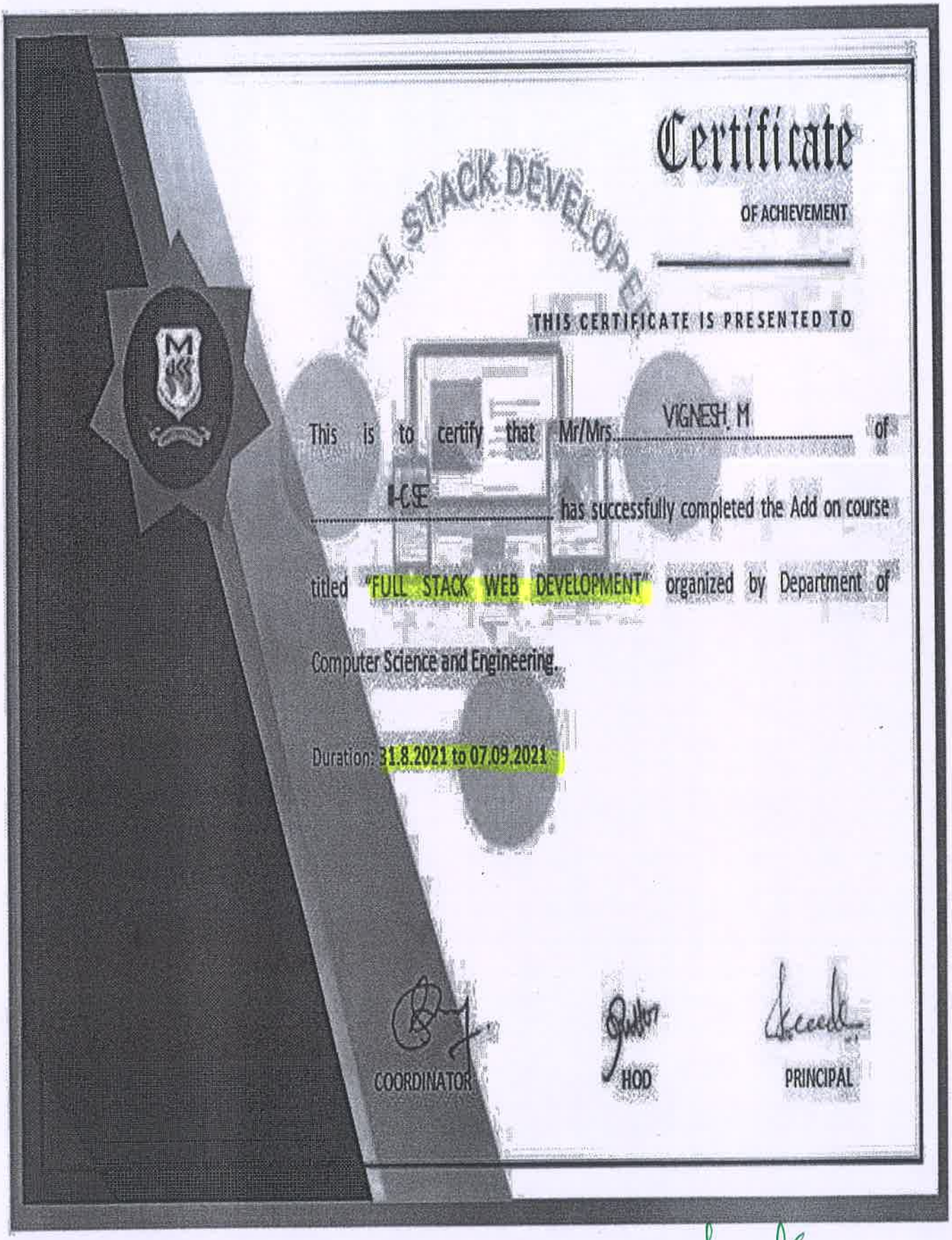

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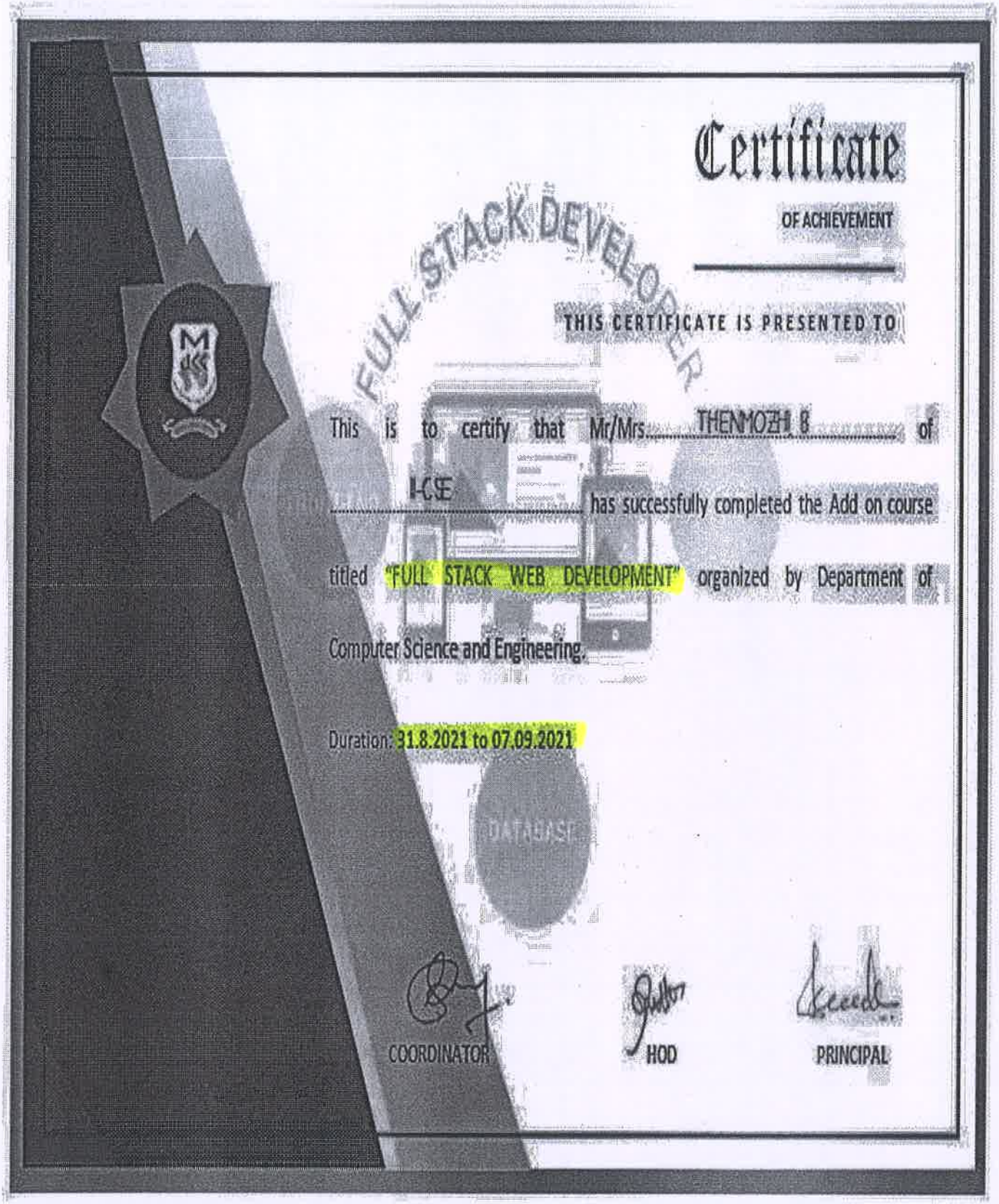

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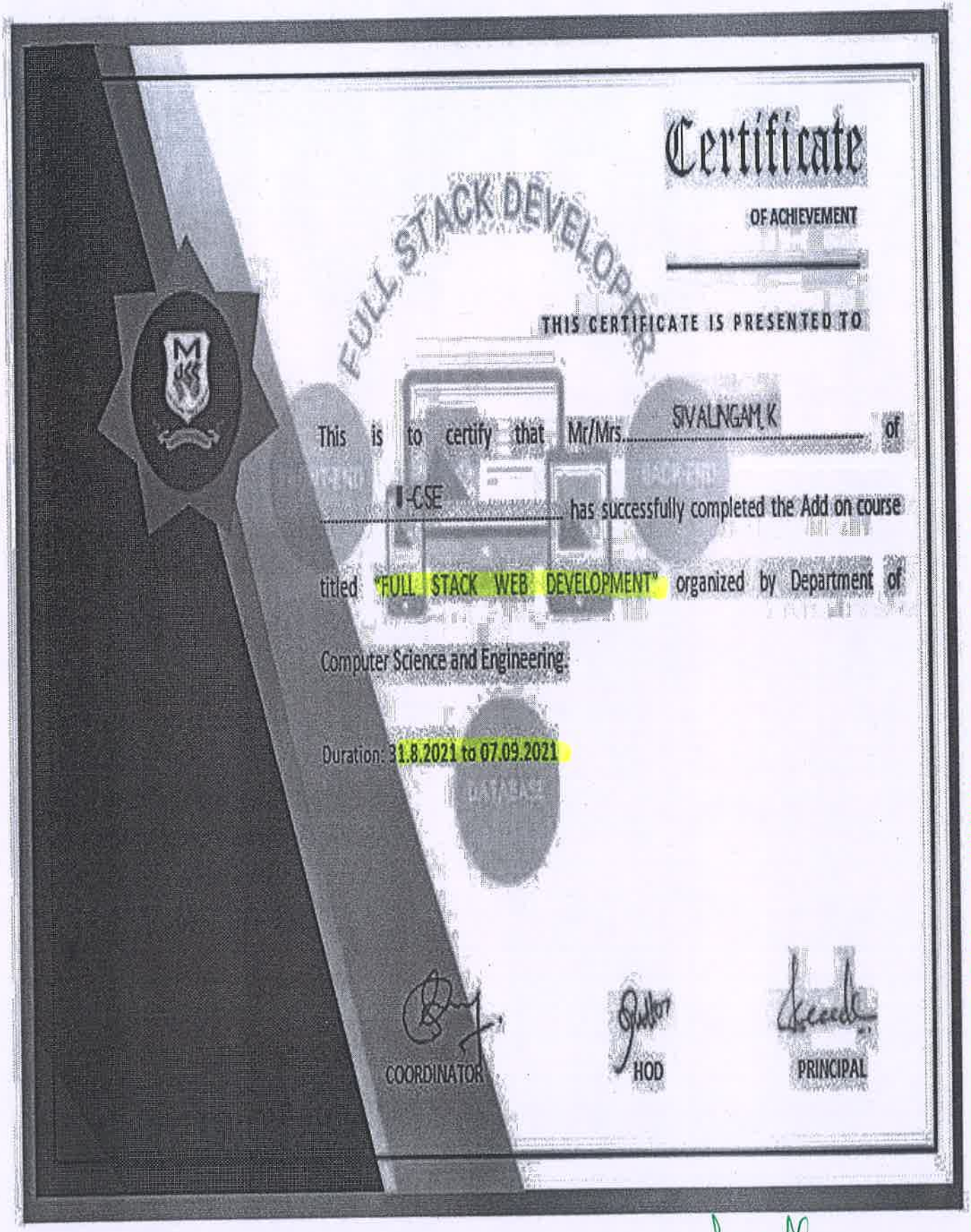
T.N. PALAYAM (Po)-638 506.
GOBI (Tk), ERODE (Dt).



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Duration: 31.8.2021 to 07.09.2021

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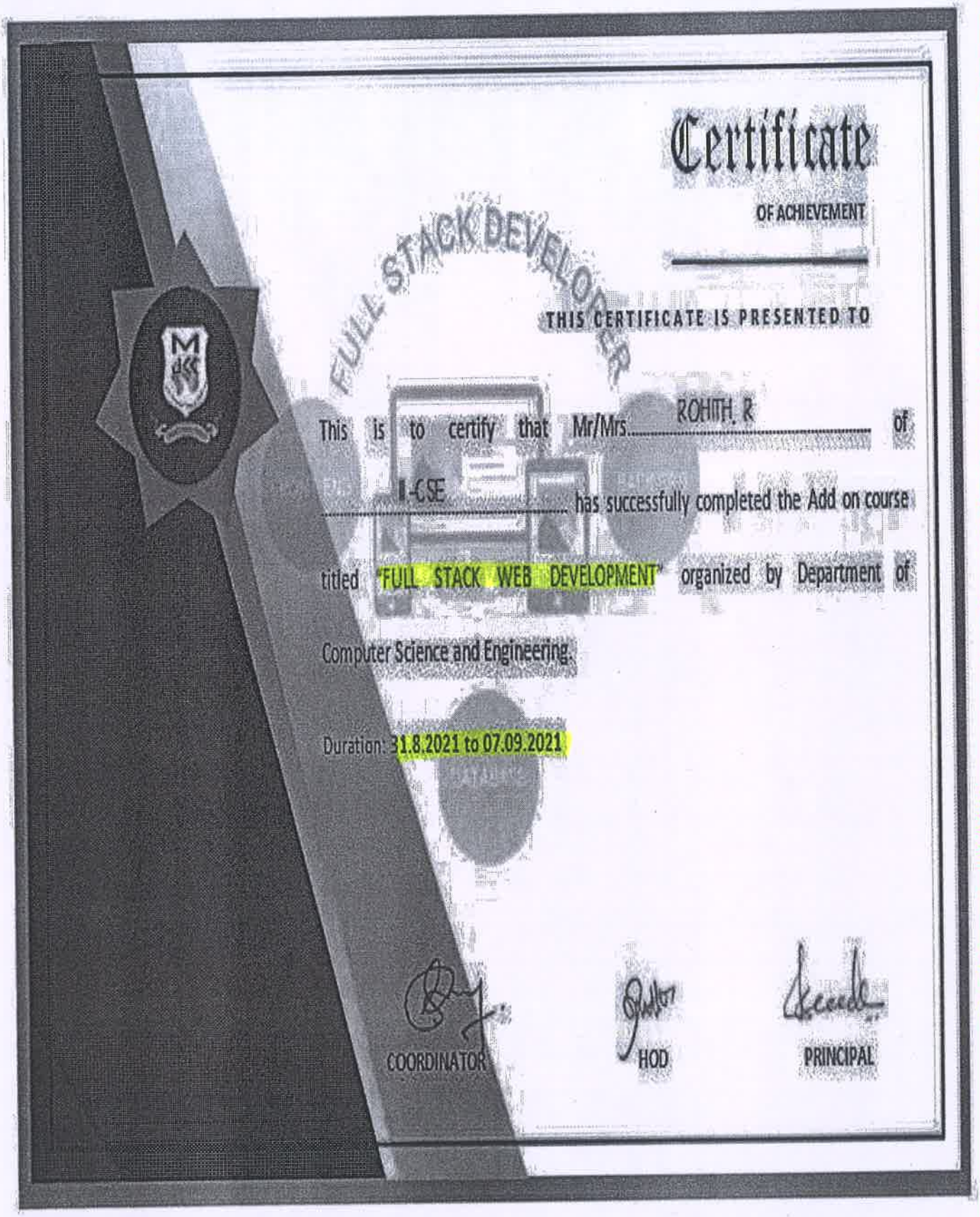

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Duration: 31.8.2021 to 07.09.2021.

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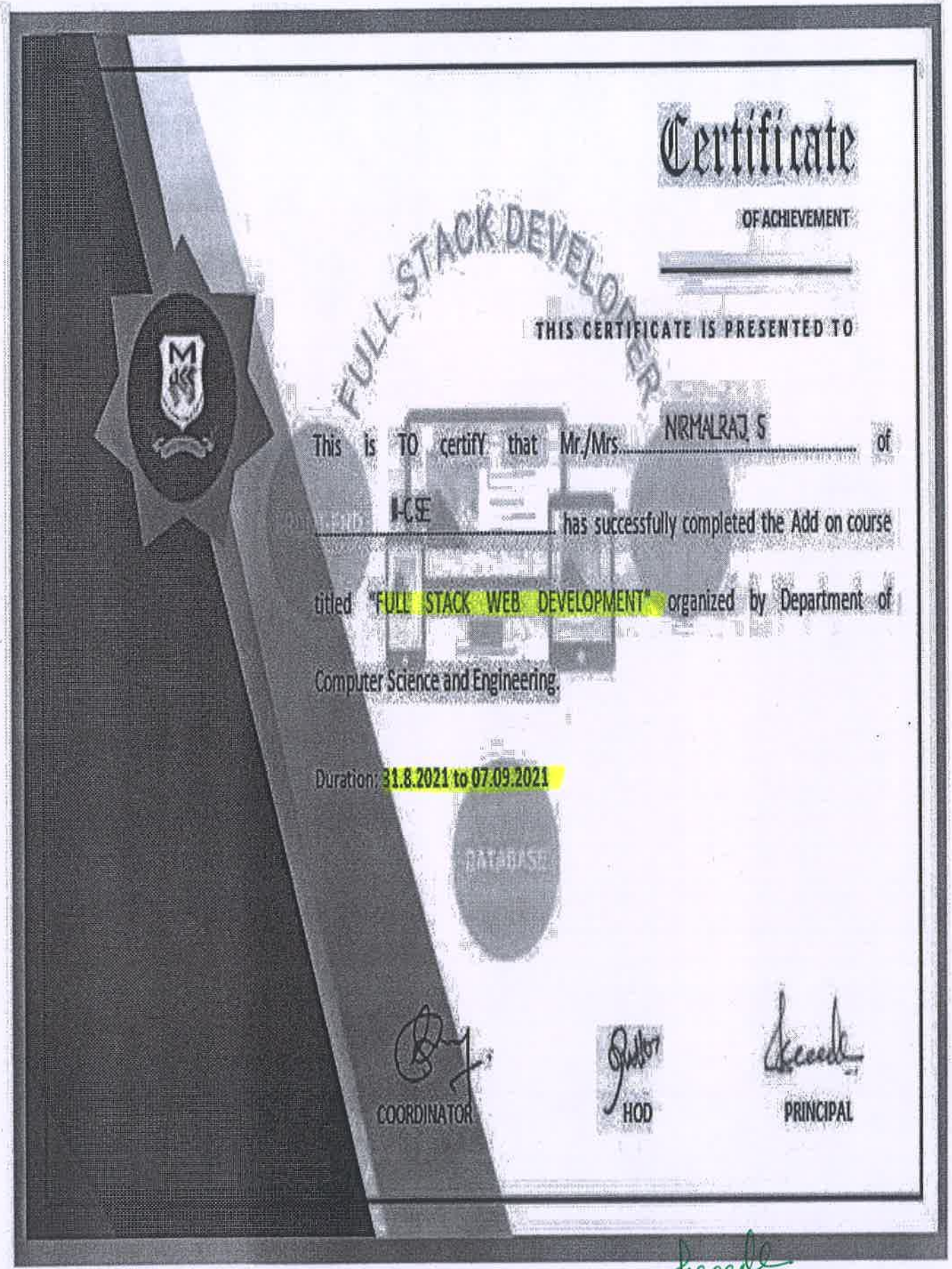

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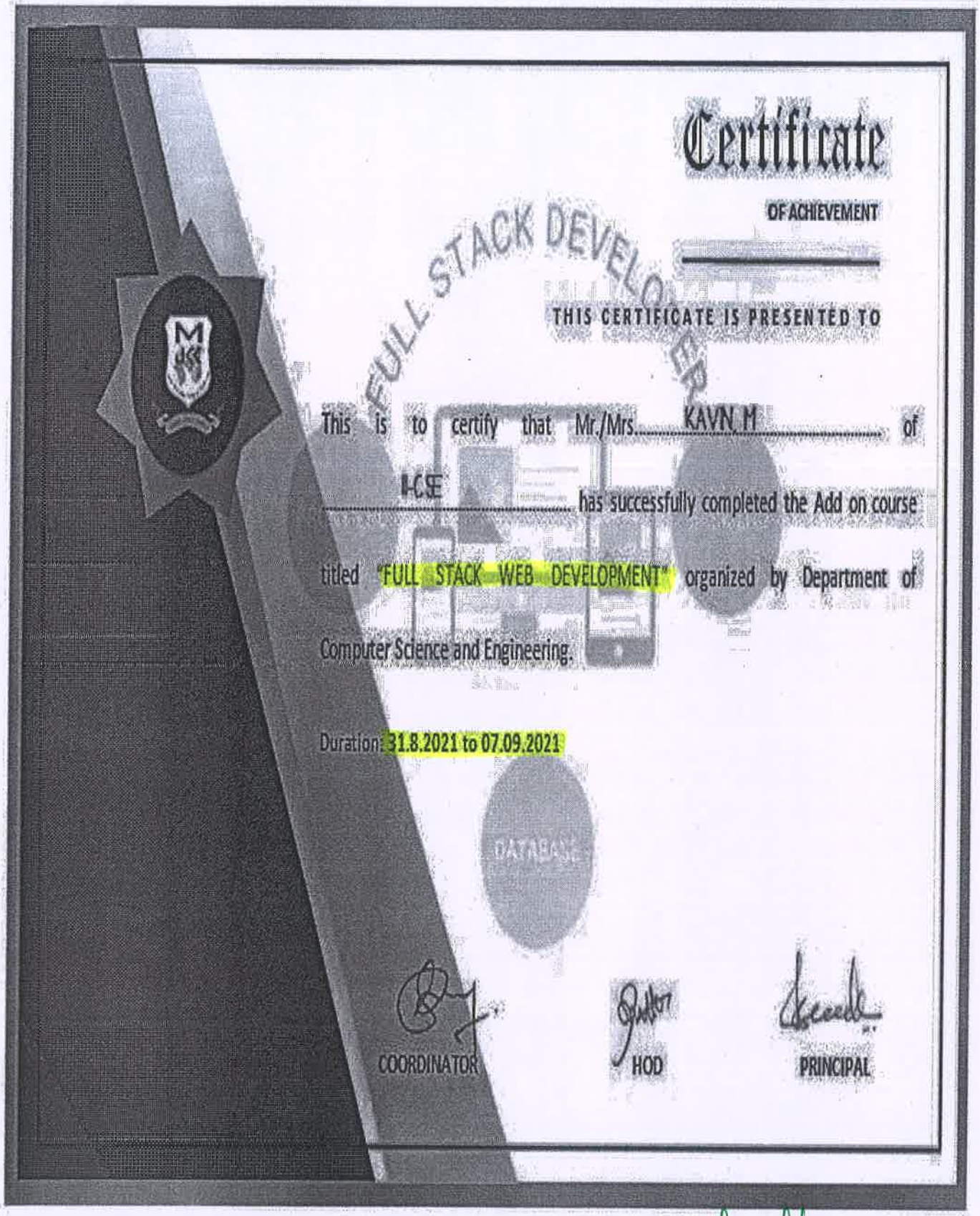

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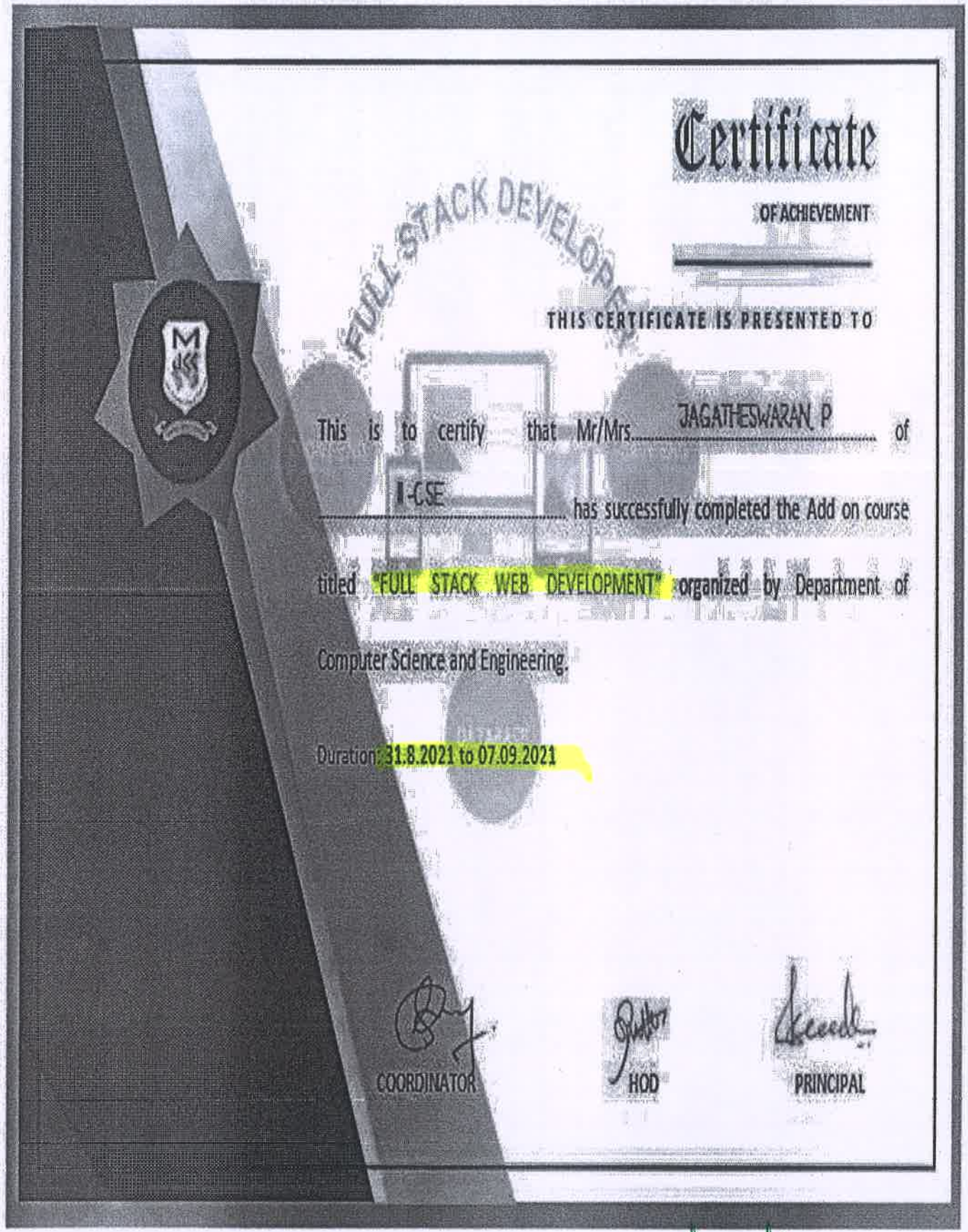

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Duration: 31.8.2021 to 07.09.2021

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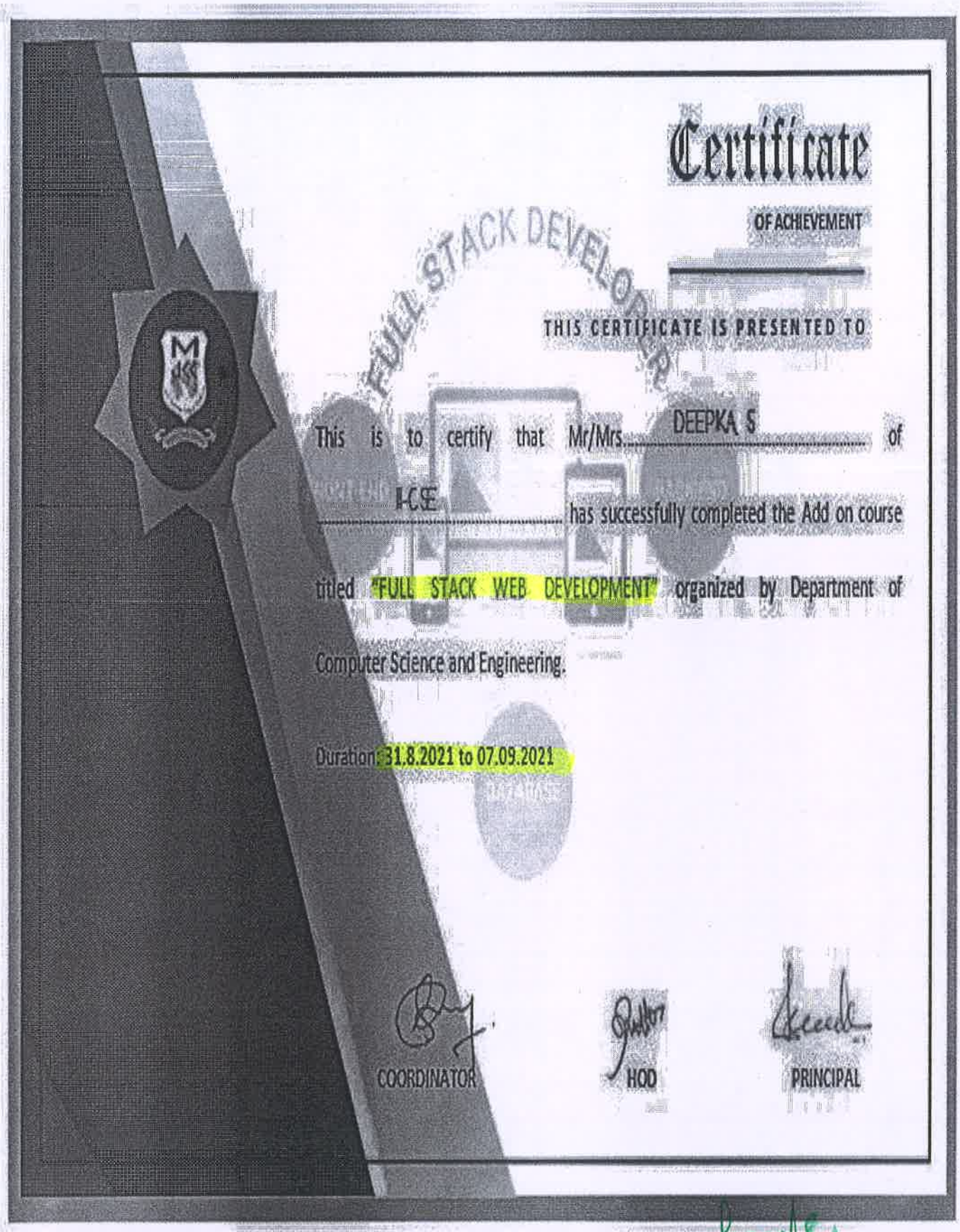

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ICE has successfully completed the Add on course

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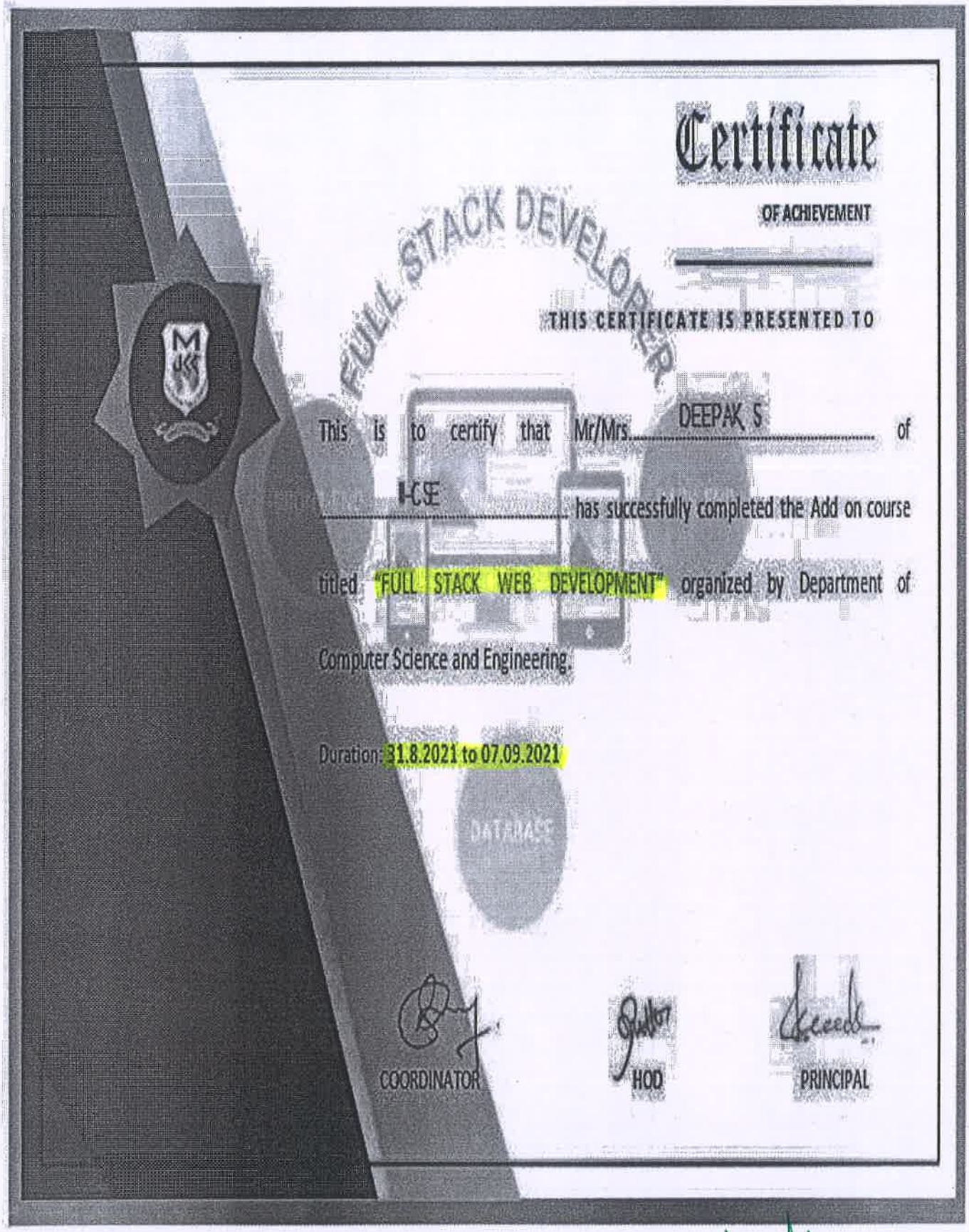

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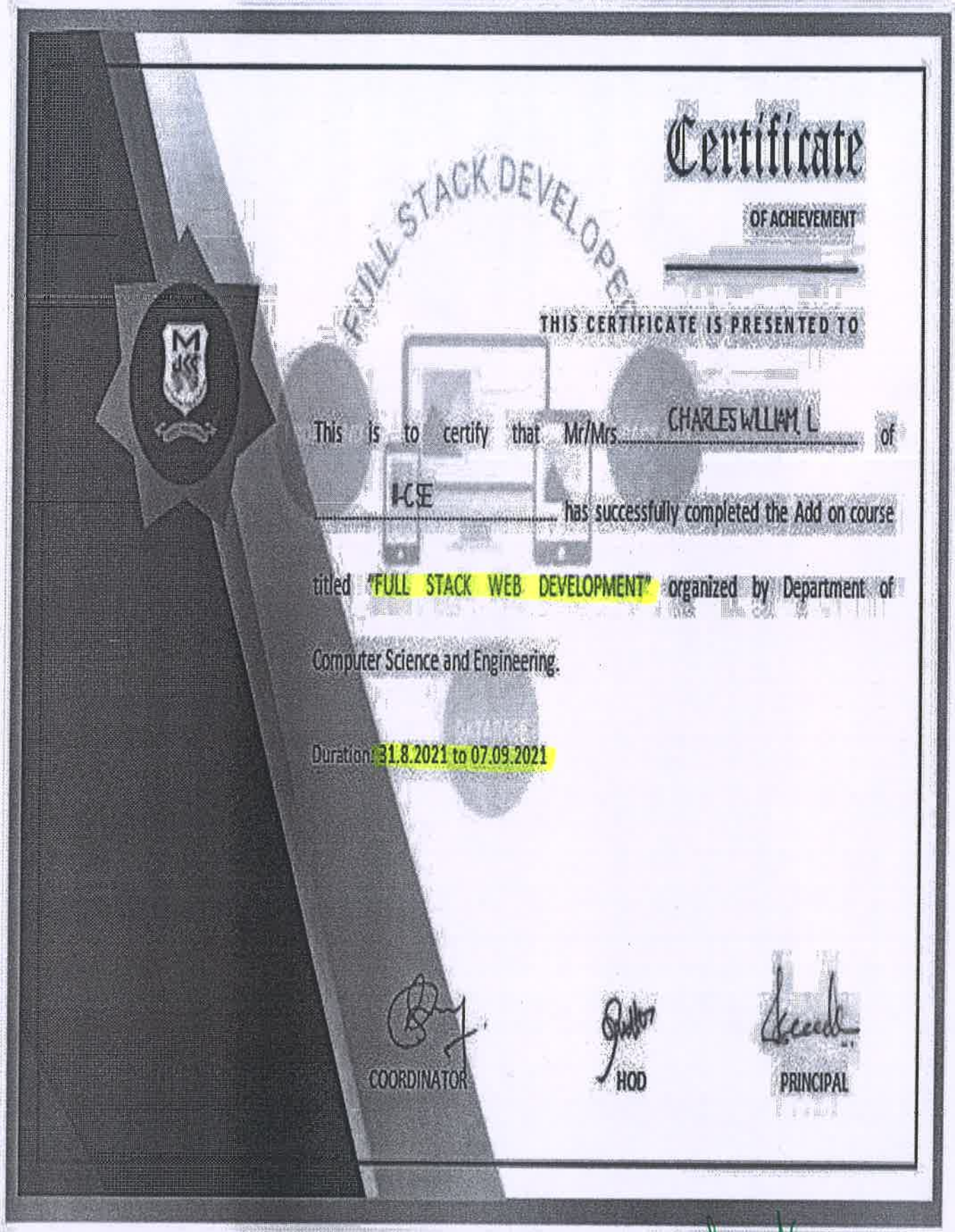

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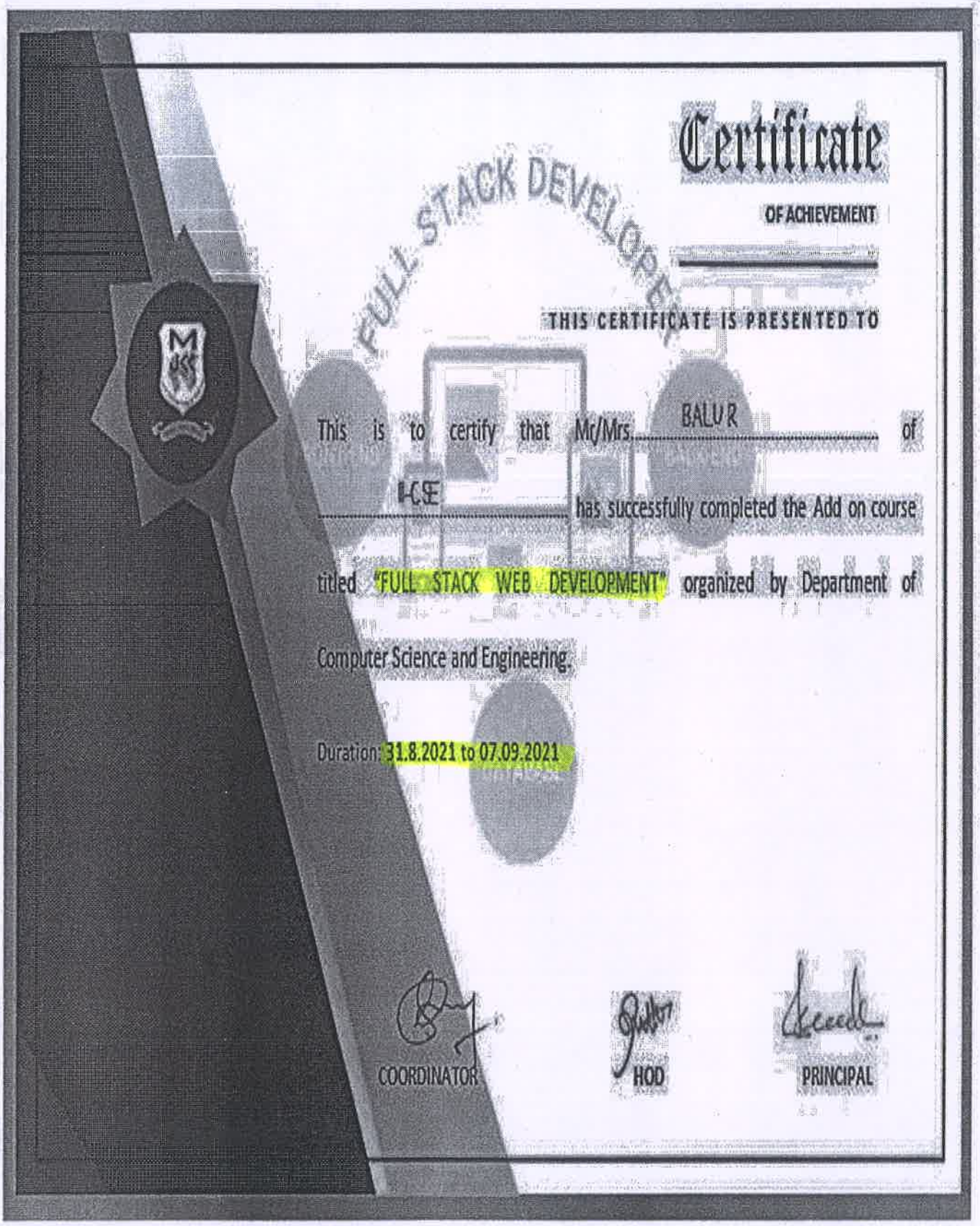

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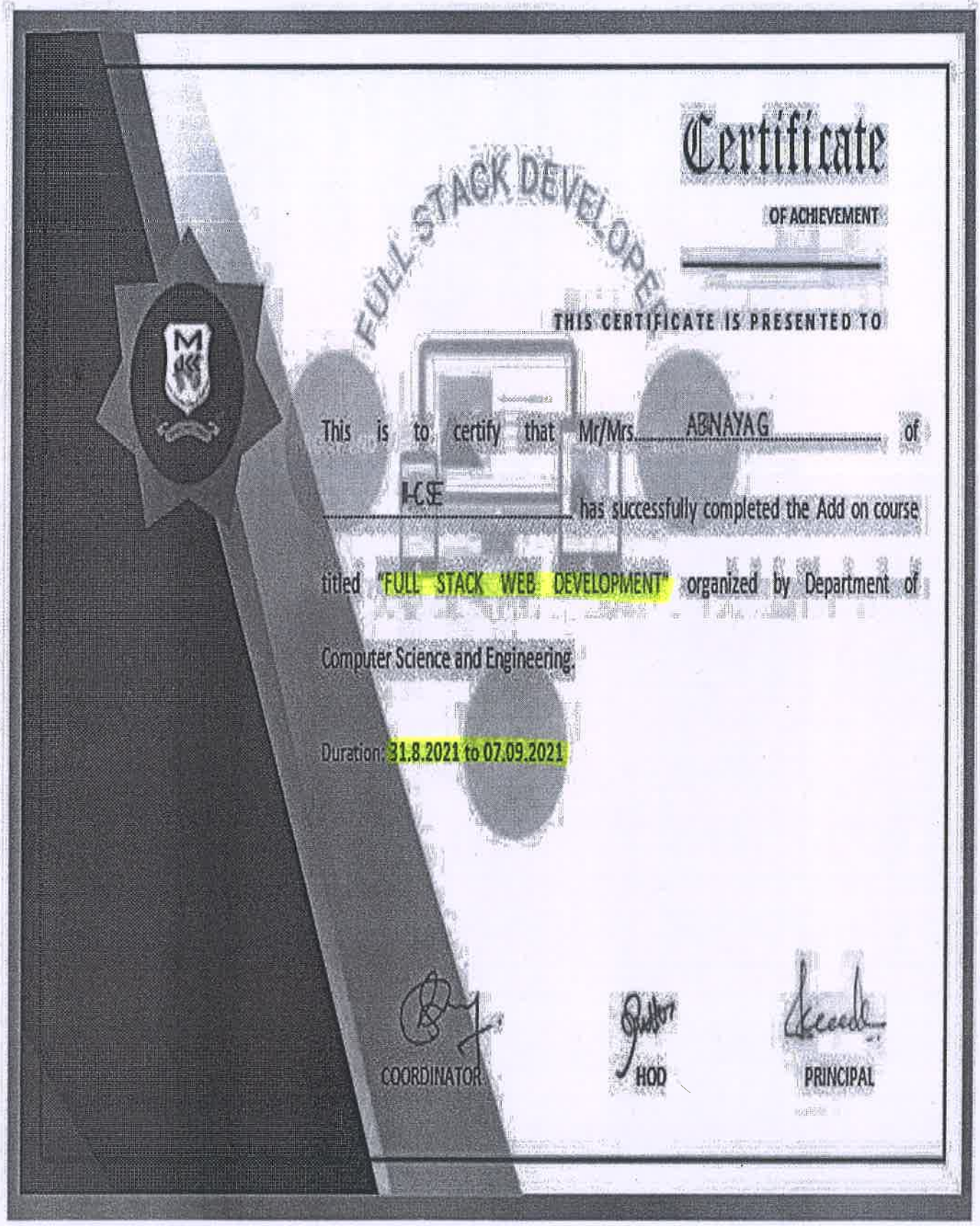

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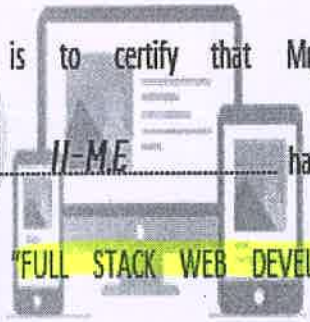

This is to certify that Mr/Mrs. ANUKRISHNAN K.R of II-M.E has successfully completed the Add on course titled "FULL STACK WEB DEVELOPMENT" organized by Department of Computer Science and Engineering.

Duration: 31.8.2021 to 07.09.2021

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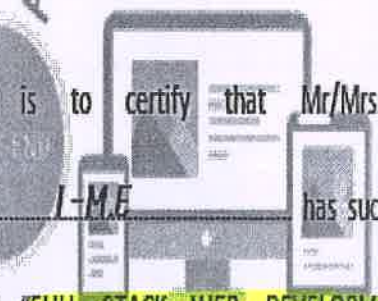

This is to certify that Mr/Mrs. VINOTHINI C. of I-M.E has successfully completed the Add on course titled "FULL STACK WEB DEVELOPMENT" organized by Department of Computer Science and Engineering.

Duration: 31.08.2021 to 07.09.2021

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This is to certify that Mr/Mrs. SURESHKUMAR P of I-M.E has successfully completed the Add on course titled "FULL STACK WEB DEVELOPMENT" organized by Department of Computer Science and Engineering.

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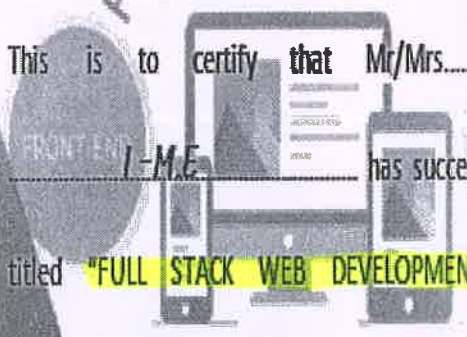

This is to certify that Mr/Mrs. SAVITHA K of I-M.E. has successfully completed the Add on course titled "FULL STACK WEB DEVELOPMENT" organized by Department of Computer Science and Engineering.

Duration: 31.8.2021 to 07.09.2021

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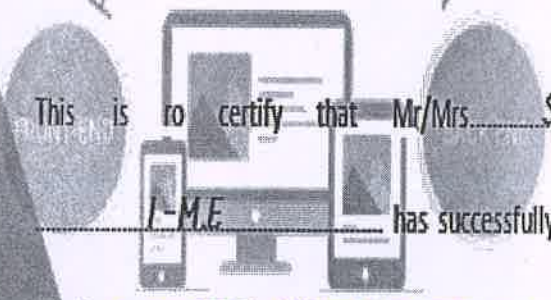

This is to certify that Mr/Mrs. SATHISH KUMAR V of I-M.E. has successfully completed the Add on course titled "FULL STACK WEB DEVELOPMENT" organized by Department of Computer Science and Engineering.

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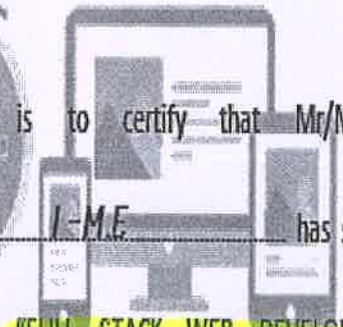

This is to certify that Mr/Mrs. RAJESH KUMAR A of I-M.E. has successfully completed the Add on course titled "FULL STACK WEB DEVELOPMENT" organized by Department of Computer Science and Engineering.

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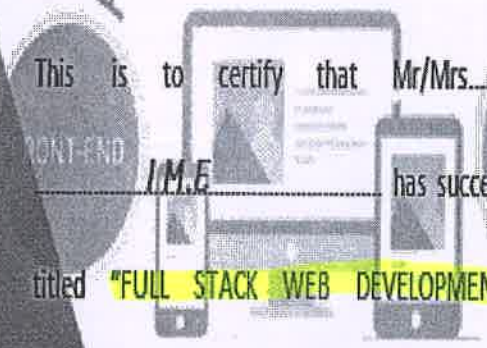

This is to certify that Mr/Mrs. INDHIRAN R of I.M.E has successfully completed the Add on course titled "FULL STACK WEB DEVELOPMENT" organized by Department of Computer Science and Engineering.

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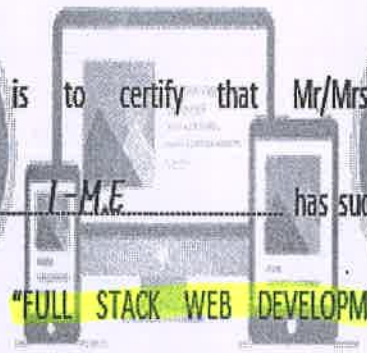

This is to certify that Mr/Mrs GAYATHRI S of I-M.E has successfully completed the Add on course titled "FULL STACK WEB DEVELOPMENT" organized by Department of Computer Science and Engineering.

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Approved by AICTE, New Delhi And Affiliated to Anna University, Chennai.

T.N. Palayam (Po), Gobi (Tk), Erode (Dt) – 638 506

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

PROJECT BATCH LIST (2021-2022)

S.NO	REGISTER NO	NAME LIST	PROJECT TITLE	GUIDE NAME
1	731218104002	ANGAMMAL.S	STOCK MARKET PREDICTION USING MACHINE LEARNING	Mrs.P.SASIREKA
2	731218104020	SINDHU.S		
3	731218104004	BOOPATHI.S	COVID 19 DETECTION AND CLASSIFICATION USING CT SCAN IMAGE IN DEEP LEARNING	Dr.N.SATHYABALAJI
4	731218104008	IYYAPAN.L		
5	731218104301	KAVIYARASAN.M		
6	731218104006	GEETHA.S	REAL TIME FACE DETECTION EMOTION RECOGNITION USING DEEP LEARNING	Mrs.M.C.SAVITHRI
7	731218104011	JOTHIGA.S		
8	731218104025	UMA.D		
9	731218104010	JEEVABHARATHI.M	FABRIC FAULT DETECTION USING DIGITAL IMAGE PROCESSING	Mrs.P.SASIREKA
10	731218104018	SARANYA.M		
11	731218104024	THAMARAISELVI.R		
12	731218104014	MANIKANDAN.T	IOT BASED EMISSION MONITORING SYSTEM IN VEHICLE USING NODEMCU	Mr.E.ANANTH
13	731218104017	RATHISH.D		

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14	731218104015	NIRANJANA.M	DEEP LEARNING APPROACH FOR COUNTING THE PRESENCE OF THE PROPLE IN REAL TIME USING OPEN CV	Mrs.P.SASIREKA
15	731218104302	KIRUTHIKA.S		
16	731218104016	NISHA.S	BREAST CANCER USING DEEP LEARNING TECHNIQUES	Mrs.M.C.SAVITHRI
17	731218104021	SINDHUJA.V		
18	731218104019	SIBINDASS.S	A SMART ATM SECURITY SYSTEM USING RASPBERRY PI	Dr.N.SATHYABALAJI
19	731218104028	VINOTH.L		
20	731218104023	SUBRAMANI.N	HUMAN ACTION RECOGNITION AND ANNOTATION USING BOOSTED EXEMPLER LEARNING AND ADABOOST	MR.E.ANANTH
21	731218104026	VIJAYAKUMAR.N		

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STOCK MARKET PREDICTION USING MACHINE LEARNING

A PROJECT REPORT

Submitted by

S.ANGAMMAL **(731218104002)**

S.SINDHU **(731218104020)**

In partial fulfillment for the award of the degree

of

BACHELOR OF ENGINEERING

in

COMPUTER SCIENCE AND ENGINEERING

J.K.K.MUNIRAJAH COLLEGE OF TECHNOLOGY

T.N.PALAYAM, GOBI-638506

ANNA UNIVERSITY::CHENNAI 600025

JUNE 2022

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ANNA UNIVERSITY::CHENNAI 600 025

BONAFIDE CERTIFICATE

Certified that this project report on **"STOCK MARKET PREDICTION USING MACHINE LEARNING"** is the bonafide work of **"S.ANGAMMAL (731218104002), S.SINDHU (731218104020)"** who carried out the project work under my supervision.

SIGNATURE

Dr.N.SATHYABALAJI M.E.,M.I.S.T.E.Ph.D

HEAD OF THE DEPARTMENT

Associate Professor

Dept. of Computer Science and Engineering

J.K.K. Munirajah College of Technology

T.N.Palayam

SIGNATURE

Mrs.P.SASIREKA M.E.,

SUPERVISOR

Assistant Professor

Dept. of Computer Science and Engineering

J.K.K. Munirajah College of Technology

T.N.Palayam

Submitted for the Viva-Voce examination held on 22.06.2022 - FN

INTERNAL EXAMINER

EXTERNAL EXAMINER

PRINCIPAL
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ABSTRACT

The prediction of share prices is the function of deciding the future price of a company stock or other commercial tool traded. Prediction of some movements allowed from some patterns can be found. People are always attracted to invest in share market and stock exchanges as they provide huge financial profits, which is also an important for finance research. Prediction of share price is very difficult issue it depends upon such huge numbers of factors such organization financial status and national policy and so on. Nowadays stock costs are influenced because of numerous reasons such as organization related news, political, socially efficient conditions and cataclysmic events. Many studies have been performed for the prediction of stock index value and daily direction of change in the stock index. Such huge numbers of models have been created for foreseeing the future stock costs yet everyone has their own weaknesses. This paper expects to study, develop and assess different techniques so as to foresee future stock trades. The experimental results states that different classification techniques can be successfully deploy for share price prediction.

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CHAPTER 1

INTRODUCTION

Stock market prediction is the act of trying to determine the future value of a stock from social media. Social media offers a robust outlet for people thoughts and feelings Analysis of social media is strongly related to sentiment analysis. This is used to extract emotions and opinions from text Data mining methodologies like NLP, Random forest, Neural network is used for analyzing social network content and improves the average accuracy Recent analysis reveals the existence of attention-grabbing communication patterns among completely different participants of various social network platforms. These patterns are shown to be helpful in predicting product sales and stock costs . Compared to a social network, which may be thought of as representing connections among folks within the public, a company network connects solely staff in a very huge corporation. While participants of a social network will specific opinions on any problems with interest, members of a company communication network area unit expected to chiefly say company-specific business. If human communication patterns will be discovered within the social networks to predict product sales or stock performance, one might surprise if such patterns additionally exist among members in company communication network to permit constant to be done. In contrast to social networks, in a very company communication network, e-mails have long been used as a tool for inter organizational and inter organizational data exchange. Within the same means, a social network platform is ready to capture participants' behaviour and their opinions concerning varied problems and events. Thus, we tend to argue that a company communication network within the sort of Associate in Nursing e-mail scheme additionally contains perceptive data, like structure stability and hardiness, a couple of company's developments. We tend to believe our argument is in line with company communications, that suggests that "employee communications will mean the success or failure of any major

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amendment program" ensuing from a merger, acquisition, new venture, new method improvement approach, or alternative management problems. In alternative words, worker communication will serve a crucial "business operate that drives performance and contributes to a company's financial success". Based on these broad company communication theories, we tend to anticipate that each company has its own communication approach with identifiable patterns. We tend to believe that these communication patterns will reflect however a company manages major company activities (such as mergers, acquisitions, new ventures, new method improvement approaches, going considerations, or bankruptcy) which will afterwards influence the company's performance within the exchange. Stock exchanges are the financial institutions which allow exchange of different types of goods between stock broker components. Stock market prediction is the method of determining the future value of a stock or other financial instrument traded on an exchange. A misconception is also associated with people that buying and selling of the stocks/shares in the market is an act of gambling. This misconception can be changed and bringing awareness among people for this. Over the past few years, 90 percent of the data in the world has been created as a result of the creation of 2.5 quintillion bytes of data on a daily basis. A very large amount of data is generated by financial market. It's very difficult for a trader to recognize a pattern and then devise an optimal strategy for making decisions. Predicting how the stock market will perform is one of the most difficult things to do. There are so many factors involved in the prediction physical factors vs physiological, rational and irrational behavior, etc. All these aspects combine to make share prices volatile and very difficult to predict with a high degree of accuracy. Machine Learning can be used as a game changer in predicting the values of stock prices. Machine learning techniques have the potential to unearth patterns and insights we didn't see before, and these can be used to make unerringly accurate predictions. The machine learning is growing at a phenomenal pace in today's world.

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CHAPTER 10

CONCLUSION AND FUTURE WORK

ICLUSION

The popularity of stock market trading is growing rapidly, which is raging researchers to find out new methods for the prediction using new niques. The forecasting technique is not only helping the researchers but it also investors and any person dealing with the stock market. In order to help ict the stock indices, a forecasting model with good accuracy is required sed forecasting technology using machine learning algorithms like R,SVM and LSTM, ARIMA for forecasting which helps analysts or any on interested in investing in the stock market by providing them a good vledge of the future situation of the netflix market.

TURE WORK

It has some limitations that open fascinating opportunities for future ysis. First, during this paper, tend to solely create use of the communication uency between completely different individuals within the e-mail munication network. Utilize text-mining algorithms to investigate e-mail ent and create our experimental results a lot of correct for predicting stock th movements. Second, during this paper, we tend to rework original rmation into separate information as none, weak, and strong. A future study consider modeling the communication level of none, weak, and robust with utilization of fuzzy sets. Last however not least, a future study will create use public out their comments like those on social network sites (e.g. Twitter and book) to predict a company's stock costs. during this direction, future work extend our algorithmic rule by together with text-mining methods for lyzing the content of comments on social network sites and determine the ems and relationships between corporate/consumer communication and panies' stock worth. Finally, tend to conclude that it's possible to use

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mputation ways like algorithms and data-mining techniques to explore a rporation's communication patterns and utilize such patterns to predict a rporation's structure performance like stock performance. This project provides springboard to each researchers and practitioners to any apply algorithms within areas of knowledge science, management, and finance like for the investigation the communication and structure performance. We glance forward to a lot of dies that repose on our projected algorithms and extend our findings from Enron general company analysis.

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COVID-19 DETECTION AND CLASSIFICATION USING CT SCAN IMAGE IN DEEP LEARNING

A PROJECT REPORT

Submitted by

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in partial fulfillment for the award of the degree

of

BACHELOR OF ENGINEERING

in

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Certified that this project report on **"COVID-19 DETECTION AND CLASSIFICATION USING CT SCAN IMAGE IN DEEP LEARNING"** is the bonafide work of **"BOOPATHI S (731218104004), IYYAPPAN L (731218104008), KAVIYARASAN M (731218104301)"** who carried out the project work under my supervision.

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ABSTRACT

In it Project it's implemented on classification method early detection of Detecting COVID-19 is crucial in reducing mortality. Magnetic resonance imaging (MRI) may be a viable imaging technique for Detecting COVID-19detection has been studied for computed tomography (CT) images. However, to the best of their knowledge, no detection methods have been carried out for the MR images. In That conception, a Detecting COVID-19 detection method based on deep learning is proposed for thoracic MR images. With parameter optimizing, spatial three-channel input construction, and deep learning, a faster R-convolution neural network (CNN) is designed to locate the Detecting COVID-19 region.

Keywords: COVID-19, Deep CNN, Ensemble Learning, Precision, CT images.

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CHAPTER 1

INTRODUCTION

DIGITAL IMAGE PROCESSING

The identification of objects in an image would probably start with image processing techniques such as noise removal, followed by (low-level) feature extraction to locate lines, regions and possibly areas with certain textures.

The clever bit is to interpret collections of these shapes as single objects, e.g. cars on a road, boxes on a conveyor belt or cancerous cells on a microscope slide. One reason this is an AI problem is that an object can appear very different when viewed from different angles or under different lighting. Another problem is deciding what features belong to what object and which are background or shadows etc. The human visual system performs these tasks mostly unconsciously but a computer requires skilful programming and lots of processing power to approach human performance. Manipulating data in the form of an image through several possible techniques. An image is usually interpreted as a two-dimensional array of brightness values, and is most familiarly represented by such patterns as those of a photographic print, slide, television screen, or movie screen. An image can be processed optically or digitally with a computer.

To digitally process an image, it is first necessary to reduce the image to a series of numbers that can be manipulated by the computer. Each number representing the brightness value of the image at a particular location is called a picture element, or pixel. A typical digitized image may have 512 × 512 or roughly 250,000 pixels, there are three basic operations that can be performed on it in the computer. For a point operation, a pixel value in the output image depends on a single pixel value in the input image. For local

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CHAPTER 7
CONCLUSION AND FUTURE WORK

CONCLUSION

The number of people infected with COVID-19 has risen rapidly. Machine vision techniques and artificial intelligence are critical in diagnosing and treating disease. The purpose of That conception was to propose a method for the "COVID-19" problem via a set of lung images that included three categories of pneumonia, COVID-19, and healthy.

A deep convolution neural network consisting of 11 layers was applied to extract the features. The binary differential met heuristic method was used to select relevant features and eliminate unrelated features. Lung X-ray images were classified using a CNN classifier based on these optimal features.

That Concept demonstrated that the accuracy indicator and the number of relevant extracted features outperformed previous methods using the same data. Based on a deep neural network and a met heuristic feature selection algorithm, the proposed model can be used in various other medical applications.

FUTURE WORK

We plan to apply our Inf- Net to other related tasks, such as polyps segmentation camouflaged animal detection.

It is expected that the proposed models might be useful for clinical applications to detect the COVID-19 cases using CT scan images.

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REAL TIME FACE DETECTION EMOTION RECOGNITION USING DEEP LEARNING

A PROJECT REPORT

Submitted by

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D.UMA	**(731218104025)**

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BONAFIDE CERTIFICATE

Certified that this project report on **"REAL TIME FACE DETECTION EMOTION RECOGNITION USING DEEP LEARING"** is the bonafide work of **"R.GEETHA (731218104006), S.JOTHIGA (731218104011), D.UMA (731218104025)"** who carried out the project work under my supervision.

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ABSTRACT

It presents speech emotion recognition from speech signal based on features analysis and NN-classifier. Automatic Face Emotion Recognition (FER) plays an important role in HCI systems for measuring people's emotions and has dominated psychology by linking expressions to group of basic emotions (i.e., anger, disgust, fear, happiness, sadness, and surprise). The recognition system involves Face emotion detection, features extraction and selection and finally classification.

However the facial features are captured in real time and processed using haar cascade detection.These features are useful to distinguish the maximum number of samples accurately and the NN classifier based on discriminate analysis is used to classify the several different expressions. The simulated results will be shown that the filter based feature extraction with used classifier gives much better accuracy with lesser algorithmic complexity than other Face emotion expression recognition approaches.

This can be helpful to make informed decisions be it regarding identification of intent, promotion of offers or security related threats. Recognizing emotions from images or video is a trivial task for human eye, but proves to be very challenging for machines and requires many image processing techniques for feature extraction.

It will easily detect the face and recognise the human expression.To recognition is based on the stored image data of the different group of persons. Input images are of any type can be used for recognition,

1. Still images.
2. Video frames or video stills.
3. Video

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CHAPTER 1
INTRODUCTION

With the advanced of modern technology our desires went high and it binds no bounds. In the present area huge research work is going on in the field of digital image and image processing. The way of progression has been exponential and it is ever increasing. Image Processing is a vast area of research in the present day world and its applications are very widespread. The field of signal processing where both the input and output signals are images. One of the most important applications of Image processing is Facial expression recognition.

Our emotion is revealed by the expressions in our face. Facial Expressions plays an important role in interpersonal communication. Facial expression is a non verbal scientific gesture which gets expressed in our face as per our emotions. The key ingredient of this approach is to infer spatio temporal attention part by leveraging complementary multi-modal information.

The networks consist of four sub networks; spatial encoder networks, temporal decoder networks, attention inference networks, and emotion recognition networks. Automatic recognition of facial expression plays an important role in artificial intelligence and robotics and thus it is a need of the generation. Some application related to this includes Personal identification and Access control, Videophone and Teleconferencing, Forensic application, Human-Computer Interaction, Automated Surveillance, Cosmetology and so on Human emotion detection is implemented in many areas requiring additional security or information about the person.

It can be seen as a second step to face detection where we may be required to set up a second layer of security, where along with the face, the emotion is also detected. Human emotions can be classified as: fear, disgust, anger, surprise, sad, happy, and neutral. These emotions are very subtle. Facial muscle contortions are very minimal and detecting these differences can be very challenging as even a small difference

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results in different expressions Also, expressions of different or even the same people might vary for the same emotion, as emotions are hugely context dependent .

While it can focus on only those areas of the face which display a maximum of emotions like around the mouth and eyes, how to extract these gestures and categorize them is still an important question. Neural networks and Deep learning have been used for these tasks and have obtained good results.The deep learning algorithms have proven to be very useful in pattern recognition and classification. The most important aspects for any deep learning algorithm are the features.

It can see how the features are extracted and modified for algorithms like Support Vector Machines .It will compare algorithms and the feature extraction techniques from different papers. The human emotion dataset can be a very good example to study the robustness and nature of classification algorithms and how they perform for different types of dataset. Usually before extraction of features for emotion detection, face detection algorithms are applied on the image or the captured frame. It can generalize the emotion detection steps as follows:

1) Dataset preprocessing

2) Face detection

3) Feature extraction

4) Classification based on the features

In this work, we focus on the feature extraction technique and emotion detection based on the extracted features. Section 2 focuses on some important features related to the face.

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CHAPTER 10

CONCLUSION AND FUTURE SCOPE

The aim of the work is to face recognition and face emotion by using deep learning technique.we proposed real time video surveillance, what human face expresses it in front of camera and they were recognising the face. It shows the high performance of classifier and feature extraction method that enhances the efficiency of system and improved the accuracy of facial emotion recognition. In this, seven universal emotions from different set of static images is analysed. In future we have increase the accuracy rate based on facial expression.

FUTURE ENHANCEMENT

The future goal of this work has been to design a deep neural network for facial expression regonition.We have seen how to implement a Convolutional Neural Network caple of predicting emotion and facial expressions.the further testing with datasets containing images from various other angles like side view, bottom & top view.It will lead to extend this model that can recognize human facial expression from any angle in any lighting condition and background. In future we have increase the accuracy rate based on facial expression.

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Approved by AICTE, New Delhi And Affiliated to Anna University, Chennai.

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INTERNSHIP DETAILS 2021-2022

SI.NO	REGISTER NUMBER	STUDENT NAME	NAME OF THE COMPANY	LOCATION	DATE
1	731218104006	GEETHA R	VCI DEX	CHENNAI	16.3.2022 to 30.4.2022
2	731218104011	JOTHIGA S			
3	731218104025	UMA D			

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Gmail

Internship
1message

TUE 08 MAR 2022 at 2.30pm

From:HODCSE<hodcse@jkkmct.edu.in>Date: TUE 08 MAR 2022 at 2.30pm
Subject:Internship -reg
To:VCIDEX<ranjitha21@gmail.com>

Dear **Sir,**

I am requesting to be joining your **VCI DEX**.The requirements are exactly what I have prepared for and hoped to do. I feel confident that I can make a significant contribution to your organization while at the same time learning from your staff.

Additionally, I shall complete all insurance forms for the new intern orientation. I look forward to working with you and your fine team. I appreciate your confidence in me and providing the chance to work with and observe your outstanding staff.

Refer the following students:**(GEETHA.R,JOTHIGA.S,UMA.D)**

Sincerely,

Final Year CSE Students,
J K K Munirajah College of Technology,
T.N.Palayam,Erode-638506,Tamilnadu.

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Gmail

Internship
1message

WED 09 MAR 2022 at 3.30pm

From: VCIDEX<ranjitha21@gmail.com>

Date: WED 09 MAR 2022 at 3.30pm

Subject:Internship-reg

To: HODCSE<hodcse@jkkmct.edu.in>

Dear **Sir,**

I am writing to confirm my acceptance of your internship offer of 16.03.2022 to 30.04.2022 and to tell you how to be joining my **VCI DEX**. The requirements are exactly what I have prepared for and hoped to do.I feel confident that I can make a significant contribution to your organization while at the same time learning from my staff.

As we discussed, I will report at 10.00 a.m. on **MARCH 13,2022** and will be ready to take on my first assignment as an intern from my company. Additionally, I shall complete all insurance forms for the new intern orientation. I look forward to working with you and your fine team. I appreciate your confidence in me and providing the chance to work with and observe my outstanding staff.

Refer the following students:(**GEETHA.R,JOTHIGA.S,UMA.D)**

Sincerely,

HRManager,
VCI DEX,
Chennai.

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VCIDEX
Bring IT to Mass

Certificate
of Internship

This is to certify that Mr.JOTHIGA.S Final year B.E., Computer Science and Engineering of JKK MUNIRAJAH COLLEGE OF TECHNOLOGY, Erode, has attended Internship training in our organization from March 16.03.2022 to April 30.04.2022. During this Internship training, he has learned the overview concepts of REAL TIME FACE DETECTION EMOTION RECOGNITION USING DEEP LEARNING.

Date : 30.04.2022

Authorised Signature

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Authorised Signature

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Date : 30.04.2022

Authorised Signature

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FABRIC FAULT DETECTION USING DIGITAL IMAGE PROCESSING

A PROJECT REPORT

Submitted by

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SARANYA.M	**(731218104018)**
THAMARAISELVI.R	**(731218104024)**

in partial fulfillment for the award of the degree

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BONAFIDE CERTIFICATE

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ABSTRACT

Automatic fabric fault detection. Fabric fault detection is very popular topic of automation moreover quality control is one of the important features in textile industry. The performance of the projected idea is evaluated by using different techniques of patterned fabric images with different types of common fabric defects. Moreover detection methods were also evaluated in real time using a model automation specification system. This research paper will be useful for both researchers and practitioners in the field of image processing and computer vision to understand the uniqueness of the different defect detection methods. The recognition receives a digital fabric image from the image acquisition device and transforms it to a binary image using the restoration and threshold methods. This project presents a technique that decreases physical excertion. This project provides is automatic fabric fault detection. Fabric fault detection is very popular topic of automation moreover quality control is one of the important features in textile industry. The performance of the projected idea is evaluated by using different techniques of patterned fabric images with different types of common fabric defects. Moreover detection methods were also evaluated in real time using a model automation specification system. This research paper will be useful for both researchers and practitioners in the field of image processing and computer vision to understand the uniqueness of the different defect detection methods. The recognition receives a digital fabric image from the image acquisition device and transforms it to a binary image using the restoration and threshold methods. This project presents a technique that decreases physical excertion.

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CHAPTER 1

OBJECTIVE

The main objective is to identify the fabric fault detection using deep learning technique.

1.1 DOMAIN OVERVIEW

Deep neural networks are now the state-of-the-art machine learning models across a variety of areas, from image analysis to natural language processing, and widely deployed in academia and industry.

These developments have a huge potential for medical imaging technology, medical data analysis, medical diagnostics and healthcare in general, slowly being realized.We provide a short overview of recent advances and some associated challenges in machine learning applied to medical image processing and image analysis.Long before deep learning was used, traditional machine learning methods were mainly used. Such as Decision Trees, SVM, Naive Bayes Classifier and Logistic Regression.

These algorithms are also called flat algorithms. Flat here means that these algorithms cannot normally be applied directly to the raw data (such as .csv, images, text, etc.). We need a preprocessing step called Feature Extraction.

The result of Feature Extraction is a representation of the given raw data that can now be used by these classic machine learning algorithms to perform a task. For example, the classification of the data into several categories or classes.Feature Extraction is usually quite complex and requires detailed knowledge of the problem domain. This preprocessing layer must be adapted, tested and refined over several iterations for optimal results.

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CHAPTER 8

CONCLUSION AND FUTURE WORK

CONCLUSION

In this research,varying light conditions were tested for defect tification. Results showed that using a light beam of similar colour nsity to that of the original material enabled more accurate defect ntification compared to using a white light. Furthermore, an algorithm mbining Thresholding and restoration operations were applied for the ure extraction of the fabric defects. Results clearly indicated that the orithm successfully extracted the defects in the fabric. Lastly, results hlighted use of UV lighting as more effective when detecting oil defects n other lighting.

FUTURE ENHANCEMENT WORK

In future we increased the performance of this process and able to get re accuracy.An approach combined with the maximum interclass variance thod is proposed with the global associated value and the background ociated value are extracted as the two features. The yolo object detection ssifier is used to train and test the samples. Experiments results show that : method can detect the images with high accuracy. In addition, the method extracting visual saliency map features described in this paper is not great ected by the different detection objects. Therefore, the proposed approach s strong adaptability and practicability.

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IOT BASED VECHILE EMISSION MONITORING SYSTEM USING NODEMCU

A PROJECT REPORT

Submitted by

T.MANIKANDAN (731218104014)

D.RATHISH (731218104017)

in partial fulfillment for the award of the degree

of

BACHELOR OF ENGINEERING

in

COMPUTER SCIENCE AND ENGINEERING

J.K.K.MUNIRAJAH COLLEGE OF TECHNOLOGY

T.N.PALAYAM, GOBI-638 506

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JUNE 2022

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BONAFIDE CERTIFICATE

Certified that this project report on **"IOT BASED EMISSION MONITORING SYSTEM IN VEHICLE USING NODEMCU"** is the bonafide work of **"T.MANIKANDAN (731218104014), D.RATHISH (731218104017)"** who carried out the project work under my supervision.

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Submitted for the Viva-Voce examination held on 22-06-2022 | FN

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ABSTRACT

An increase in automobile vehicle ends up in a rise in air pollution since automobiles area unit the main source of environmental pollution. The smoke emitted from the vehicle consists of gases like nitrogen oxides (NO), carbon monoxide gas (CO), and hydrocarbon (HC).Just about one-half of the nitrogen oxide gases, carbon monoxide gas and fourth of hydrocarbon gases in the environment area unit emitted from automobile vehicles, which ends up in warming. Due to poor vehicle maintenance and ignition defect. The gases emitted from the exhaust may increase. So as to scale back environmental pollution and to extend vehicle life, so use this method. Once the rate of gases emitted from the vehicle exceeds the starting stage limit set by the government this system can alert the user through liquid crystal display. Using IOT, the emission level is additionally displayed and holds on within the info of a vehicle owner. The whole system is controlled by Node MCU microcontroller.

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CHAPTER 1

INTRODUCTION

Environmental pollution in India turns out to be a serious issue in the 21st century. The main source of pollution in India is due to automobile vehicles. Government of India made many regulations to control environmental pollution caused due to vehicle emission, but most of them turn to be unsuccessful. The government of India instituted a standard called Bharat stage emission standard (BSES) to regulate air pollution from motor vehicles. BS- 4 standards are following in India since April 2010. To speed up the green initiative, the government made an order to move from BS-4 to BS-6 in 2020. The Indian pollution control board has made FC (Fitness certificate) and PUC (Pollution under control certificate) is compulsory for commercial and public vehicles to control air pollution. Carbon monoxide, hydrocarbon, and nitrogen oxides are the gases emitted from the exhaust.

The CO in the atmosphere reduces the capability of blood in carrying oxygen; hydrocarbon in the atmosphere affects heart, brain, kidney and bone marrow. NO affects the lung and causes a respiratory problem. In the era of urbanization due to the rapid increase in an automobile vehicle, it is difficult to inspect all the vehicles. It requires a lot of man force to inspect all those vehicles. In order to monitor all the vehicles easily to develop a system called IoT based emission monitoring system, through which can able to monitor all the vehicles easily. The IOT plays a vital role in this process, the sensors placed at the exhaust monitors the level of different gases, with the help of IOT the value is updated to the cloud. This makes each the vehicle owner and transport workplace to watch the vehicle simply.

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CHAPTER 7

CONCLUSION AND FUTURE ENHANCEMENT

CONCLUSION

The environmental pollution caused due to the emission of gases like carbon monoxide, hydrocarbon, and nitrogen oxide emitted from vehicle exhaust need to be reduced in order to save the environment. The proposed system provides the best solution to monitor the gases emitted from the vehicle exhaust to increase the life of the vehicle and to reduce environmental pollution. The proposed system is low cost and easy to maintain. In future GPScan be added to send the details to the regional transport office and to calculate the number of gases emitted from vehicles in a particular region.

FUTURE ENHANCEMENT

The Indian pollution control board has made FC (Fitness certificate) and UC (Pollution under control certificate) is compulsory for commercial and ublic vehicles to control air pollution. Carbon monoxide, hydrocarbon, and itrogen oxides are the gases emitted from the exhaust. The CO in the mosphere reduces the capability of blood in carrying oxygen; hydrocarbon in e atmosphere affects heart, brain, kidney and bone marrow. NO affects the ng and causes a respiratory problem.

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INTERNSHIP DETAILS 2021-2022

SI.NO	REGISTER NUMBER	STUDENT NAME	NAME OF THE COMPANY	LOCATION	DATE
1	731218104015	NIRANJANA M	VCI DEX	CHENNAI	16.3.2022 to 30.4.2022
2	731218104302	KIRUTHIKA.S			

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Internship
1 message

TUE 08 MAR 2022 at 2.30pm

From:HODCSE<hodcse@jkkmct.edu.in>

Date: TUE 08 MAR 2022 at 2.30pm

Subject:Internship -reg

To:VCIDEX<ranjitha21@gmail.com>

Dear **Sir,**

I am requesting to be joining your **VCI DEX**.The requirements are exactly what I have prepared for and hoped to do. I feel confident that I can make a significant contribution to your organization while at the same time learning from your staff.

Additionally, I shall complete all insurance forms for the new intern orientation. I look forward to working with you and your fine team. I appreciate your confidence in me and providing the chance to work with and observe your outstanding staff.

Refer the following students:**(NIRANJANA.M,KIRUTHIKA.S)**

Sincerely,

Final Year CSE Students,
J K KMunirajah College of Technology,
T.N.Palayam,Erode-638506,Tamilnadu.

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Gmail

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WED 09 MAR 2022 at 3.30pm

From: VCIDEX<ranjitha21@gmail.com>

Date: WED 09 MAR 2022 at 3.30pm

Subject:Internship-reg

To:HODCSE<hodcse@jkkmct.edu.in>

Dear **Sir,**

I am writing to confirm my acceptance of your internship offer of 16.03.2022 to 30.04.2022 and to tell you how to be joining my **VCI DEX**. The requirements are exactly what I have prepared for and hoped to do.I feel confident that I can make a significant contribution to your organization while at the same time learning from my staff.

As we discussed, I will report at 8:00 a.m. on **MARCH 13,2022** and will be ready to take on my first assignment as an intern from my company. Additionally, I shall complete all insurance forms for the new intern orientation. I look forward to working with you and your fine team. I appreciate your confidence in me and providing the chance to work with and observe my outstanding staff.

Refer the following students:**(NIRANJANA.M,KIRUTHIKA.S)**

Sincerely,

HRManager,
VCI DEX,
Chennai.

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VCIDEX
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This is to certify that Mr.KIRUTHIKA.S Final year B.E., Computer Science and Engineering of JKK MUNIRAJAH COLLEGE OF TECHNOLOGY, Erode, has attended Internship training in our organization from March 16.03.2022 to April 30.04.2022. During this Internship training, he has learned the overview concepts of DEEP LEARNING APPOROACH FOR COUNTING THE PRESENCE OF THE PROFLE IN REAL TIME USING OPEN CV.

Date : 30.04.2022

Authorised Signature

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Date : 30.04.2022

Authorised Signature

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DEEP LEARNING APPROACH FOR COUNTING THE PRESENCE OF THE PEOPLE IN REAL TIME USING OPENCV

A PROJECT REPORT

Submitted by

M.NIRANJANA **(731218104015)**
S.KIRUTHIKA **(731218104302)**

in partial fulfillment for the award of the degree

of

BACHELOR OF ENGINEERING

in

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BONAFIDE CERTIFICATE

Certified that this project report on **"DEEP LEARNING APPROACH FOR COUNTING THE PRESENCE OF THE PEOPLE IN REAL TIME USING OPENCV"** is the bonafide work of **"M.NIRANJANA (731218104015), S.KIRUTHIKA (731218104302)"** who carried out the project work under my supervision.

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ABSTRACT

Crowd counting is very important in many tasks such as video surveillance, traffic monitoring, public security, and urban planning, so it is a very important part of the intelligent transportation system. However, achieving an accurate crowd counting and generating a precise density map are still challenging tasks due to the occlusion, perspective distortion, complex backgrounds, and varying scales. In addition, most of the existing methods focus only on the accuracy of crowd counting without considering the correctness of a density distribution; namely, there are many false negatives and false positives in a generated density map. To address this issue, we propose a novel encoder-decoder Convolution Neural Network (CNN) that fuses the feature maps in both encoding and decoding sub-networks to generate a more reasonable density map and estimate the number of people more accurately. Furthermore, we introduce a new evaluation method named the Patch Absolute Error (PAE) which is more appropriate to measure the accuracy of a density map. The extensive experiments on several existing public crowd counting datasets demonstrate that our approach achieves better performance than the current state-of-the-art methods. Lastly, considering the cross-scene crowd counting in practice, we evaluate our model on some cross-scene datasets. The results show our method has a good performance in cross-scene datasets.

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CHAPTER 1

INTRODUCTION

It is applied to the objects of the person. Not just person can distinguish any kind of pictures. This procedure will be applied to recognize the article for the utilizations of wide scope of businesses, picture recovery and so on calculation applies a neural system to a whole picture. The system isolates the picture into a S x S framework and concocts bouncing boxes, which are boxes drawn around pictures and anticipated probabilities for each of these Areas.

The technique used to concoct these probabilities is calculated relapse. The bouncing boxes are weighted by the related probabilities. For class expectation, free strategic classifiers are utilized. Right now, will exhibit how to actualize the YOLO calculation with a pre prepared model. To begin with need to introduce Dark Net. It is a neural system structure that is open source. What's more, by utilizing mass location that can distinguish the picture by the square shape box. Utilizing this procedure can distinguish questions no problem at all.

1.1. DOMAIN OVERVIEW

Deep neural networks are now the state of the art machine learning models across a variety of areas,from image analysis to natural language processing, and widely deployed in academia and industry.

These developments have a huge potential for medical imaging technology, medical data analysis, medical diagnostics and healthcare in general, slowly being realized. It provide a short overview of recent advances and some associated challenges in machine learning applied to medical image processing and image analysis.

Long before deep learning was used, traditional machine learning methods were mainly used. Such as Decision Trees, SVM, Naïve Bayes Classifier and Logistic Regression.

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CHAPTER 9

CONCLUSION AND FUTURE WORK

9.1. CONCLUSION

It detect the object detection based on the blob detection and darknet. This can be used in real-time applications which require object detection for pre processing in their pipeline. An important scope would be to train the system on a video sequence for usage in tracking applications. Addition of a temporally consistent network would enable smooth detection and more optimal than per frame detection.

9.2. FUTUREWORK

The performance of the object detection requirement in image processing for the more number of real time applications. By using applications we can detect any kind of object. This is the best performance. For the future purpose we can take different type of extraction process techniques. This techniques is used at malls, theatres, roads, airports, park, companies etc. Optical flow is used for the next generation and can develop new algorithms for the classification process. To using this can detect more number of objects with assigning of different colours and name. These are used at the malls, restaurants and other application.

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2	731218205014	PRASANTH M			

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TUE 08 MAR 2022 at1.30pm

From:HODCSE<hodcse@jkkmct.edu.in>

Date: TUE 08 MAR 2022 at 1.30pm

Subject:Internship -reg

To:PANTECH<rithiksam22@pantech.com>

Dear **Sir,**

I am requesting to be joining your **PAN TECH**.The requirements are exactly what I have prepared for and hoped to do. I feel confident that I can make a significant contribution to your organization while at the same time learning from your staff.

Additionally, I shall complete all insurance forms for the new intern orientation. I look forward to working with you and your fine team. I appreciate your confidence in me and providing the chance to work with and observe your outstanding staff.

Refer the following students:**(MANIKANDAN.T,RATHISH.D)**

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Gmail

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1message

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From: PANTECH<rithiksam22@pantech.com>

Date: WED 09 MAR 2022 at 3.30pm

Subject:Internship-reg

To: HODCSE<hodcse@jkkmct.edu.in>

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As we discussed, I will report at 8:00 a.m. on **FEBRUARY 25,2022** and will be ready to take on my first assignment as an intern from my company. Additionally, I shall complete all insurance forms for the new intern orientation. I look forward to working with you and your fine team. I appreciate your confidence in me and providing the chance to work with and observe my outstanding staff.

Refer the following students:**(MANIKANDAN.T,RATHISH.D)**

Sincerely,

HRManager,
PAN TECH SOLUTIONS PRIVATE LIMITED,
Coimbatore.

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BREAST CANCER DETECTION USING DEEPLEARNING TECHNIQUE

A PROJECT REPORT

Submitted by

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V.SINDHUJA (731218104021)

In partial fulfillment for the award of the degree

of

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in

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Submitted for the Viva-Voce examination held on 22/06/2022 2 FN

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ABSTRACT

The project proposes an automatic support system for stage classification using probabilistic neural network based on the detection of cancer region through biclustering method for medical application. stages. The threshold will be determined by biclustering an image based on row and column separation. The artificial neural network will be used to classify the stage of image that is abnormal or normal. The manual analysis of this samples are time consuming, inaccurate and requires intensive trained person to avoid diagnostic errors. Diagnosis system for early detection of cancer from mammographic which will improves the chances of survival for the patient. Dual tree complex wavelet transform is used for extracting texture features and it decomposed the image into four levels for getting the edge details in horizontal and vertical direction. Robust local binary pattern is effectively used here to extract texture features and probabilistic neural network with radial basis function will be employed to implement an automated breast cancer classification.

The performance of the CNN classifier with DTCWT–RLBP will be evaluated in terms of training performance and classification accuracies. Traditional breast cancer image classification methods require manual extraction of features from medical images, which not only require professional medical knowledge. Therefore, the project proposes a computer-based feature fusion Convolutional neural network breast cancer image classification and detection method. The project pre-trains two convolutional neural networks with different structures, and then uses the convolutional neural network to automatically extract the characteristics of features.

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CHAPTER 1
INTRODUCTION

The aim of the project is to detect breast cancer by using deep learning technique and image processing. The breast cancer is an most common type of cancer that occurs one in every eight Women in the world .It will easily recognize with the help of MRI scan image.The GLCM feature extraction and discrete wavelet transform, these are the comes under image processing and deep learning. and then classify into two abnormal and normal .If the person is affected in cancer it will be pop out. Traditional breast cancer image classification methods require manual extraction of features from medical images, which not only require professional medical knowledge. Therefore, the project proposes a computer-based feature fusion Convolutional neural network breast cancer image classification and detection method.

The project pre-trains two convolutional neural networks with different structures, and then uses the convolutional neural network to automatically extract the characteristics of features.Breast tumor has two most common types: benign and malignant where the benign lesion is not cancerous, it is some kind of abnormalities in the cell and they are unable to become a cause of breast cancer and malignant is cancerous lesions. Malignant cells spread at a very fast rate by start divisions swiftly because both cells have irregular appearance and structure; it is a very difficult task to manually analyze the microscopic image. Early detection of breast cancer can lead to recovery where the accuracy in the classification of breast cancer is of great significance. Several types of research have been organized on the implementation of machine learning for the detection and classification of breast cancer using different methods or a combination of several algorithms to increase the precision.

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CHAPTER 9

CONCLUSION

In this model is presented for the classification of breast cancer using istopathology images. The proposed model learns the features automatically by reating equal size patches of images. Pre-training is achieved in an unsupervised ashion and fine-tuning in a supervised fashion. After learning the features, the atch matching model is used to create a probability estimation matrix. The results how that the deep learning method improved classification accuracy in breast ancer cases. According to our results, it is observed that the patch-based model erformed better than the models that work using whole images for feature xtraction. This will reduce the computational cost and also provides high accuracy the binary classification problem. For future work, our model could perform etter and could provide better accuracy if more hardware resources are available ke GPU, for using a large number of patches as input. Also, this study is a binary lassification study, as in this work we only classify between the cancer regions om the background regions

FUTURE ENHANCEMENT

The results show that the deep learning method improved classification curacy in breast cancer cases. According to our results, it is observed that the tch-based model performed better than the models that work using whole images r feature extraction. This will reduce the computational cost and also provides gh accuracy in the binary classification problem. For future work, our model uld perform better and could provide better accuracy if more hardware resources e available like GPU, for using a large number of patches as input. Also, this dy is a binary classification study, as in this work we only classify between the ncer regions from the background regions. In future, it can work on the assification between different types of cancers using this model.

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A SMART ATM SECURITY SYSTEM USING RASPBERRY PI

A PROJECT REPORT

Submitted by

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In partial fulfillment for the award of the degree

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BONAFIDE CERTIFICATE

Certified that this project report on **"A SMART ATM SECURITY SYSTEM USING RASPBERRY PI"** is the bonafide work of **"S.SIBINDASS(731218104019), L.VINODH (731218104028)"** who carried out the project work under my supervision.

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Submitted for the Viva-Voce examination held on 22-06-2022 'FN'

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ABSTRACT

Automated teller machines (ATMs) are well known devices typically used by individuals to carry out a personal and business financial transactions or banking functions. Nowadays by simply knowing the PIN number cash gets with drawled by unknown person. So to have secured transaction under account holders knowledge, That is used RF readers for authentication,Having one database which contains RF ID of individual person with their photograph. If one shows the RF tag to the RF reader camera gets triggered and capture the image of the card holder and it starts checking with database whether ID and face is matching or not. If account holder is trying to use their ATM system identifies that face is matching with its database so it will directly allow users to withdrawal cash from ATM. Automated Teller Machines (ATMs) security is the field of study that aims at solutions that provide multiple points of protection against physical and electronic theft from ATMs and protecting their installations. From anti-skimming defend systems to silent indicate systems, integrated ATM video surveillance cameras and ATM monitoring options, security specialists are ready to help the people get more out of the ATM security and ATM loss prevention systems. It provides real-time monitoring and control without the need for human intervention. It suggests new system architecture for positioning and monitoring applications with wider coverage and higher communication efficiency. Raspberry Pi. It offers a robust networking solution with wide range of application areas over internet. The Web server can be run on an embedded system having limited resources to serve embedded web page to a web browser.

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CHAPTER 1

INTRODUCTION

Automatic Teller Machine (ATM) is an electronic machine which is used for accessing a bank account from anywhere without the help of bank staff. The user can perform several banking activities like cash withdrawal, money transfer with the help of ATM. It is observed that the number of crimes related to ATM is increased hence there is a necessity to provide enhances security to ATM machine. Previous technologies provide security to transactions for identification of authorized user. But this is limited for secure transactions with ATM machine. Currently, ATM security is given to the transactions only. The RFID technology is also used which makes the system secure than only RFID technology.

1.1 DOMAIN OVERVIEW

1.1.1 OVERVIEW OF EMBEDDED SYSTEMS:

An embedded system is a special-purpose computer system designed to perform one or a few dedicated functions, often with real-time computing constraints. It is usually embedded as part of a complete device including hardware and mechanical parts. In contrast, a general-purpose computer, such as a personal computer, can do many different tasks depending on programming. Embedded systems have become very important today as they control many of the common devices used.

Since the embedded system is dedicated to specific tasks, design engineers can optimize it, reducing the size and cost of the product, or increasing the reliability and performance. Some embedded systems are mass-produced, benefiting from economies of scale.

In general, "embedded system" is not an exactly defined term, as many systems have some element of programmability. For example, Handheld computers share some elements with embedded systems. such as the operating systems and microprocessors.

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CHAPTER 7

7.1 CONCLUSION

This system makes high security with intelligence to permit the ATM users only if they are making transaction under the knowledge of the account holder. It is also possible to install this system in every banking sector to make any account related processes under account holder's knowledge.

7.2 FUTURE ENHANCEMENT

Nowadays, most of the ATM has been attacked by the robberies. In a real-time monitoring system for ATM security based on accelerometer sensor, camera module, and fingerprint module is proposed. The proposed work concludes with the following points: a secure way of accessing an ATM by authorized persons using face recognition module. Eliminates the drawback of previous system like manual controlling camera modules and doors the system is cost effective as compare to existing manual technique. The real time video of the ATM centre can be monitored through web server which make ATM better safe from thefts.

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HUMAN ACTION RECOGNITION AND ANNOTATION USING BOOSTED EXEMPLAR LEARNING&ADABOOST

A PROJECT REPORT

Submitted by

SUBRAMANI N (731218104023)

VIJAYAKUMAR S (731218104026)

in partial fulfillment for the award of the degree

of

BACHELOR OF ENGINEERING

in

COMPUTER SCIENCE AND ENGINEERING

J .K.K.MUNIRAJAH COLLEGE OF TECHNOLOGY

T.N.PALAYAM, GOBI-638 512

ANNA UNIVERSITY::CHENNAI 600 025

JUNE 2022

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ANNA UNIVERSITY::CHENNAI 600 025

BONAFIDE CERTIFICATE

rtified that this project report on **"HUMAN ACTION RECOGNITION AND NNOTATION USING BOOSTED EXEMPLER LEARNING & ADABOOST"** is : bonafide work of **"SUBRAMANI N (731218104023), VIJAYAKUMAR S 31218104026)"**, who carried out the project work under my supervision.

GNATURE

:.N.SATHYABALAJI.M.E,M.I.S.T.E.,Ph.D.,

EAD OF THE DEPARTMENT

ssociate Professor

ept. of Computer Science and Engineering

C.K. Munirajah College of Technology

N. Palayam

SIGNATURE

Mr.E.ANANTH.M.E.,

SUPERVISOR

Assistant Professor

Dept. of Computer Science and Engineering

J.K.K. Munirajah College of Technology

T.N. Palayam

Submitted for the Viva-Voce examination held on 22-6-2022 FN

INTERNAL EXAMINER

EXTERNAL EXAMINER

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ABSTRACT

Given a video sequence, the task of action recognition is to identify the most similar action among the action sequences learned by the system. Such human action recognition is based on evidence gathered from videos. It has wide application including surveillance, video indexing, biometrics, telehealth, and human-computer interaction. Vision-based human action recognition is affected by several challenges due to view changes, occlusion, and variation in execution rate, anthropometry, camera motion, and background clutter. In this survey, us provide an overview of the existing methods based on their ability to handle these challenges as usll as how these methods can be generalized and their ability to detect abnormal actions. Such systematic classification will help researchers to identify the suitable methods available to address each of the challenges faced and their limitations. In addition, they also identify the publicly available datasets and the challenges posed by them. From this survey, us draw conclusions regarding how well a challenge has been solved, and theirs identify potential research areas that require further work.

Keywords: Human Action Recognition, Computer Vision, Behavior Analysis, Convolutional Neural Networks,

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CHAPTER 1

INTRODUTION

The objective of this system is to recognise and annotate the human action in an unconstrained environment, where the images contain a huge range of variability.

SCOPE OF PROJECT:

The main contributions of this system therefore are

- Data Analysis
- Dataset Pre-processing
- Training the Model
- Testing of Dataset

1.1 DOMAIN OVERVIEW:

Deep neural networks are now the state-of-the-art machine learning models across a variety of areas, from image analysis to natural language processing, and widely deployed in academia and industry.

These developments have a huge potential for medical imaging technology, medical data analysis, medical diagnostics and healthcare in general, slowly being realized. us provide a short overview of recent advances and some associated challenges in machine learning applied to medical image processing and image analysis.

Long before deep learning was used, traditional machine learning methods were mainly used. Such as Decision Trees, SVM, Naïve Bays Classifier and Logistic Regression. These algorithms are also called flat algorithms. Flat here means that these algorithms cannot normally be applied directly to the raw data (such as, csv, images, text, etc.). Us need a pre-processing step called Feature Extraction.

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Gmail

Internship

1message

WED 16 Feb2022 at 3.30pm

From:BRAINERYSPOT<kiruthika@braineryspot.com>

Date: WED 16 Feb2022 at 3.30pm

Subject:Internship-reg

To: HODCSE<hodcse@jkkmct.edu.in>

Dear Sir,

I am writing to confirm my acceptance of your internship offer of 21.02.2022 to 25.02.2022 and to tell you how to be joining my **BRAINERY SPOT TECH**. The requirements are exactly what I have prepared for and hoped to do.I feel confident that I can make a significant contribution to your organization while at the same time learning from my staff.

As we discussed, I will report at 8:00 a.m. on FEBRUARY 21.02.2022 and will be ready to take on my first assignment as an intern from my company. Additionally, I shall complete all insurance forms for the new intern orientation. I look forward to working with you and your fine team. I appreciate your confidence in me and providing the chance to work with and observe my outstanding staff.

Refer the following students:**(G.ABINAYA, K.KATHIRESAN ,R.VINOTHKUMAR)**

PRINCIPAL
JKK MUNIRAJAH COLLEGE
OF TECHNOLOGY
T.N. PALAYAM (Po)-638 506.
GOBI (Tk), ERODE (Dt).

Sincerely,

HRManager,
Brainery Spot Tech,
Coimbatore.

BRAINERY SPOT TECHNOLOGY
LEARNING | DEVELOPMENT | PLACEMENT

Date : 25.02.2022

INTERNSHIP CERTIFICATE

This is to inform that **Ms.ABINAYA G**, 2nd year B.E., Computer Science and Engineering student of **JKK MUNIRAJAH COLLEGE OF TECHNOLOGY, (ANNA UNIVERSITY)**, T.N.PALAYAM, has attended Internship in our our Organization from Feb 21.02.2022 to Feb 25.02.2022.

During this Internship training, She has learned the overview concepts of **WEB DEVELOPMENT.**

Thanking You.

For BRAINERY SPOT TECHNOLOGY

Authorised Signatory

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JKK MUNIRAJAH COLLEGE
OF TECHNOLOGY
T.N. PALAYAM (Po)-638 506.
GOBI (Tk), ERODE (Dt).

BRAINERY SPOT TECHNOLOGY
LEARNING | DEVELOPMENT | PLACEMENT

Date : 25.02.2022

INTERNSHIP CERTIFICATE

This is to inform that **Mr.KATHIRESAN K**, 2nd year B.E., Computer Science and Engineering student of **JKK MUNIRAJAH COLLEGE OF TECHNOLOGY, (ANNA UNIVERSITY)**, T.N.PALAYAM, has attended Internship in our our Organization from Feb 21.02.2022 to Feb 25.02.2022.

During this Internship training, he has learned the overview concepts of **PYTHON WITH MACHINE LEARNING.**

Thanking You.

For BRAINERY SPOT TECHNOLOGY

Authorised Signatory

PRINCIPAL
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OF TECHNOLOGY
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GOBI (Tk), ERODE (Dt).

BRAINERY SPOT TECHNOLOGY
LEARNING | DEVELOPMENT | PLACEMENT

Date : 25.02.2022

INTERNSHIP CERTIFICATE

This is to inform that **Mr.VINOTHKUMAR R**, 2nd year B.E., Computer Science and Engineering student of **JKK MUNIRAJAH COLLEGE OF TECHNOLOGY, (ANNA UNIVERSITY)**, T.N.PALAYAM, has attended Internship in our our Organization from Feb 21.02.2022 to Feb 25.02.2022.

During this Internship training, he has learned the overview concepts of **WEB DEVELOPMENT.**

Thanking You.

For BRAINERY SPOT TECHNOLOGY

Authorised Signatory

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OF TECHNOLOGY
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J.K.K. MUNIRAJAH COLLEGE OF TECHNOLOGY

Approved by AICTE, New Delhi And Affiliated to Anna University, Chennai.

T.N. Palayam (Po), Gobi (Tk), Erode (Dt) – 638 506

INTERNSHIP DETAILS 2021-22

SI.NO	REGISTER NUMBER	STUDENT NAME	NAME OF THE COMPANY	LOCATION	DATE
1	731220104003	R.BALU	DURGA TECH	ERODE	21.02.2022 to 25.02.2022
2	731220104005	S.DEEPAK			
3	731220104006	S.DEEPIKA			
4	731220104009	P.JAGATHESWARAN			
5	731220104010	M.KARUNYAA			
6	731220104012	M.KAVIN			
7	731220104019	S.NIRMALRAJ			
8	731220104021	S.RAMYA			
9	731220104022	R.ROHITH			
10	731220104023	I.ROSHMA			
11	731220104026	B.THENMOZHI			
12	731220104029	T.VINISHA			
13	731220104030	A.VINITHA			

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Gmail

Internship
1message

TUE 15 Feb 2022 at 2.00pm

From:HODCSE
<hodcse@jkkmct.edu.in>
Date: TUE 15 Feb 2022 at 2.00pm
Subject:Internship -reg
To: DURGATECH<nishapandey@durgatech.com>

Dear **sir,**

I am requesting to be joining your **DURGA TECH**.The requirements are exactly what I have prepared for and hoped todo. I feel confident that I can make a significant contribution to your organization while at the same time learning from your staff.

Additionally, I shall complete all insurance forms for the new intern orientation. I look forward to working with you and your fine team. I appreciate your confidence in me and providing the chance to work with and observe your outstanding staff.

Refer the following students:

(R.BALU,S.DEEPAK,S.DEEPIKA,P.JAGATHESWARAN,M.KARUNYAA,M.KAVIN, S.NIRMALRAJ,S.RAMYA,R.ROHITH,I.ROSHMA,B.THENMOZHI,T.VINISHA,A.VINITHA)

Sincerely,

2 ndYear CSE Students,
J K KMunirajah College of Technology,
T.N.Palayam,Erode-638506,Tamilnadu.

PRINCIPAL
JKK MUNIRAJAH COLLEGE
OF TECHNOLOGY
T.N. PALAYAM (Po)-638 506.
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Gmail

Internship
1message

WED 16 Feb2022 at 3.30pm

From: DURGATECH<nishapandey@durgatech.com>
Date: WED 16 Feb2022 at 3.30pm
Subject:Internship-reg
To: HODCSE
<hodcse@jkkmct.edu.in>

Dear **sir,**

I am writing to confirm my acceptance of your internship offer of 21.02.2022 to 25.02.2022 and to tell you how to be joining my **DURGA TECH.** The requirements are exactly what I have prepared for and hoped to do.I feel confident that I can make a significant contribution to your organization while at the same time learning from my staff.

As we discussed, I will report at 8:00 a.m. on FEBRUARY 21.02.2022 and will be ready to take on my first assignment as an intern from my company. Additionally, I shall complete all insurance forms for the new intern orientation. I look forward to working with you and your fine team. I appreciate your confidence in me and providing the chance to work with and observe my outstanding staff.

Refer the following students

(R.BALU,S.DEEPAK,S.DEEPIKA,P.JAGATHESWARAN,M.KARUNYAA,M.KAVIN, S.NIRMALRAJ,S.RAMYA,R.ROHITH,I.ROSHMA,B.THENMOZHI,T.VINISHA,A.VINITHA)

PRINCIPAL
JKK MUNIRAJAH COLLEGE
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GOBI (Tk), ERODE (Dt).

Sincerely,

HR Manager,
Durga Tech,
Erode.

Since 2009

Date : 25.02.2022

Durga Tech

Research & Development

This is to certify that R. Balu Reg.No: 731220104003 in BE(CSE) II year student of JKKMunirajah College of Technology, Gobi has completed the Internship/~~In-plant~~ Training under the Web Development in Durga Tech from 21.2.22 to 25.2.22

During this Internship/~~In-plant~~ Training R. Balu found to be highly sincere, committed, hard working, progressive and professional towards ~~her~~/his work and is capable of discharging her/his duties in a similar capacity and ~~her~~/his conduct was found to be good during ~~her~~/his period of Internship/~~In-plant~~ Training.

We wish R. Balu success in ~~her~~/his future endeavors in ~~her~~/his career.

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Regards

Thanking You

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info.durgatech@gmail.com

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Date : 25.02.2022

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This is to certify that S. Deepika Reg.No: 731220104006 in BE(CSE) II year student of JKK Munirajah College of Technology, Gobi has completed the Internship/~~In-plant~~ Training under the Web Development in Durga Tech from 21.2.22 to 25.2.22

During this Internship/~~In-plant~~ Training S. Deepika found to be highly sincere, committed, hard working, progressive and professional towards her/~~his~~ work and is capable of discharging her/~~his~~ duties in a similar capacity and her/~~his~~ conduct was found to be good during her/~~his~~ period of Internship/~~In-plant~~ Training.

We wish S. Deepika success in her/~~his~~ future endeavors in her/~~his~~ career.

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This is to certify that P. Jagatheswaran Reg.No: 731220104009 in BE(CSE) II year student of JKKMunirajah College of Technology, Gobi has completed the Internship/~~In-plant~~ Training under the Web Development in Durga Tech from 21.2.222 to 25.2.22

During this Internship/~~In-plant~~ Training P. Jagatheswaran found to be highly sincere, committed, hard working, progressive and professional towards ~~her~~/his work and is capable of discharging ~~her~~/his duties in a similar capacity and ~~her~~/his conduct was found to be good during ~~her~~/his period of Internship/~~In-plant~~ Training.

We wish P. Jagatheswaran success in ~~her~~/his future endeavors in ~~her~~/his career.

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This is to certify that M. Karunyaa Reg.No: 131220104010 in BE (CSE) II year student of JKK Munirajah College of Technology, Gobi has completed the Internship/~~In-plant~~ Training under the Web Development in Durga Tech from 21.2.22 to 25.5.22

During this Internship/~~In-plant~~ Training M. Karunyaa found to be highly sincere, committed, hard working, progressive and professional towards her/~~his~~ work and is capable of discharging her/~~his~~ duties in a similar capacity and her/~~his~~ conduct was found to be good during her/~~his~~ period of Internship/~~In-plant~~ Training.

We wish M. Karunyaa success in her/~~his~~ future endeavors in her/~~his~~ career.

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Date : 25.02.2022

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This is to certify that M. Kavin Reg.No: 731220104012 in BE (CSE) II year student of JKK Munirajah College of Technology, Gobi has completed the Internship/In-plant Training under the Web Development in Durga Tech from 21.2.22 to 25.2.22

During this Internship/~~In-plant~~ Training M. Kavin found to be highly sincere, committed, hard working, progressive and professional towards ~~her~~/his work and is capable of discharging ~~her~~/his duties in a similar capacity and ~~her~~/his conduct was found to be good during ~~her~~/his period of Internship/~~In-plant~~ Training.

We wish M. Kavin success in ~~her~~/his future endeavors in ~~her~~/his career.

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Date : 25.02.2022

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This is to certify that S. Nirmalraj Reg.No: 731220104019 in BE (CSE) II year student of JKK Munirajah College of Technology, Gobi has completed the Internship/~~In-plant~~ Training under the Web Development in Durga Tech from 21.2.22 to 25.2.22

During this Internship/~~In-plant~~ Training S. Nirmalraj found to be highly sincere, committed, hard working, progressive and professional towards ~~her~~/his work and is capable of discharging ~~her~~/his duties in a similar capacity and ~~her~~/his conduct was found to be good during ~~her~~/his period of Internship/~~In-plant~~ Training.

We wish S. Nirmalraj success in ~~her~~/his future endeavors in ~~her~~/his career.

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Since 2009

Date : 25.02.2022

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This is to certify that S. Ramya Reg.No: 731220104021 in BE(CSE) II year student of JKKMunirajah College of Technology, Gobi has completed the Internship/~~In-plant~~ Training under the Web Development in Durga Tech from 21.2.22 to 25.2.22

During this Internship/~~In-plant~~ Training S. Ramya found to be highly sincere, committed, hard working, progressive and professional towards her/~~his~~ work and is capable of discharging her/~~his~~ duties in a similar capacity and her/~~his~~ conduct was found to be good during her/~~his~~ period of Internship/~~In-plant~~ Training.

We wish S. Ramya success in her/~~his~~ future endeavors in her/~~his~~ career.

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Ph : 99449 16107

Since 2009

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Research & Development

Date : 25.02.2022

This is to certify that R. Rohith Reg:No: 731220104022 in BE(CSE) II year student of JKK Munirajah College of Technology, Gobi has completed the Internship/~~In-plant~~ Training under the Web Development in Durga Tech from 21.2.22 to 25.2.22

During this Internship/~~In-plant~~ Training R. Rohith found to be highly sincere, committed, hard working, progressive and professional towards ~~her~~/his work and is capable of discharging ~~her~~/his duties in a similar capacity and ~~her~~/his conduct was found to be good during ~~her~~/his period of Internship/~~In-plant~~ Training.

We wish R. Rohith success in ~~her~~/his future endeavors in ~~her~~/his career.

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Date : 25.02.2022

This is to certify that I. Roshma Reg.No: 731220104023 in BE (CSE) II year student of JKK Munirajah College of Technology, Gobi has completed the Internship/~~In-plant~~ Training under the Web Development in Durga Tech from 21.2.22 to 25.2.22

During this Internship/~~In-plant~~ Training I. Roshma found to be highly sincere, committed, hard working, progressive and professional towards her/~~his~~ work and is capable of discharging her/~~his~~ duties in a similar capacity and her/~~his~~ conduct was found to be good during her/~~his~~ period of Internship/~~In-plant~~ Training.

We wish I. Roshma success in her/~~his~~ future endeavors in her/~~his~~ career.

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Research & Development

Date : 25.02.2022

This is to certify that B. Thenmozhi Reg.No: 731220104026 in BE(CSE) II year student of JkkMunirajah College of Technology, Gobi has completed the Internship/~~In-plant~~ Training under the Web Development in Durga Tech from 21.2.22 to 25.2.22

During this Internship/~~In-plant~~ Training B. Thenmozhi found to be highly sincere, committed, hard working, progressive and professional towards her/~~his~~ work and is capable of discharging her/~~his~~ duties in a similar capacity and her/~~his~~ conduct was found to be good during her/~~his~~ period of Internship/~~In-plant~~ Training.

We wish B. Thenmozhi success in her/~~his~~ future endeavors in her/~~his~~ career.

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OF TECHNOLOGY
T.N. PALAYAM (Po)-638 506.
GOBI (Tk), ERODE (Dt).

Regards

For Durga Tech
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Thanking You

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Ph : 99449 16107

Since 2009

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Research & Development

Date : 25.02.2022

This is to certify that T. Vinisha Reg.No: 731220104029 in BE (CSE) II year student of JKK Munirajah College of Technology, Gobi has completed the Internship/~~In-plant~~ Training under the Web Development in Durga Tech from 21.2.22 to 25.2.22

During this Internship/~~In-plant~~ Training T. Vinisha found to be highly sincere, committed, hard working, progressive and professional towards her/~~his~~ work and is capable of discharging her/~~his~~ duties in a similar capacity and her/~~his~~ conduct was found to be good during her/~~his~~ period of Internship/~~In-plant~~ Training.

We wish T. Vinisha success in her/~~his~~ future endeavors in her/~~his~~ career.

PRINCIPAL
JKK MUNIRAJAH COLLEGE
OF TECHNOLOGY
T.N. PALAYAM (Po)-638 506.
GOBI (Tk), ERODE (Dt).

Thanking You

Regards,
For Durga Tech

www.durgatech.org
info.durgatech@gmail.com

109, MR Complex, Nehru Street, Ram Nagar,
Gandhipuram, Coimbatore - 641009.
Ph : 99449 16107

Since 2009

Durga Tech
Research & Development

Date : 25.02.2022

This is to certify that A. Vinitha Reg.No: 731220104030 in BE(CSE) II year student of JKKMunirajah College of Technology, Gobi has completed the Internship/~~In-plant~~ Training under the Web Development in Durga Tech from 21.2.22 to 25.2.22

During this Internship/~~In-plant~~ Training A. Vinitha found to be highly sincere, committed, hard working, progressive and professional towards her/~~his~~ work and is capable of discharging her/~~his~~ duties in a similar capacity and her/~~his~~ conduct was found to be good during her/~~his~~ period of Internship/~~In-plant~~ Training.

We wish A. Vinitha success in her/~~his~~ future endeavors in her/~~his~~ career.

PRINCIPAL
JKK MUNIRAJAH COLLEGE
OF TECHNOLOGY
T.N. PALAYAM (Po)-638 506.
GOBI (Tk), ERODE (Dt).

Regards

For Durga Tech

Thanking You

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J.K.K. MUNIRAJAH COLLEGE OF TECHNOLOGY

Approved by AICTE, New Delhi And Affiliated to Anna University, Chennai.

T.N. Palayam (Po), Gobi (Tk), Erode (Dt) – 638 506

INTERNSHIP DETAILS 2021-22

SI.NO	REGISTER NUMBER	STUDENT NAME	NAME OF THE COMPANY	LOCATION	DATE
1	731220104007	DHARANISELVI.M	LITZ TECH	COIMBATORE	21.02.2022 to 25.02.2022
2	731220104015	MAGESH.S			
3	731220104024	SIVALINGAM.K			
4	731220104025	SUNDARAGANESAN.K			
5	731220104028	VIGNESH.M			
6	731220104302	DHAMODARAN.G			

PRINCIPAL
JKK MUNIRAJAH COLLEGE
OF TECHNOLOGY
T.N. PALAYAM (Po)-638 506.
GOBI (Tk), ERODE (Dt).

Gmail

Internship
1message

TUE 15 Feb 2022 at 2.00pm

From: HODCSE<hodcse@jkkmct.edu.in>
Date: TUE 15 Feb 2022 at 2.00pm
Subject:Internship -reg
To: LITZTECH<karthik21@litztech.com>

Dear Sir,

I am requesting to be joining your **LITZ TECH**.The requirements are exactly what I have prepared for and hoped to do. I feel confident that I can make a significant contribution to your organization while at the same time learning from your staff.

Additionally, I shall complete all insurance forms for the new intern orientation. I look forward to working with you and your fine team. I appreciate your confidence in me and providing the chance to work with and observe your outstanding staff.

Refer the following student **M.DHARANISELVI, MAGESH.S SIVALINGAM.K, SUNDARAGANESAN.K, VIGNESH.M, DHAMODARAN.G**

Sincerely,

2 ndYear CSE Student,
J K K Munirajah College of Technology,
T.N.Palayam,Erode-638506,Tamilnadu.

PRINCIPAL
JKK MUNIRAJAH COLLEGE
OF TECHNOLOGY
T.N. PALAYAM (Po)-638 506.
GOBI (Tk), ERODE (Dt).

Gmail

Internship
1message

WED 16 Feb2022 at 3.30pm

From: LITZTECH<karthik21@litztech.com>
Date: WED 16 Feb2022 at 3.30pm
Subject:Internship-reg
To: HODCSE<hodcse@jkkmct.edu.in>

Dear **Sir,**

I am writing to confirm my acceptance of your internship offer of 21.02.2022 to 25.02.2022 and to tell you how to be joining my **LITZ TECH**. The requirements are exactly what I have prepared for and hoped to do.I feel confident that I can make a significant contribution to your organization while at the same time learning from my staff.

As we discussed, I will report at 8:00 a.m. on FEBRUARY 21.02.2022 and will be ready to take on my first assignment as an intern from my company. Additionally, I shall complete all insurance forms for the new intern orientation. I look forward to working with you and your fine team. I appreciate your confidence in me and providing the chance to work with and observe my outstanding staff.

Refer the student **M.DHARANISELVI, MAGESH.S SIVALINGAM.K, SUNDARAGANESAN.K, VIGNESH.M, DHAMODARAN.G M.DHARANISELVI**

PRINCIPAL
JKK MUNIRAJAH COLLEGE
OF TECHNOLOGY
T.N. PALAYAM (Po)-638 506.
GOBI (Tk), ERODE (Dt).

Sincerely,

HRManager,
Litz Tech,
Coimbatore.

LITZ TECH

Certificate of Training and Instruction

This is to certify that **DHARANI SELVI M (731220104007)** a student Of **"J.K.K.MUNIRAJAH COLLEGE OF TECHNOLOGY"** has successfully completed her

INTERNSHIP PROGRAM in ANDROID APP DEVELOPMENT

at our Concern from 21.02.2022 to 25.02.2022

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OF TECHNOLOGY
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GOBI (Tk), ERODE (Dt).

LITZ TECH INDIA PVT LTD

Authorized Signatory

No 4, Arangasamy Nagar, Sitra, Civil Aerodrome(po),Coimbatore - 641014

www.litztech.in i coimbatore@liztech.in i Tei : 0422 4382930

LITZ TECH

Certificate of Training and Instruction

This is to certify that **MAGESH S (731220104015)** a student

Of **"J.K.K.MUNIRAJAH COLLEGE OF TECHNOLOGY"**

has successfully completed her

INTERNSHIP PROGRAM in **ANDROID APP DEVELOPMENT**

at our Concern from 21.02.2022 to 25.02.2022

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OF TECHNOLOGY
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GOBI (Tk), ERODE (Dt).

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LITZ TECH

Certificate of Training and Instruction

This is to certify that **SUNDARAGANESAN K (731220104025)** a student

Of **"J.K.K.MUNIRAJAH COLLEGE OF TECHNOLOGY"**

has successfully completed her

INTERNSHIP PROGRAM in ANDROID APP DEVELOPMENT

at our Concern from 21.02.2022 to 25.02.2022

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LITZ TECH

Certificate of Training and Instruction

This is to certify that **SIVALINGAM K (731220104024)** a student

Of **"J.K.K.MUNIRAJAH COLLEGE OF TECHNOLOGY"**

has successfully completed her

INTERNSHIP PROGRAM in **ANDROID APP DEVELOPMENT**

at our Concern from 21.02.2022 to 25.02.2022

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www.litztech.in i coimbatore@liztech.in i Tei : 0422 4382930

LITZ TECH

Certificate of Training and Instruction

This is to certify that **VIGNESH M (731220104028)** a student

Of **"J.K.K.MUNIRAJAH COLLEGE OF TECHNOLOGY"**

has successfully completed her

INTERNSHIP PROGRAM in ANDROID APP DEVELOPMENT

at our Concern from 21.02.2022 to 25.02.2022

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LITZ TECH

Certificate of Training and Instruction

This is to certify that **DHAMODARAN G (731220104302)** a student

Of **"J.K.K.MUNIRAJAH COLLEGE OF TECHNOLOGY"**

has successfully completed her

INTERNSHIP PROGRAM in ANDROID APP DEVELOPMENT

at our Concern from 21.02.2022 to 25.02.2022

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