



Indra Ganesan

COLLEGE OF ENGINEERING

Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai
Accredited by NAAC with 'B+' Grade, 2(f) & 12B Status Institution by UGC

IG Valley, Madurai Main Road, Manikandam, Tiruchirappalli - 620012

NAAC DOCUMENTS

QUALITY INDICATOR FRAME WORK

CRITERION – 1

CURRICULAR ASPECTS

SUBMITTED BY

IQAC

INTERNAL QUALITY ASSURANCE CELL

INDRA GANESAN COLLEGE OF ENGINEERING





Indra Ganesan

COLLEGE OF ENGINEERING

Madurai Main Road (NH-45B), Manikandam, Tiruchirappalli - 620 012
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai
NAAC Accredited, 2(F) Status Institution by UGC



Criteria 1	Curricular Aspects	100
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1.1 Curricular Planning and Implementation (20)

1.1.1 The Institution ensures effective curriculum planning and delivery through a well-planned and documented process including Academic calendar and conduct of continuous internal Assessment

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INDRA GANESAN COLLEGE OF ENGINEERING

IG Valley, Manikandam, Tiruchirappalli, Tamil Nadu – 620 012, India
(Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai-25)

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

PREFACE OF THE COURSE FILE

Batch : 2021-2023

Academic Year : 2021-2022/ ODD

Program : COMPUTER SCIENCE AND ENGINEERING

Year & Semester : 1ST Year / 1ST Semester

Course Code : CP4152 NBA Course Code: C104

Name of the Course : DATABASE PRACTICES

Faculty in-charge : Mr.C.JEGATHEESAN


Signature of the Faculty in-charge


HOD / CSE


Dr. G. Balakrishnan, M.E., Ph.D.,
Principal
Indra Ganesan College of Engineering
IG Valley, Madurai Main Road
Manikandam, Trichy-620 012.

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

REVIEW OF COURSE FILE

(to be pasted on the inner side of the file-backside).(#-State Yes/No.)

S.N	Details	Date:	R-I-*	R-II-*&	R-III-*&	R-IV-*&§	R-V-*&§@
1.	Preface of the course file		✓				
2.	Vision, Mission, PEOs, POs, PSOs, Blooms taxonomy		✓				
3.	Subject handlers of yesteryears		✓				
4.	Timetable/Workload of the staff – Distribution of teaching load – Roles and Responsibilities		✓				
5.	Syllabus signed by staff & HoD		✓				
6.	Lecture Schedule signed by staff & HoD		✓				
7.	Course Committee meeting circular and minutes		✓				
8.	Identification of Curricular gap and Content Beyond the syllabus		✓				
9.	Self-study topics		✓				
10.	Previous AU Question papers		✓				
11.	Unit wise Q&A and Objective type questions		✓				
12.	Unit wise course material		✓				
13.	Assignment question paper with sample answer sheets and mark entry			✓	✓	✓	
14.	Tutorial question paper with key and mark entry			✓	✓	✓	
15.	Class test/IA test Q Paper with Key, sample answer papers and mark entry			✓	✓	✓	
16.	IA Test- result analysis-CAP-evidence-root cause analysis.			✓	✓	✓	
17.	Retest –Q paper-Attendance-marks			✓	✓	✓	
18.	AU Web portal entry sheet			✓	✓	✓	
19.	Very poor performance in first two tests-action taken.-communication to parents-evidence				✓	✓	
20.	Absence for two tests-action taken-communication to parents-evidence.				✓	✓	
21.	Indiscipline of student reported, if any					✓	
22.	Special class/coaching class/remedial class/attendance-CAP			✓	✓	✓	
23.	Conduct of Seminar, Quizzes - proof						✓
24.	Content beyond the syllabus - proof						✓
25.	Student feedback on faculty						✓
26.	Course end survey						✓
27.	Internal Assessment sheet						✓
28.	AU question paper with students feedback						✓
29.	Discrepancy of the question paper and correspondence, if any						✓
30.	AU result analysis-Details of arrear students.						✓
31.	AU grade sheet						✓
32.	CO – PO & PSO attainment sheet						✓
	Signature of Course handling faculty		C. Jan	C. Jan	C. Jan	C. Jan	C. Jan
	Signature of HoD		D. Hudd	D. Hudd	D. Hudd	D. Hudd	D. Hudd

Dr. G. Balakrishnan, M.E., Ph.D.,
Principal

Indra Ganesan College of Engineering
IG Valley, Madurai Main Road
Manikandam, Trichy-620 012.

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Faculty Time Table

MR.C.JEGATHEESAN/AP/CSE								
Day Order	1	2	3	4	5	6	7	8
I			DP					
II	DP			DP				
III	DP							
IV		DP						
V	DP					DPLAB	DPLAB	
TOTAL - 6 hours								
S.Code	Title			Year / Branch		Hours		
CP4152	DATABASE PRACTICES			I / CSE A		6		


Signature of the Faculty In-charge


Dr. G. Balakrishnan, M.E., Ph.D.,
Principal
Indra Ganesan College of Engineering
IG Valley, Madurai Main Road
Manikandam, Trichy-620 012.


HOD / CSE

COURSE OBJECTIVES

- Describe the fundamental elements of relational database management systems
- Explain the basic concepts of relational data model, entity-relationship model, relational database design, relational algebra and SQL.
- Understand query processing in a distributed database system
- Understand the basics of XML and create well-formed and valid XML documents.
- Distinguish the different types of NoSQL databases.

UNIT I RELATIONAL DATA MODEL

15

Entity Relationship Model – Relational Data Model – Mapping Entity Relationship Model to Relational Model – Relational Algebra – Structured Query Language – Database Normalization.

UNIT II DISTRIBUTED DATABASES, ACTIVE DATABASES AND OPEN DATABASE CONNECTIVITY 15

Distributed Database Architecture – Distributed Data Storage – Distributed Transactions – Distributed Query Processing – Distributed Transaction Management – Event Condition Action Model – Design and Implementation Issues for Active Databases – Open Database Connectivity.

UNIT III XML DATABASES

15

Structured, Semi structured, and Unstructured Data – XML Hierarchical Data Model – XML Documents – Document Type Definition – XML Schema – XML Documents and Databases – XML Querying – XPath – XQuery.

UNIT IV NOSQL DATABASES AND BIG DATA STORAGE SYSTEMS

15

NoSQL – Categories of NoSQL Systems – CAP Theorem – Document-Based NoSQL Systems and MongoDB – MongoDB Data Model – MongoDB Distributed Systems Characteristics – NoSQL Key-Value Stores – DynamoDB Overview – Voldemort Key-Value Distributed Data Store – Wide Column NoSQL Systems – Hbase Data Model – Hbase Crud Operations – Hbase Storage and Distributed System Concepts – NoSQL Graph Databases and Neo4j – Cypher Query Language of Neo4j – Big Data – MapReduce – Hadoop – YARN.

UNIT V DATABASE SECURITY

15

Database Security Issues – Discretionary Access Control Based on Granting and Revoking Privileges – Mandatory Access Control and Role-Based Access Control for Multilevel Security – SQL Injection – Statistical Database Security – Flow Control – Encryption and Public Key Infrastructures – Preserving Data Privacy – Challenges to Maintaining Database Security – Database Survivability – Oracle Label-Based Security.

TOTAL : 75 PERIODS

COURSE OUTCOMES

At the end of the course, the students will be able to

- CO1: Convert the ER-model to relational tables, populate relational databases and formulate SQL queries on data.
 CO2: Understand and write well-formed XML documents
 CO3: Be able to apply methods and techniques for distributed query processing.
 CO4: Design and Implement secure database systems.
 CO5: Use the data control, definition, and manipulation languages of the NoSQL databases

REFERENCES:

1. R. Elmasri, S.B. Navathe, "Fundamentals of Database Systems", Seventh Edition, Pearson Education 2016.
2. Henry F. Korth, Abraham Silberschatz, S. Sudharshan, "Database System Concepts", Seventh Edition, McGraw Hill, 2019.
3. C.J.Date, A.Kannan, S.Swamynathan, "An Introduction to Database Systems, Eighth Edition, Pearson Education, 2006


Signature of the Faculty In-charge


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Indra Ganesan College of Engineering
IG Valley, Madurai Main Road
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HOD / CSE

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Lecture Schedule

Degree/Program: M.E / CSE

Duration: SEP2021-JAN2022

Course code & Name: CP4152 DATABASE PRACTICES

Semester: I Section: A Faculty :C.JEGATHEESAN

AIM:

To Select the usage of algorithms in computing To learn and use hierarchical data structures and its operations.

OBJECTIVES:

To impart knowledge on

- (i) Describe the fundamental elements of relational database management systems.
- (ii) Explain the basic concepts of relational data model, entity-relationship model, relational database design, relational algebra and SQL.
- (iii) Design query processing in a distributed database system and Distinguish the different types of NoSQL databases
- (iv) The basics of XML and create well-formed and valid XML documents
- (v) Explain different models involved in database security and their applications in real time world to protect the database and information associated with them.

PREREQUISITES: DATABASE MANAGEMENT SYSTEM , DATASTRUCTURE.

COURSE OUTCOMES:

After the course, the student should be able to:


CO	Course Outcomes	POs	PSOs
C104.1	Convert the ER-model to relational tables, populate relational database and formulate SQL queries on data	1,2,3,4	1,2
C104.2	Implement to write well-formed XML documents	1,2,3,4	1,2
C104.3	To apply methods and techniques for distributed query processing	1,2,3,4	1,2
C104.4	Design and Implement secure database systems.	1,2,3,4	1,2
C104.5	Use the data control, definition, and manipulation languages of the NoSQL databases	1,2,3,4	1,2
C104.6	Explain different models involved in database security and their applications	1,2,3,4	1,2


Dr. G. Balakrishnan, M.E., Ph.D.,


Principal

Indra Ganesan College of Engineering
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S.No	Date	Period	Topics to be Covered	Book & Page. No.
UNIT -I - RELATIONAL DATA MODEL				
				Target periods :15
1	5.9.21	3	Entity Relationship Model	R1
2	6.9.21	4		R1
3	7.9.21	1	Relational Data Model	R1
4	8.9.21	2		R1
5	9.9.21	1	Mapping Entity Relationship Model to Relational Model	R1
6	10.9.21	5		R1
7	12.9.21	3	Relational Algebra	R1
8	13.9.21	4		R1
9	14.9.21	1	Structured Query Language	R1
10	15.9.21	2		R1
11	16.9.21	1	Database Normalization	R1
12	17.9.21	5		R1
13	19.9.21	3	Data definition language	R1
14	20.9.21	1	Data manipulation language	R1
15	21.9.21	1	Transaction control languages	R1
UNIT II - DISTRIBUTED DATABASES, ACTIVE DATABASES AND OPEN DATABASE CONNECTIVITY				
				Target periods :15
16	22.9.21	2	Distributed Database Architecture	R1
17	23.9.21	1		R1
18	26.9.21	3	Distributed Data Storage	R1
19	27.9.21	4		R1
20	28.9.21	1	Distributed Transactions	R1
21	29.9.21	2		R1
22	30.9.21	1	Distributed Query Processing	R1
23	1.10.21	5		R1
24	3.10.21	3	Distributed Transaction Management	R1
25	4.10.21	4		R1
26	5.10.21	1	Event Condition Action Model	R1
27	6.10.21	2		R1
28	7.10.21	1	Design and Implementation Issues for Active Databases	R1
29	8.10.21	5		R1
30	10.10.21	3	Open Database Connectivity	R1
UNIT III - XML DATABASES				
				Target Periods :15
31	11.10.21	4	Structured	R1
32	12.10.21	1		R1
33	13.10.21	2	Semi structured, and Unstructured Data	R1
34	14.10.21	1		R1
35	17.10.21	3	XML Hierarchical Data Model	R1
36	18.10.21	4		R1


Dr. G. Balakrishnan, M.E., Ph.D.,
 Principal
 Indra Ganesan College of Engineering
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37	19.10.21	1	XML Documents	R1
38	20.10.21	2		
39	21.10.21	1	Document Type Definition	R1
40	24.10.21	3		
41	28.10.21	4	XML Schema	R1
42	31.10.21	1	XML Documents and Databases	R1
43	1.11.21	2	XML Querying	R1
44	2.11.21	1	XPath	R1
45	3.11.21	3	XQuery	R1
UNIT IV - NOSQL DATABASES AND BIG DATA STORAGE SYSTEMS				
				Target Periods :15
46	4.11.21	4	NoSQL, Categories of NoSQL Systems	R1
47	5.11.21	1	CAP Theorem , Document-Based NoSQL Systems and MongoDB –	R1
48	8.11.21	2		
49	9.11.21	1	MongoDB Data Model, MongoDB Distributed Systems Characteristics	R1
50	10.11.21	3		
51	11.11.21	4	NoSQL Key-Value Stores ,DynamoDB Overview	R1
52	12.11.21	1		
53	15.11.21	2	Voldemort Key-Value Distributed Data Store ,Wide Column NoSQL Systems	R1
54	16.11.21	1		
55	17.11.21	3	Hbase Data Model ,Hbase Crud Operations	R1
56	18.11.21	4	Hbase Storage and Distributed System Concepts	R1
57	19.11.21	1	NoSQL Graph Databases and Neo4j	R1
58	22.11.21	2	Cypher Query Language of Neo4j	R1
59	23.11.21	1	Big Data ,MapReduce	R1
60	24.11.21	3	Hadoop ,YARN	R1
UNIT V - DATABASE SECURITY				
				Target Periods:15
61	25.11.21	4	Database Security Issues	R1
62	26.11.21	1	Discretionary Access Control Based on Granting and Revoking Privileges	R1
63	29.11.21	2		
64	30.11.21	1	Mandatory Access Control and Role	R1
65	1.12.21	3	Based Access Control for Multilevel Security	R1
66	2.12.21	4	SQL Injection	R1
67	6.12.21	1	Statistical Database Security	R1
68	7.12.21	2	Flow Control	R1
69	8.12.21	1	Encryption and Public Key Infrastructures	R1
70	9.12.21	3	Preserving Data Privacy	R1
71	10.12.21	4	Challenges to Maintaining Database Security	R1
72	13.12.21	1		
73	14.12.21	2	Database Survivability	R1
74	15.12.21	1	Oracle Label-Based Security.	R1
Content Beyond the Syllabus				
75	06.12.21	3	Xml QUERYING	Material


Dr. G. Balakrishnan, M.E., Ph.D.,
 Principal
 Indra Ganesan College of Engineering
 IG Valley, Madurai Main Road
 Manikandam, Trichy-620 012.


BOOK REFERENCE

	Title of the Book	Author	Publisher	Year
1.	Fundamentals of Database Systems	R. Elmasri, S.B. Navathe	Pearson Education	2016
2.	Database System Concepts	Henry F. Korth, Abraham Silberschatz, S. Sudharshan	McGraw Hill	2019
3.	An Introduction to Database Systems	C.J.Date, A.Kannan, S.Swamynathan	Pearson Education	2006
4	Database Management Systems	Raghu Ramakrishna Johannes Gehrke	McGraw Hill Education	2015
5	Next Generation Databases, NoSQL and Big Data	Harrison, Guy	Apress publishers	2015

Website Refere ce:

<http://nptel.iitm.ac.in/courses.php?branch=computer>
www.freebookspt.com


Signature of the Faculty in-charge


HoD / CSE



Dr. G. Balakrishnan, M.E., Ph.D.,
Principal
Indra Ganesan College of Engineering
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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Identification of Curricular Gap & Content Beyond Syllabus(CBS)

Name of the Faculty : MR.C.JEGATHEESAN Course Code & Name:CP4152 Database practices

Degree & Program: M.E/CSE Semester & Section: I / A Academic Year: 2021 -2023 /ODD

I. Mapping of Course Outcomes with POs & PSOs.(before CBS)

Table.1 Mapping of COs, C, PSOs with POs - before CBS.

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C214.1	2	2	1	1	3	3	1	3	-	1	-	3	-	2
C214.2	2	2	1	1	*3	3	2	3	-	1	-	3	-	3
C214.3	2	2	1	1	-	3	1	3	-	1	-	3	-	3
C214.4	2	2	1	1	3	3	1	3	-	1	-	3	-	2
C214.5	2	2	1	1	*3	3	1	3	-	1	-	3	-	3
C214.6	2	2	1	1	1	3	1	3	-	1	-	3	-	3
C214	2	2	1	1	-	3	1	3	-	1	-	3	-	3

II. Identification of content beyond syllabus.

Table.2 Identification of content beyond syllabus

Details of Content Beyond Syllabus(CBS) added	POs strengthened/ vacant filled	CO/Unit
DDL statement in RDBMS	PO5(2) Vacant filled	C214.5 & C214.6/ IV & V

III. Mapping of Course Outcomes with POs & PSOs. (After CBS)

Table.3 Mapping of COs, C, PSOs with POs- after CBS.

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C214.1	2	2	1	1	3	3	1	3	-	1	-	3	-	2
C214.2	2	2	1	1	*3	3	2	3	-	1	-	3	-	3
C214.3	2	2	1	1	-	3	1	3	-	1	-	3	-	3
C214.4	2	2	1	1	3	3	1	3	-	1	-	3	-	2
C214.5	2	2	1	1	*3	3	1	3	-	1	-	3	-	3
C214.6	2	2	1	1	1	3	1	3	-	1	-	3	-	3
C214	2	2	1	1	-	3	1	3	-	1	-	3	-	3

C. Jeganathan
Signature of the Faculty

Dr. G. Balakrishnan, M.E., Ph.D.,
Principal

Indra Ganesan College of Engineering
IG Valley, Madurai Main Road
Manikandam, Trichy-620 012.

P. Vaidyanathan
HoD/CSE

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

CBS-PROOF

ACADEMIC YEAR: 2021-2022(ODD)

SEM: 04

REGULATION: 2021

PROGRAM: CSE

Name of the Faculty: C. JEGATHESAN


TOPIC: DDL STATEMENT IN RDBMS

The screenshot shows a presentation slide with the following content:

Schema:

- Logical structure of the database.
- Doesn't show the data in database.
- Classification:
 1. Physical
 2. Conceptual
 3. External

The diagram illustrates the relationship between these three levels of schema and a database. It shows three boxes labeled 'Physical', 'Conceptual', and 'External' on the left, each with an arrow pointing to a central box labeled 'Database'. The 'Physical' box is connected to the 'Conceptual' box, and the 'Conceptual' box is connected to the 'External' box. The 'Database' box is connected to a cylinder icon representing a database.


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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING


Assignment Question Paper

Assignment – 01		Date of Issue:	14.10.2021	Marks	10
Course code	CP4152	Course Title	DATABASE PRACTICES		
Year	I	Semester/Section	I / A	Date of Submission:	22.10.2021

Q.No	Questions	CO
1	What is distributed transaction with suitable examples?	C214.1
2	Elaborate the XML hierarchical data model with an example?	C214.1


Name and Signature of the Faculty Incharge


HoD/CSE


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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Assignment Answer Sheet

Name of the Student: P. Vinita Devi

AU Register Number: 811221405002

Assignment – 01		Date of Issue:	14/10/21	Marks	10
Course code	CP4152	Course Title	Database Practices		
Year	1	Semester/Section	I / A	Date of Submission:	22.10.21

Q.No	Questions	CO
1	What is distributed transaction with eg	C214.1
2	Elaborate the xmc hierarchical data model	C214.1

Mark Allocation

Rubrics	Marks Allocated	Marks obtained
Content Quality	6	5
Presentation Quality	2	2
Timely submission	2	1
Total marks	10	8

Name and Signature of the Faculty Incharge

C. Tamil

D. K. Reddy
HoD/CSE

(Signature)
Dr. G. Balakrishnan, M.E., Ph.D.,
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Indra Ganesan College of Engineering
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IQAC Academic Audit Form

ACADEMIC YEAR: 2021-2022 ODD SEMESTER

Name of Department : CSE Year / Sem / Sec : I / I No. of Students Registered : 2
Details of Examination : IA Test -1

S.No.	Course Code	List of Reg.No Verified	Course Log Book Verified (Y/N)	Course File Verified (Y/N)	No of students Attended	No of Absentees	No of Failures	Pass %	Remarks
1	CP4152	811221405001 811221405002	Y	Y	2	-	-	92%	-
2	RM4151	811221405001 811221405002	Y	Y	2	-	-	90%	-
3	CP4151	811221405001 811221405002	Y	Y	2	-	-	90%	-
4	MA4151	811221405001 811221405002	Y	Y	2	-	-	89%	-
5	CP4153	811221405001 811221405002	Y	Y	2	-	-	95%	-
6	CP4154	811221405001 811221405002							

Verified by

External Member Name and Signature:

[Signature]

Internal Member Name and Signature:

[Signature]

Overall Remarks:

[Signature]
HoD/ CSE

[Signature]
IQAC Coordinator

[Signature]
Principal

Dr. G. Balakrishnan, M.E., Ph.D.,
Principal
Indra Ganesan College of Engineering
IG Valley, Madurai Main Road
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STUDENT FEEDBACK ON FACULTY THEORY COURSE

ACADEMIC YEAR: 2021-2022 ODD SEMESTER

Name of Department : CSE Year / Sem: 1 / II Faculty Name C. Jeganathan

Subject Code & Name CP4152 - Database Practices

S.No.	QUESTIONS	Excellent	Very Good	good	Satisfactory	Somewhat Satisfactory	Not Satisfactory
		5	4	3	2	1	0
1.	Delivery of Lectures by Interactive Communication	✓					
2.	Use of Teaching Aids and ICT		✓				
3.	Level of Preparedness & Knowledge Level	✓					
4.	Involvement in mentoring and guiding	✓					
5.	Effective Time management	✓					
6.	Is the teacher completing syllabus as per lecture schedule?	✓					
7.	Is the teacher distributing answer scripts of students as per schedule?	✓					
8.	Is the teacher addressing grievances on answer scripts of IA while distributing?	✓					
9.	Is the teacher covering content beyond syllabus (CBS)?	✓					
10.	Is the teacher punctual to class?	✓					

A. Sudd
HoD/ CSE

[Signature]
IQAC Coordinator

[Signature]
Principal

Dr. G. Balakrishnan, M.E., Ph.D.,


Principal

Indra Ganesan College of Engineering


IG Valley, Madurai Main Road


Manikandam, Trichy-620 012.


Register Number: [] [] [] [] [] [] [] [] [] [] [] [] [] [] [] [] [] [] [] [] [] []

		INDRA GANESAN COLLEGE OF ENGINEERING IG Valley, Manikandam, Tiruchirappalli, Tamil Nadu – 620 012, India (Approved by AICTE, New Delhi and affiliated to Anna University, Chennai)			
Internal Assessment Exam - I		Date/Session	24.10.21/FN	Marks	50
Course code	CP4152	Course Title	DATABASE PRACTICES		
Regulation	2021	Duration	90 minutes	Academic Year	2021 -2023
Year	I	Semester	I	Department	CSE
COURSE OUTCOMES					
CO1:	Design data structures and algorithms to solve computing problems				
CO2:	Choose and implement efficient data structures and apply them to solve problems				
CO3:	Design algorithms using graph structure and various string-matching algorithms to solve real-life problems.				
CO4:	Design one's own algorithm for an unknown problem.				
CO5:	To learn and use hierarchical data structures and its operation				
CO6:	Apply suitable design strategy for problem solving				

Q.No.	Question	CO	BTS
PART A (Answer all the Questions 10 x 2 = 20 Marks)			
1	What is entity relationship model with an example.	1	1
2	what is foreign key?give examples.	1	1
3	What is SQL injection	1	1
4	What is XPATH and XQUERY	1	1
5	Difference between xpath and xquery	1	1
6	What is active database	2	1
7	What is distributed transaction	2	1
8	What is xml schema	1	1
9	Write a note on access control	2	1
10	What is NOSQL	2	1
PART B (Answer all the Questions 2 x 10 = 20 Marks)			
11a	What is an active database? Elaborate the event condition action model with an example.	1	1
OR			
11b	What is XML hierarchical data model with an examples.	1	1
12a	What is XPATH and XQUERY ? Elaborate XML querying using Xpath and X query with an example.	1	1
OR			
12b	What is SQL injection ? give example	2	1
PART C (Answer all the Questions 1 x 10 = 10 Marks)			
13a	What is a distributed transaction ? outline disturbed query processing with an examples.	2	1
OR			
13b	What is NoSQL ? Describe the features of NOSQL DATABASE.	2	1


Course Faculty
(Name /Sign / Date)


Dr. G. Balakrishnan, M.E., Ph.D.,
Principal
Indra Ganesan College of Engineering
IG Valley, Madurai Main Road
Manikandam, Trichy-620 012.


HoD
(Name /Sign / Date)

**CP4152 –DATABASE PRACTICES
QUESTION WITH KEY INTERNAL
ASSESSMENT 1 TEST**

PART A

1. What is entity relationship model with an example.

ER model stands for an Entity-Relationship model. It is a high-level data model. This model is used to define the data elements and relationship for a specified system.

It develops a conceptual design for the database. It also develops a very simple and easy to design view of data.

2. what is foreign key?give examples

A foreign key is a column or a set of columns that references the primary key of another table. Examples of foreign key are 1234.

3. What is SQL injection

SQL injection is a code injection technique that might destroy your database.

4. What is XPATH and XQUERY

XQuery is an active programming language which is used to interact with XML data groups. **XPath** is an XML method language which is applied for node selection in XML dataset using queries. **XQuery** is case sensitive so when interacting with XML

5. Difference between xpath and xquery

XQuery is a language that is used to interact with XML datasets so its main purpose is to retrieve data that is saved in the format of XML. It was developed by World Wide Web Consortium. It can read and write the data in the database which is used in software and services integration for making analysis reports. It follows the concept of declarative programming for querying databases. It was firstly used in 2007.

XPath is basically a track declaration used in deriving results which are in the form of string or boolean values, these values are actually the location of data files that are used in computation hence it is considered as a path driven language used for interacting with XML data.

6. What is active database

An **active Database** is a **database** consisting of a set of triggers. These databases are very difficult to be maintained because of the complexity that arises in understanding the effect of these triggers

7. What is distributed transaction

A **distributed transaction** is a set of operations on data that is performed across two or more data repositories (especially databases). It is typically coordinated across separate nodes connected by a network, but may also span multiple databases on a single server

8. What is xml schema

An XML Schema describes the structure of an XML document.

The XML Schema language is also referred to as XML Schema Definition (XSD).

9. Write a note on access control

Access control is a method of limiting access to a system or to physical or virtual resources. It is a process by which users can access and are granted certain prerogative to systems, resources or information. Access control is a security technique that has control over who can view different aspects, what can be viewed and who can use resources in a computing environment. It is a fundamental concept in security that reduces risk to the business or organization.

10. What is NOSQL


Dr. G. Balakrishnan, M.E., Ph.D.,

Principal

Indra Ganesan College of Engineering
IG Valley, Madurai Main Road
Manikandam, Trichy-620 012.

NoSQL originally referring to non SQL or non relational is a database that provides a mechanism for storage and retrieval of data. This data is modeled in means other than the tabular relations used in relational databases.

PART B

11. A. What is an active database? Elaborate the event condition action model with an example

An active Database is a database consisting of a set of triggers. These databases are very difficult to be maintained because of the complexity that arises in understanding the effect of these triggers. In such database, DBMS initially verifies whether the particular trigger specified in the statement that modifies the database is activated or not, prior to executing the statement. If the trigger is active then DBMS executes the condition part and then executes the action part only if the specified condition is evaluated to true. It is possible to activate more than one trigger within a single statement. In such situation, DBMS processes each of the trigger randomly. The execution of an action part of a trigger may either activate other triggers or the same trigger that initialized this action. Such types of trigger that activates itself is called as 'recursive trigger'. The DBMS executes such chains of trigger in some pre-defined manner but it effects the concept of understanding.

Features of Active Database:

It possess all the concepts of a conventional database i.e. data modelling facilities, query language etc. It supports all the functions of a traditional database like data definition, data manipulation, storage management etc.

It supports definition and management of ECA rules.

It detects event occurrence.

It must be able to evaluate conditions and to execute actions. It means that it has to implement rule execution.

Advantages :

Enhances traditional database functionalities with powerful rule processing capabilities.

Enable a uniform and centralized description of the business rules relevant to the information system.

Avoids redundancy of checking and repair operations.

Suitable platform for building large and efficient knowledge base and expert systems.

11.B. What is XML hierarchical data model with an examples.

We now introduce the data model used in XML. The basic object in XML is the XML document. Two main structuring concepts are used to construct an XML document: **elements** and **attributes**. It is important to note that the term *attribute* in XML is not used in the same manner as is customary in database terminology, but rather as it is used in document description languages such as HTML and SGML. Attributes in XML provide additional information that describes elements, as we will see. There are additional concepts in XML, such as entities, identifiers, and references, but first we concentrate on describing elements and attributes to show the essence of the XML model.

Complex elements are constructed from other elements hierarchically, whereas **simple elements** contain data values. A major difference between XML and HTML is that XML tag names are defined to describe the meaning of the data elements in the document, rather than to describe how the


Dr. G. Balakrishnan, M.E., Ph.D.,
Principal

Indra Ganesan College of Engineering
IG Valley, Madurai Main Road
Manikandam, Trichy-620 012.

text is to be displayed. This makes it possible to process the data elements in the XML document automatically by computer programs. Also, the XML tag (element) names can be defined in another document, known as the *schema document*, to give a semantic meaning to the tag names that can be exchanged among multiple users. In HTML, all tag names are predefined and fixed; that is why they are not extendible.

12. A What is XPATH and XQUERY ? Elaborate XML querying using Xpath and X query with an example

XPath Path Expressions

XPath uses path expressions to select nodes or node-sets in an XML document. These path expressions look very much like the expressions you see when you work with a traditional computer file system.

XPath expressions can be used in JavaScript, Java, XML Schema, PHP, Python, C and C++, and lots of other languages. XPath is Used in XSLT

XPath is a major element in the XSLT standard.

With XPath knowledge you will be able to take great advantage of XSL.

XPath Example

We will use the following XML document:

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

```
<bookstore>
```

```
<book category="cooking">
  <title lang="en">Everyday Italian</title>
  <author>Giada De Laurentiis</author>
  <year>2005</year>
  <price>30.00</price>
</book>
```

```
<book category="children">
  <title lang="en">Harry Potter</title>
  <author>J K. Rowling</author>
  <year>2005</year>
  <price>29.99</price>
</book>
```

12.B

SQL injection is a technique used to extract user data by injecting web page inputs as statements through SQL commands. Basically, malicious users can use these instructions to manipulate the application's web server.

SQL injection is a code injection technique that can compromise your database.

SQL injection is one of the most common web hacking techniques.

SQL injection is the injection of malicious code into SQL statements via web page input.

The Exploitation of SQL Injection in Web Applications

Web servers communicate with database servers anytime they need to retrieve or store user data. SQL statements by the attacker are designed so that they can be executed while the web server is fetching content from the application server. It compromises the security of a web application.

Example of SQL Injection

Suppose we have an application based on student records. Any student can view only his or her own records by entering a unique and private student ID.

Query:

```
SELECT * from STUDENT
```


Dr. G. Balakrishnan, M.E., Ph.D.,

Principal

Indra Ganesan College of Engineering

IG Valley, Madurai Main Road

Manikandam, Trichy-620 012.

SELECT * from USER where
USERNAME = "" and PASSWORD=""

PART C

13 What is NoSQL ? Describe the features of NOSQL DATABASE

NoSQL is a type of database management system (DBMS) that is designed to handle and store large volumes of unstructured and semi-structured data. Unlike traditional relational databases that use tables with pre-defined schemas to store data, NoSQL databases use flexible data models that can adapt to changes in data structures and are capable of scaling horizontally to handle growing amounts of data.

The term NoSQL originally referred to "non-SQL" or "non-relational" databases, but the term has since evolved to mean "not only SQL," as NoSQL databases have expanded to include a wide range of different database architectures and data models. NoSQL databases are generally classified into four main categories:

Document databases: These databases store data as semi-structured documents, such as JSON or XML, and can be queried using document-oriented query languages.

Key-value stores: These databases store data as key-value pairs, and are optimized for simple and fast read/write operations.

Column-family stores: These databases store data as column families, which are sets of columns that are treated as a single entity. They are optimized for fast and efficient querying of large amounts of data.

Graph databases: These databases store data as nodes and edges, and are designed to handle complex relationships between data.

NoSQL databases are often used in applications where there is a high volume of data that needs to be processed and analyzed in real-time, such as social media analytics, e-commerce, and gaming. They can also be used for other applications, such as content management systems, document management, and customer relationship management.


Name and Signature of the Faculty Incharge


HoD/CSE


Dr. G. Balakrishnan, M.E., Ph.D.,
Principal
Indra Ganesan College of Engineering
IG Valley, Madurai Main Road
Manikandam, Trichy-620 012.

INDRA GANESAN COLLEGE OF ENGINEERING

IG Valley, Manikandam, Tiruchirappalli, Tamil Nadu – 622 012, India
(Approved by AICTE, New Delhi and affiliated to Anna University, Chennai)

Internal Assessment Test Answer Book

Name	P. Vinita Devi		Year/ Semester/Section	I / I
Batch No.	811221405002	Date/Session	24.10.21	Department
Course code	CP4152	Course Title	Database	
Internal Assessment Test	IAT 1 <input checked="" type="checkbox"/>	IAT 2 <input type="checkbox"/>	IAT 3 <input type="checkbox"/>	Model <input type="checkbox"/>
Name and Signature of the Invigilator with date				

Instruction to the Student: Put tick mark to the question attended in the column against question.							
Part A			Part B / Part C				Total Marks
Q. No.	✓	Marks	Q. NO.	✓	a	b	
					Marks	Marks	
1		2	11		10		10
2		2	12			10	10
3		2	13		10		10
4		1	14				
5		1	15				
6		2	16				
7		2	Total			30	
8		2	47				
9		1					
10		2					
Total		17	Grand Total			Name and Signature of the Examiner with date	

To be filled by the examiner							
Course Outcomes	1	2	3	4	5	6	Total
Marks allotted	30	20					50
Marks Obtained	30	17					47
IQAC Audit - Remarks							
						 Name and Signature of the IQAC member	

Dr. G. Balakrishnan, M.E., Ph.D.,
Principal
Indra Ganesan College of Engineering
IG Valley, Madurai Main Road
Manikandam, Trichy-620 012.



INDRA GANESAN COLLEGE OF ENGINEERING
IG VALLEY, MANIDANDAM, TIRUCHIRAPPALLI – 620 012
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
ACADEMIC YEAR 2021 – 2022 (ODD SEMESTER)
STUDENTS MARK STATEMENT- CO BASED

INTERNAL ASSESSMENT TEST-1

SUBJECT CODE & TITLE: CP4152 & Database Practices

YEAR/SEM: II/III

MONTH & YEAR: 2021 & Oct

S.NO	REG NO	STUDENT NAME	COX (32)	COX (18)	TOTAL (50)	TOTAL (100)
1.	811220405001	Madhumathi K	30	18	48	96
2.	811220405002	Vinitha Devi P	30	17	47	94

MARKS RANGE:

<20	20-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100
0	0	0	0	0	0	0	0	2

Total No.of Candidates Present	2
Total No.of Candidates Absent	0
Total No.of Students Pass	2
Total No. of Students Fail	0
Percentage of Pass	96%

C. Jeyaraj
STAFF INCHARGE

D. Reddy
HoD/CSE

Dr. G. Balakrishnan
PRINCIPAL

Dr. G. Balakrishnan
Dr. G. Balakrishnan, M.E., Ph.D.,
Principal
Indra Ganesan College of Engineering
IG Valley, Madurai Main Road
Manikandam, Trichy-620 012.