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Note : Remove “Table of Content” before including in CP Book

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## 17CSL58 : DATABASE MANAGEMENT SYSTEM LAB

### A. LABORATORY INFORMATION

#### 1. Lab Overview

<i>Degree:</i>	B.E	<i>Program:</i>	CS
<i>Semester :</i>	5	<i>Academic Year:</i>	2018-19
<i>Course Title:</i>	Database base management lab with mini project	<i>Course Code:</i>	17CSL58
<i>Credit / L-T-P:</i>	2/0-1-2	<i>SEE Duration:</i>	180 Minutes
<i>Total Contact Hours:</i>	40 Hrs	<i>SEE Marks:</i>	80 Marks
<i>CIA Marks:</i>	20	<i>Assignment</i>	1 / Module
<i>Course Plan Author:</i>		<i>Sign</i>	Dt : 03/08/18
<i>Checked By:</i>		<i>Sign</i>	Dt :

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## 2. Lab Content

Unit	Title of the Experiments	Lab Hours	Concept	Blooms Level
1	<p>Consider the following schema for a Library Database:</p> <p>BOOK(Book_id, Title, Publisher_Name, Pub_Year)</p> <p>BOOK_AUTHORS(Book_id, Author_Name)</p> <p>PUBLISHER(Name, Address, Phone)</p> <p>BOOK_COPIES(Book_id, Branch_id, No-of_Copies)</p> <p>BOOK_LENDING(Book_id, Branch_id, Card_No, Date_Out, Due_Date)</p> <p>LIBRARY_BRANCH(Branch_id, Branch_Name, Address)</p> <p>Write SQL queries to</p> <ol style="list-style-type: none"> <li>1. Retrieve details of all books in the library – id, title, name of publisher, authors, number of copies in each branch, etc.</li> <li>2. Get the particulars of borrowers who have borrowed more than 3 books, but from Jan 2017 to Jun 2017.</li> <li>3. Delete a book in BOOK table. Update the contents of other tables to reflect this data manipulation operation.</li> <li>4. Partition the BOOK table based on year of publication. Demonstrate its working with a</li> </ol>	5	Entity relationship	L5

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	<p>simple query.</p> <p>5. Create a view of all books and its number of copies that are currently available in the Library.</p>			
2	<p>Consider the following schema for Order Database:</p> <p>2</p> <p>SALESMAN(Salesman_id, Name, City, Commission)</p> <p>CUSTOMER(Customer_id, Cust_Name, City, Grade, Salesman_id)</p> <p>ORDERS(Ord_No, Purchase_Amt, Ord_Date, Customer_id, Salesman_id)</p> <p>Write SQL queries to</p> <ol style="list-style-type: none"> <li>Count the customers with grades above Bangalore's average.</li> <li>Find the name and numbers of all salesman who had more than one customer.</li> <li>List all the salesman and indicate those who have and don't have customers in their cities (Use UNION operation.)</li> <li>Create a view that finds the salesman who has the customer with the highest order of a day.</li> <li>Demonstrate the DELETE operation by removing salesman with id 1000. All his orders must also be deleted.</li> </ol>		Relation al algebra	L5
3	<p>Consider the schema for Movie Database:</p>	5	View creation	L5

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	<p>ACTOR(Act_id, Act_Name, Act_Gender)  DIRECTOR(Dir_id, Dir_Name, Dir_Phone)  MOVIES(Mov_id, Mov_Title, Mov_Year, Mov_Lang, Dir_id)  MOVIE_CAST(Act_id, Mov_id, Role)  RATING(Mov_id, Rev_Stars)  Write SQL queries to  1. List the titles of all movies directed by 'Hitchcock'.  2. Find the movie names where one or more actors acted in two or more movies.  3. List all actors who acted in a movie before 2000 and also in a movie after 2015 (use JOIN operation).  4. Find the title of movies and number of stars for each movie that has at least one rating and find the highest number of stars that movie received. Sort the result by movie title.  5. Update rating of all movies directed by 'Steven Spielberg' to 5.</p>			
4	<p>Consider the schema for College Database:  STUDENT(USN, SName, Address, Phone, Gender)  SEMSEC(SSID, Sem, Sec)  CLASS(USN, SSID)  SUBJECT(Subcode, Title, Sem, Credits)  IAMARKS(USN, Subcode, SSID, Test1, Test2, Test3, FinalIA)</p>	5	Advanced SQL queries	L5

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	<p>Write SQL queries to</p> <ol style="list-style-type: none"> <li>List all the student details studying in fourth semester 'C' section.</li> <li>Compute the total number of male and female students in each semester and in each section.</li> <li>Create a view of Test1 marks of student USN '1BI15CS101' in all subjects.</li> <li>Calculate the FinalIA (average of best two test marks) and update the corresponding table for all students.</li> <li>Categorize students based on the following criterion:            If FinalIA = 17 to 20 then CAT = 'Outstanding'            If FinalIA = 12 to 16 then CAT = 'Average'            If FinalIA &lt; 12 then CAT = 'Weak'            Give these details only for 8 th semester A, B, and C section students.</li> </ol>			
5	<p>Consider the schema for Company Database:</p> <p>EMPLOYEE(SSN, Name, Address, Sex, Salary, SuperSSN, DNo)            DEPARTMENT(DNo, DName, MgrSSN, MgrStartDate)            DLOCATION(DNo,DLoc)            PROJECT(PNo, PName, PLocation, DNo)            WORKS_ON(SSN, PNo, Hours)</p> <p>Write SQL queries to</p>	5	Stored procedure	L5

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	<p>1. Make a list of all project numbers for projects that involve an employee whose last name is ‘Scott’, either as a worker or as a manager of the department that controls the project.</p> <p>2. Show the resulting salaries if every employee working on the ‘IoT’ project is given a 10 percent raise.</p> <p>3. Find the sum of the salaries of all employees of the ‘Accounts’ department, as well as the maximum salary, the minimum salary, and the average salary in this department</p> <p>4. Retrieve the name of each employee who works on all the projects controlled by department number 5 (use NOT EXISTS operator).</p> <p>5. For each department that has more than five employees, retrieve the department number and the number of its employees who are making more than Rs. 6,00,000.</p>			
6	<p>Mini project</p> <ul style="list-style-type: none"> <li>• For any problem selected, write the ER Diagram, apply ER-mapping rules, normalize the relations, and follow the application development process.</li> <li>• Make sure that the application should have five or more tables, at least one trigger and one stored procedure, using suitable</li> </ul>	15	Database creation using front end tools.	

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frontend tool.			
• Indicative areas include; health care, education, industry, transport, supply chain, etc.			

### 3. Lab Material

Unit	Details	Available
1	Text books	
	1.Database systems Models, Languages, Design and Application Programming, RamezElmasri and Shamkant B. Navathe, 7th Edition, 2017, Pearson.	In dept
	2. Database management systems, Ramakrishnan, and Gehrke, 3 rd Edition, 2014, McGraw Hill	In dept
2	Reference books	
	1.Silberschatz Korth and Sudharshan, Database System Concepts, 6 th Edition, McGrawHill, 2013.	In dept
	2. Coronel, Morris, and Rob, Database Principles Fundamentals of Design, Implementation and Management, Cengage Learning 2012.	
3	Others (Web, Video, Simulation, Notes etc.)	
		Not Available

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#### 4. Lab Prerequisites:

SN	Course Code	Base Course: Course Name	Topic / Description	Se m	Remarks
1	15CS53	Database Management system	Knowledge on SQL queries, Advanced Sql queries, relational algebra	5	

Note: If prerequisites are not taught earlier, GAP in curriculum needs to be addressed. Include in Remarks and implement in B.5.

#### 5. General Instructions

SN	Instructions	Remarks
1	Observation book and Lab record are compulsory.	
2	Students should report to the concerned lab as per the time table.	
3	After completion of the program, certification of the concerned staff in-charge in the observation book is necessary.	
4	Student should bring a notebook of 100 pages and should enter the readings /observations into the notebook while performing the experiment.	
5	The record of observations along with the detailed experimental procedure of the experiment in the Immediate last session should be submitted and certified staff member in-charge.	

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6	Should attempt all problems / assignments given in the list session wise.	
7	It is responsibility to create a separate directory to store all the programs, so that nobody else can read or copy.	
8	When the experiment is completed, should disconnect the setup made by them, and should return all the components/instruments taken for the purpose.	
9	Any damage of the equipment or burn-out components will be viewed seriously either by putting penalty or by dismissing the total group of students from the lab for the semester/year	
10	Completed lab assignments should be submitted in the form of a Lab Record in which you have to write the algorithm, program code along with comments and output for various inputs given	

### 6. Lab Specific Instructions

SN	Specific Instructions	Remarks
0		
1	Start computer	
2	Open oracle	
3	Connect SQL user using Username and password	
4	Creating the relations for specific database	
5	Inserting the values into database	
6	Executing the queries	
7	Project: using front end as visual basic VB 6.0 or Netbeans,Eclipse,xamp server	

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## B. OBE PARAMETERS

### 1. Lab / Course Outcomes

#	COs	Teach. Hours	Concept	Instr Method	Assessment Method	Blooms' Level
17CSL58.1	Identify methodology of conceptual modeling through entity relationship for creating the tables in database.	06	Entity relationship	Demonstrate	Slip Test, viva	L5
17CSL58.2	Apply the relational model concepts and operations for optimizing queries in RDBMS	06	Relational algebra	Demonstrate	Assignment, viva	L5
17CSL58.3	Apply the views in a database schema	06	View creation	Demonstrate	Assignment and Slip Test, viva	L5
17CSL58.4	Analyze the access methods to store the data through internet application	06	Advanced SQL queries	Demonstrate	Assignment, viva	L5
17CSL58.5	Evaluate the database for given query using stored procedures	06	Stored procedure	Demonstrate	Slip test, viva	L5
17CSL58.6	Develop stand-alone or web based applications using database as backend	10	Database creation using front end tools.	Tutorial	project	L6
-	<b>Total</b>	<b>40</b>	-	-	-	-

Note: Identify a max of 2 Concepts per unit. Write 1 CO per concept.

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## 2. Lab Applications

SNo	Application Area	CO	Level
1	Usage of database in different areas like banking , e commerce, organization	CO1	L2
2	Understand and apply the concept of conceptual modeling to design a database	CO2	L3
3	Use relational model for optimizing queries	CO3	L3
4	Usage of structured query language commands in creating database tables.	CO4	L5
5	Apply the characterizing schedules for transaction processing.	CO5	L3

Note: Write 1 or 2 applications per CO.

## 3. Articulation Matrix

### (CO – PO MAPPING)

#	Course Outcomes COs	Program Outcomes												Level
		P O 1	P O 2	P O 3	P O 4	P O 5	P O 6	P O 7	P O 8	P O 9	PO 10	P O 11	PO 12	
17CSL58.1	Identify methodology of conceptual modeling through entity relationship for creating the tables in database.	3	3	3	3	3	-	-	-	3	-	3	3	L5
17CSL58.2	Apply the relational model concepts and	3	3	3	2	2	-	-	-	3	-	3	3	L5

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	operations for optimizing queries in RDBMS													
17CSL58.3	Apply the views in a database schema	3	3	3	2	2	-	-	-	3	-	3	3	L5
17CSL58.4	Analyze the access methods to store the data through internet application	3	3	3	2	3	-	-	-	2	-	3	3	L5
17CSL58.5	Evaluate the database for given query using stored procedures	3	3	3	2	3	-	-	-	2	-	3	3	L5
17CSL58.6	Develop stand-alone or web based applications using database as backend	3	3	3	3	3	-	-	-	3	-	3	3	L6
	Average													

Note: Mention the mapping strength as 1, 2, or 3

#### 4. Mapping Justification

Mapping		Mapping Level	Justification
CO1	PO1	L2	Knowledge of relational modeling concepts is required to understand different database problems.
	PO2	L4	Analyzing problem of retrieving different data based on condition requires knowledge of relational model concepts.
	PO3	L4	knowledge of optimizing queries is required to design/develop solution to complex queries of data retrieval.
	PO4	L3	Research based knowledge is required to analyze query statement and for decision making.
	PO5	L5	Knowledge of optimizing queries is required to use modern tools which handle related data like SQL.
	PO9	L6	To design/develop solution to complex database problems as an individual, knowledge of conceptual modeling is in need.

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	PO11	L6	To design/develop solution to complex database problems as a team ,knowledge of conceptual modeling is in need.
	PO12	L6	Learning in the context of technology changes
CO2	PO1	L2	Knowledge of views is required to understand different database problems.
	PO2	L4	Analyzing problem of retrieving different data based on condition requires knowledge of views.
	PO3	L3	knowledge of views is required to design/develop solution to complex queries of data retrieval.
	PO4	L3	Research based knowledge is required to analyze query statement and for decision making.
	PO5	L5	Knowledge of views is required to use modern tools which handle related data like SQL.
	PO9	L6	To design/develop solution to complex database problems as an individual,knowledge of conceptual modeling is in need.
	PO11	L6	To design/develop solution to complex database problems as a team ,knowledge of conceptual modeling is in need.
	PO12	L6	Learning in the context of technology changes
CO4	PO1	L2	Knowledge of stored procedure is required to understand different database problems in DBMS course.
	PO3	L3	Knowledge of stored procedure is required to to design/develop solution to complex queries of data retrieval.
	PO4	L3	Research based knowledge is required to analyze query statement and for decision making.
	PO5	L5	Knowledge of stored procedure is required to use modern tools which handle related data like SQL.
	PO9	L6	To design/develop solution to complex database problems as an individual,knowledge of conceptual modeling is in need.
	PO11	L6	To design/develop solution to complex database problems as a team ,knowledge of conceptual modeling is in need.
	PO12	L6	Learning in the context of technology changes
CO5	PO1	L2	Knowledge of database management system is required to understand complex database problems.
	PO2	L4	Analyzing problem of retrieving different data based on condition requires knowledge of dbms features.
	PO3	L3	knowledge of different concepts available in DBMS is required to design/develop solution to complex queries of data retrieval.
	PO4	L3	Research based knowledge is required to analyze query statement and for decision making.
	PO5	L6	The students will be able to model and design a relational database following the design principles
	PO9	L6	To design/develop solution to complex database problems as an individual,knowledge of DBMS is in need.
	PO11	L6	To design/develop solution to complex database problems as a team ,knowledge of DBMS is in need.
	PO12	L6	Learning in the context of technology changes
CO6	PO1	L2	Knowledge of stored procedure is required to understand different database problems in DBMS course.
	PO2	L4	Knowledge of stored procedure is required to to design/develop solution to complex queries of data retrieval.

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	PO3	L3	Research based knowledge is required to analyze query statement and for decision making.
	PO4	L3	The students will be able to model and design a relational database following the design principles
	PO5	L6	The students will be able to model and design a relational database following the design principles
	PO9	L6	To design/develop solution to complex database problems as an individual, knowledge of DBMS is in need.
	PO11	L6	To design/develop solution to complex database problems as a team, knowledge of DBMS is in need.
	PO12	L6	Learning in the context of technology changes

Note: Write justification for each CO-PO mapping.

#### 5. Curricular Gap and Content

SN	Gap Topic	Actions Planned	Schedule Planned	Resources Person	PO Mapping
1					
2					
3					

Note: Write Gap topics from A.4 and add others also.

#### 6. Content Beyond Syllabus

SN	Gap Topic	Actions Planned	Schedule Planned	Resources Person	PO Mapping
1					
2					
3					
4					

Note: Anything not covered above is included here.

### C. COURSE ASSESSMENT

#### 1. Course Coverage

Unit	Title	Teaching	No. of question in Exam					CO	Level
			CIA	CIA	CIA	Asg	Asg		

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		Hou	-1	-2	-3	-1	-2	-3	E		s
1	Library data base	05	1	-	-	-	-	-	1	CO1	L5
2	Order database	05	1	-	-	-	-	-	1	CO1	L5
3	Movie database	05	1	-	-	-	-	-	1	CO2	L5
4	College database	05	1	-	-	-	-	-	1	CO2	L5
5	Company database	05	1	-	-	-	-	-	1	CO3	L5
6.	Mini project	15	1							CO4	L6
-	<b>Total</b>	<b>40</b>	<b>6</b>	-	-	-	-	-	<b>80</b>	-	-

Note: Write CO based on the theory course.

## 2. Continuous Internal Assessment (CIA)

Evaluation	Weightage in Marks	CO	Levels
CIA Exam – 1	10	CO1, CO2, CO3, CO4 , CO5	L5
CIA Exam – 2	-	-	-
CIA Exam – 3	-	-	-
Assignment - 1	-	-	-
Assignment - 2	-	-	-
Assignment - 3	-	-	-
Seminar - 1	-	-	-
Seminar - 2	-	-	-
Seminar - 3	-	-	-
Mini Project	10	-	L6
<b>Final CIA Marks</b>	<b>20</b>	-	-

SN	Description	Marks
1	Observation and Weekly Laboratory Activities	04 Marks
2	Record Writing	08Marks for each Experiment
3	Internal Exam Assessment	04Marks
4	Internal Assessment	20Marks
5	SEE	80 Marks

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-	<b>Total</b>	<b>100 Marks</b>
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## D. EXPERIMENTS

### Experiment 01 : Library Database

-	Experiment No.:	1	Marks		Date Planned		Date Conducted	
1	Title	Library Management system						
2	Course Outcomes	Identify methodology of conceptual modeling through entity relationship for creating the tables in database.						
3	Aim	Design, develop, and implement the specified queries for Library database						
4	Material / Equipment Required	Lab Manual						
5	Theory, Formula, Principle, Concept	Entity relationship, primary and foreign key						
6	Procedure, Program, Activity, Algorithm, Pseudo Code	<ul style="list-style-type: none"> <li>• step 1: start</li> <li>• step 2: design an ER diagram Scheme diagram and create an appropriate tables and write a queries of the given database</li> <li>• step 3: save the database</li> <li>• step 4: execute and validate the queries</li> <li>• step 5: if error then correct the errors</li> </ul>						

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		<ul style="list-style-type: none"> <li>• step 6:run</li> <li>• step 7:stop</li> </ul>
7	Block, Circuit, Model Diagram, Reaction Equation, Expected Graph	<ul style="list-style-type: none"> <li>• -</li> <li>• -</li> <li>• -</li> </ul>
8	Observation Table, Look-up Table, Output	<ul style="list-style-type: none"> <li>• the output of the queries is retrieved from the database</li> <li>•</li> </ul>
9	Sample Calculations	<ul style="list-style-type: none"> <li>• -</li> <li>• -</li> <li>• -</li> </ul>
10	Graphs, Outputs	<ul style="list-style-type: none"> <li>• -</li> <li>• -</li> </ul>
11	Results & Analysis	<ul style="list-style-type: none"> <li>• -</li> <li>• -</li> </ul>
12	Application Areas	<ul style="list-style-type: none"> <li>• Usage of database in different areas like banking , e commerce, organization</li> </ul>
13	Remarks	
14	Faculty Signature with Date	

Experiment 02 : Ordered Database

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-	Experiment No.:	2	Marks		Date Planned		Date Conducted	
1	Title	Order database						
2	Course Outcomes	Apply the relational model concepts and operations for optimizing queries in RDBMS						
3	Aim	Queries using SQL statements						
4	Material / Equipment Required	Lab Manual						
5	Theory, Formula, Principle, Concept	Understand the SQL query statement to solve the database queires						
6	Procedure, Program, Activity, Algorithm, Pseudo Code	<ul style="list-style-type: none"> <li>• step 1: start</li> <li>• step 2: design an ER diagram Scheme diagram and create an appropriate tables and write a queries of the given database</li> <li>• step 3: save the database</li> <li>• step 4: execute and validate the queries</li> <li>• step 5: if error then correct the errors</li> <li>• step 6:run</li> <li>• step 7:stop</li> </ul>						
7	Block, Circuit, Model Diagram, Reaction							

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	Equation, Expected Graph	
8	Observation Table, Look- up Table, Output	retrieve the data from the tables based on the queries
9	Sample Calculations	
10	Graphs, Outputs	
11	Results & Analysis	
12	Application Areas	Understand and apply the concept of conceptual modeling to design a database
13	Remarks	
14	Faculty Signature with Date	

Experiment 03 : Movie Database

-	Experiment No.:	3	Marks		Date Planned		Date Conducted	
1	Title	Movie database						
2	Course Outcomes	Apply the views in a database schema						
3	Aim	Creating views in SQL						
4	Material / Equipment	Lab Manual						

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	Required	
5	Theory, Formula, Principle, Concept	Create view table to solve the database queries
6	Procedure, Program, Activity, Algorithm, Pseudo Code	<ul style="list-style-type: none"> <li>• step 1: start</li> <li>• step 2: design an ER diagram Scheme diagram and create an appropriate tables, create a view table and write a queries of the given database</li> <li>• step 3: save the database</li> <li>• step 4: execute and validate the queries</li> <li>• step 5: if error then correct the errors</li> <li>• step 6:run</li> <li>• step 7:stop</li> </ul>
7	Block, Circuit, Model Diagram, Reaction Equation, Expected Graph	
8	Observation Table, Look- up Table, Output	retrieve the data from the tables based on the queries
9	Sample	

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	Calculations	
10	Graphs, Outputs	
11	Results & Analysis	
12	Application Areas	Use relational model for optimizing queries
13	Remarks	
14	Faculty Signature with Date	

#### Experiment 04 : Movie Database

-	Experiment No.:	4	Marks		Date Planned		Date Conducted	
1	Title	Movie database						
2	Course Outcomes	Analyze the access methods to store the data through internet application						
3	Aim	Creating views in SQL and write a queries using additional relational operations.						
4	Material / Equipment Required	Lab Manual						
5	Theory, Formula, Principle, Concept	Create view table to solve the database queries using the advances SQL queries statements						

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6	Procedure, Program, Activity, Algorithm, Pseudo Code	<ul style="list-style-type: none"> <li>• step 1: start</li> <li>• step 2: design an ER diagram Scheme diagram and create an appropriate tables, create a view table and write a queries of the given database</li> <li>• step 3: save the database</li> <li>• step 4: execute and validate the queries</li> <li>• step 5: if error then correct the errors</li> <li>• step 6:run</li> <li>• step 7:stop</li> </ul>
7	Block, Circuit, Model Diagram, Reaction Equation, Expected Graph	
8	Observation Table, Look-up Table, Output	retrieve the data from the tables based on the queries
9	Sample Calculations	
10	Graphs, Outputs	
11	Results & Analysis	
12	Application	Usage of structured query language commands in creating database tables,

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Areas	views.
13 Remarks	
14 Faculty Signature with Date	

Experiment 05 : Company Database

-	Experiment No.:	5	Marks		Date Planned		Date Conducted	
1	Title	Company database						
2	Course Outcomes	Evaluate the database for given query using stored procedures						
3	Aim	Creating stored procedure						
4	Material / Equipment Required	Lab Manual						
5	Theory, Formula, Principle, Concept	Create Stored Procedure to solve the database queries						
6	Procedure, Program, Activity, Algorithm, Pseudo Code	<ul style="list-style-type: none"> <li>• step 1: start</li> <li>• step 2: design an ER diagram Scheme diagram and create an appropriate tables, write a Stored procedure and write a queries of the given database</li> <li>• step 3: save the database</li> <li>• step 4: execute and validate the queries</li> <li>• step 5: if error then correct the errors</li> <li>• step 6:run</li> <li>• step 7:stop</li> </ul>						

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7	Block, Circuit, Model Diagram, Reaction Equation, Expected Graph	
8	Observation Table, Look- up Table, Output	retrieve the data from the tables based on the queries
9	Sample Calculations	
10	Graphs, Outputs	
11	Results & Analysis	
12	Application Areas	apply the characterizing schedules for transaction processing.
13	Remarks	
14	Faculty Signature with Date	

Add required experiments

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**Experiment 06 : PART-B: Mini Project (Max. Exam Mks. 30)**

- Use Java, C#, PHP, Python, or any other similar front-end tool. All applications must be demonstrated on desktop/laptop as a stand-alone or web based application (Mobile apps on Android/IOS are not permitted.)

-	Experiment No.:	6	Marks	30	Date Planned	Date Conducted
1	Title	Mini project				
2	Course Outcomes	Develop stand-alone or web based applications using database as backend				
3	Aim	Developing the mini project				
4	Material / Equipment Required	Knowledge of DBMS and system requirement according to project.				
5	Theory, Formula, Principle, Concept	Create Stored Procedure to solve the database queries				
6	Procedure, Program, Activity, Algorithm, Pseudo Code	<ul style="list-style-type: none"> <li>• step 1: start</li> <li>• step 2: design an ER diagram Scheme diagram and create an appropriate tables, write a Stored procedure and write a queries of the given database</li> <li>• step 3: save the database</li> <li>• step 4: execute and validate the queries</li> <li>• step 5: if error then correct the errors</li> <li>• step 6:run</li> <li>• step 7:stop</li> </ul>				
7	Block,					

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	Circuit, Model Diagram, Reaction Equation, Expected Graph	
8	Observation Table, Look-up Table, Output	retrieve the data from the tables based on the queries
9	Sample Calculations	
10	Graphs, Outputs	
11	Results & Analysis	
12	Application Areas	apply the characterizing schedules for transaction processing.
13	Remarks	
14	Faculty Signature with Date	

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