

BIRLA VISHVAKARMA MAHAVIDYALAYA
(An Autonomous Institution)
Vallabh Vidyanagar, Anand, Gujarat
Computer Engineering Department
List of Experiments

A.Y. 2024-25 Semester: Odd Subject: 2CP01 Name: Database Management Systems

Sr. No.	Experiments
1	<p>Aim: Introduction to DBMS and SQL</p> <p>1) Introduction to DBMS: Differentiate tradition system with database systems, List out at least five DBMS , software's Name, Visit home page of each DBMS a software provider and write brief info.</p> <p>2) Introduction SQL : Brief Note on DDL and DML, Basic data types, Char, Varchar(), Varchar2(), Basic create, insert and select query, Login with livesql.oracle.com (put snapshot of same with your username), How to access database with livesql.oracle.com, Installation steps for postgres SQL Server, Access Database with PG Admin and SQL Shell</p>
2	<p>Aim: To learn about data types and execute DDL SQL statements</p> <p>1. Data types: Basic Data Types, Char(size), Varchar(size), varchar2(size), Date, Number(p,s), Long, Raw/long(raw)</p> <p>2. DDL Statements : Create table, Alter table, Drop table, Renaming table, Describe table, Explain above each SQL statement with syntax and example.</p>
3	<p>Aim: Execute DML SQL Statements</p> <p>1. DML Statements : Select statement, Insert statement, Condition statement using WHERE clause, Order by ascending and descending, Create table from existents table with data, Create table from existents table without data, Delete statement, Update statement, Explain above each SQL, statement with syntax and example.</p> <p>2. Assignment Complete assignmnet1 as part of Lab2 and lab3</p>
4	<p>Aim: Apply data constrain to relations</p> <p>I/O Constraint : The Primary Key constraint, Defined at column level, Defined at table level, The foreign key (Self-reference) Constraint, Defined at column level, Defined at table level, Defined with on delete cascade, Defined with on delete set Null, Assigning user-defined names to constraint, The Unique Key constraint, Defined at column level, Defined at table level, Not Null Constraint, Explain each constraint with proper example</p>
5	<p>Aim: To use of check constraint, logical operators, range searching pattern matching and aggregate function in SQL statements.</p> <p>1) Check Constraint</p> <p>2) Logical operators: The AND operators, The OR operators, The NOT operators,</p> <p>3) Range searching, Between , Not between</p> <p>4) Pattern Matching: Use of LIKE predicate</p> <p>5) Aggregate Function: Avg, Min, Count, ABS, Power(m,n), Round(n.m), SQRT(n), EXP(n)</p>
6 & 7	<p>Aim: To apply varoius types of Joins.</p> <p>Joining multiple tables</p> <p>Inner Join: With where clause</p> <p>Outer Join</p> <p>Cross Join</p> <p>Join table with itself</p>

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	<p>Exercise with to apply above all concepts</p> <p>Create a Company database owned by your name user then create its tables:</p> <ol style="list-style-type: none"> 1. Department with a unique name, unique number (PK), and managerSSn. 2. Employee with a unique SSN (PK), FName, LNmae, Salary, Bdate, Sex, Address and DepNo. 3. Project with a unique name, unique number (PK), location and DeptNo. Notes: <ul style="list-style-type: none"> - Choose a suitable Data Type for each Attribute, and create enumerated type if you need it. - Add all suitable Constraints when creating the table except Froeign Key Constraints. 4. Alter Tables and Add Foreign Key constraints. <p>Exercises</p> <p>Q1: Retrieve the salary for each Employee.</p> <p>Q2: Retrieve all distinct salary values.</p> <p>Q3: Find the sum of the salaries of all employees, the maximum salary, the minimum salary, and the average salary.</p> <p>Q4: Retrieve the total number of employees in the company.</p> <p>Q5: Count the number of distinct salary values in the database.</p> <p>Q6: Retrieve the birth date and address of the employee(s) whose name is 'John B. Smith'.</p> <p>Q7: Retrieve the name and address of all employees who work for the 'Research' department.</p> <p>Q8: For every project located in 'Stafford', list the project number, the controlling department number, and the department manager's last name, address, and birth date.</p> <p>Q9: For each employee, retrieve the employee's first and last name and the first and last name of his or her immediate supervisor.</p> <p>Q10: Show the resulting salaries if every employee working on the 'ProductX' project is given a 10 percent raise.</p> <p>Q11: Retrieve all employees in department 5 whose salary is between \$30,000 and \$40,000.</p> <p>Q12: Find the sum of the salaries of all employees of the 'Research' department, as well as the maximum salary, the minimum salary, and the average salary in this department.</p> <p>Q13: Retrieve the number of employees in the 'Research' department.</p> <p>Q14: Retrieve all employees who have no manager.</p> <p>Q15: For each department, retrieve the department number, the number of employees in the department, and their average salary.</p> <p>Q16: For each project, retrieve the project number, the project name, and the number of employees who work on that project.</p> <p>Q17: For each project on which more than two employees work, retrieve the project number, the project name, and the number of employees who work on the project.</p> <p>Q18: Retrieve a list of employees and the projcts they are working on, ordered by department and, within each department, ordered alphabetically by last name, then first name.</p>
8	<p>Aim: Interactive SQL, Computational, data manipulation, having and group by having, join and correlation</p> <p>Create table Client_master, Product_master, Salesmen_master, Sales_order, sales_order_details</p>

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	Formulate below queries <ol style="list-style-type: none"> 1. Listing out names of the all client having 'a' as the second letter in their names. 2. List products whose selling price is greater than 500 and less than or equal to 750 3. Printing the description and total quantity sold for each product. 4. Calculating the average quantity sold for each client that have maximum order value 15000.00 5. Find out the products which have been sold to 'Ivan bayross' 6. Find out the products and their quantity that will have to delivered in the current months.
9	Aim: To work with view Restore DVD Rental Database in PostgreSQL. <ol style="list-style-type: none"> 1. What is view? How it is differ then table? 2. Renaming the columns of view 3. Selecting dataset from view. 4. View defining from multiple tables. 5. Destroying View.
10	Aim: PostgreSQL subquery IN Operator, exists sub query, any operators, ALL operators, <ol style="list-style-type: none"> 1. Find the films whose rental rate is higher than the average rental rate. 2. Find the films that have the returned date between 2005-05-29 and 2005-05-30 3. Finds the films whose lengths are greater than or equal to the maximum length of any film category. 4. To find all films whose lengths are greater than the list of the average lengths above, you use the ALL and greater than operator (>). 5. Find customers who have at least one payment whose amount is greater than 11. 6. Find customers have not made any payment that greater than 11.
11	Aim: To learn PL-SQL PL PGSQL, Function, procedure, cursor, Trigger.
12	Aim: Mini Project Report <ol style="list-style-type: none"> 1. Functional Requirements 2. ER Diagram 3. Covert ER into relational Model 4. FD's and Max Normalization form 5. Relation Schema 6. Create schema in postgres / Oracle DBMS and 7. Write 10 queries to fetch vital records from the database with output.
Subject Coordinator	
Prof. Kirtikumar J Sharma	