DEPARTMENT OF COMPUTER SCIENCE

ST. JOSEPH'S COLLEGE, DEVAGIRI (AUTONOMOUS), CALICUT

THIRD SEMESTER M.Sc COMPUTER SCIENCE

FCSS3L03: ADVANCED DATABSE MANAGEMENT SYSTEM & OBJECT ORIENTED PROGRAMMING CONCEPTS

(PRACTICAL III)

UNIT I: ADVANCED DATBASE MANAGEMENT SYSTEM

1: Familiarization of DDL Commands and Constraints.

Consider the schema

Student(admission_no, stud_name)
Membership(member_id, admission_no)
Book(book_id, book_name, author, book_type)
BookType(type_id, type)
BookIssue(issue_id, issue_date, member_id, book_id)

1. Create the above tables and provide appropriate integrity constraints and insert few recordsto the tables.
2. Add a column “programme” to the Student table.
3. Modify the column width of book_name and author of Book relation.
4. Drop the BookType table.

(2 to 9, Use the following relations. If needed, make necessary changes the schema.)

Department	
Dname	Not NULL,unique
Dnumber	Primary key
ManagerID	Refers to EmployeeID of Employee Table
Mgr_start_date	Not NULL

Employee	
Name	Not NULL
EmployeeID	Primary key
BirthDate	
HouseName	
Gender	
Salary	5000 to 25000
SuperEID	Refers to Employee itself
Dnumber	Refers to Dnumber of Department Table

DeptLocations	
Dnumber	Dnumber refers to Dnumber of Department Table.Also Dnumber and Dlocation are combined Primary key.
Dlocation	

Project	
Pname	Not NULL
Pnumber	Primary key
Plocation	
Dnumber	Not NULL, Refers to Department Table

Works-on	
EmployeeID	Refers to Employee Table
Pnumber	Refers to Project
Hours	Not NULL

Dependent	
EmployeeID	Refers to Employee Table
DependName	Not NULL
Sex	

BirthDate	
Relationship	
	EmployeeID and DependName together forms primary key.

2: Execution of DM L Commands

1. Insert a single record into department table.
2. Insert more than a record into Employee table using a single insert command.
3. Update the employee table to set the salary of all employees to Rs15000/- who are getting a salary>10,000.
4. Move a project “P1” of department no D1 to another department D2.
5. Delete only those who are working on a particular project say ‘’P1’’.

3: Retrieving data using select Commands

1. List the records in the Employee table order by salary in ascending/descending order.
2. Display only those Employees whose Dnumber is 30.
3. Retrieve the name and birthdate of Employee working in a particular in a particular department.
4. For every project located in “Cochin”, list the project number, the controlling departmentno and the department manager’s name, Housename and birth date.
5. List the employees who work in more than one project.

4: Aggregate functions

1. Find the sum of salaries of all employees, the maximum salary, the minimum salary, andthe average salary.
2. Count the number of projects handled in each department.
3. Count number of employees working in each department.
4. Find the department number and maximum salary of those departments where minimumsalary is greater than 10000 rupees.

5: String functions

1. Retrieve all employees whose name begins with Á’.
2. Find all employees who were born during 1980’s.

6: Date functions

1. List all employees whose age lies between 25 - 45 years
2. Calculate the service period of all managers.

7: Union, intersection, set difference

1 . Make list of all project numbers for projects that involve an employee whose name is“Raju” either as a worker or as a manager of the department that controls project.

8: Nested Queries and join operation

1. Retrieve the name of each employee who has a dependent with the same name and is thesame sex as Employee.
2. Retrieve the names of employees who have no dependents
3. List the names of all managers who have at least one dependant.
4. For each employee, retrieve the employee’s name and name of his or her immediate supervisor.

9: Database Views

1. Create a view to display the department no, minimum salary, maximum salary and averagesalary in each department.
2. Create a view displaying the employee name, project name and hours worked by her/him.
3. Update the project name of above view(Q1) from pname=’ProductX’ to pname=’ProductY’.
4. Drop the above specified view.
5. Create a view work_info to display the employee id, employee name, project no of all employees whose working hour is greater than 0.

10: Stored procedures & Functions

1. create a procedure to that generate all the prime numbers below the given number and count the no. of prime numbers generated.
2. Consider the employee table (emp_id, ename, basic, dept) and insert 10 records to thetable. Write a procedure to update the salary of an employee accepting emp_id and rate as parameters. Also fetch the names and salaries of the five highest-paid employees with their department.
3. Consider the relations

   Customer(cust_id, cust_name, address)
   Order(ord_no, cust_id, ord_date, ship_date, status, comments)
   Field “Status” takes values like “delivered”, “pending”, “shipped” “cancelled”. Insert few records and create a stored procedure to return the count of orders delivered, pending, shipped and cancelled.
4. Create a function to find the factorial of a number passed as parameter.
5. Write a function to check a number is perfect, abundant or deficient.

11: Triggers

1. Create a table Student (id, name, dob) and insert few records. Create trigger to prevent updating and deletion from the student table.
2. Consider the schema

   Product (prod_id, prod_name, price, quantity_available)Sale
   (sale_id, prod_id, quantity)
   Create a trigger to update the quantity in stock after each sale.
3. Drop the trigger created in Q1.

12: ER diagram

Draw the ER diagram and design a database (Normalize the tables to sufficient levels) for

a) Hospital Management System
b) CD lending Library System