

Shri Ramdeobaba College of Engineering and Management, Nagpur

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGG.

Teachers' Assessment

Course Code: ECT355-5

Course Name: Database Management Systems

Last date of Submission: on or before 08/12/2023

Students are requested to form group of 4 students each. Each group is to select one of the schemas (from D1-D17). Design a DATABASE with suitable name for the selected schema.

Populate each relation with at least 15 records to cover the possibilities/cases. And execute the given SQL queries.

D1

EMP (ename, street, city)

WORKS (ename, company_name, salary)

COMPANY (company_name, city)

Write SQL queries to

- Display name of all employees works for company "Satyam".
- Display name, street and city of employees who are working for company "Satyam"
- Find the name of person who live in the same city and same street as that of "Mr. Rahul".
- Find name of all employees in the database who lives in the same city as the company for which they work.
- Find all companies located in every city in which "Infosys" is located. (Infosys is a name of company).

D2

STUDENT (RollNumber, StudentName, Address)

TEACHERS (TeacherID, TeacherName, TeachingSubject)

COLLEGE (RollNumber, TeacherID, CollegeName)

Write SQL queries to

- Find the name of students who live in Gandhidham.
- Find the name of teacher who teaches DBMS subject.
- Find the name of the teacher who teaches Computer Organization subject to John Smith student.
- Delete records of students whose address is “Pokhara”.
- Find the name of the student who study in “XYZ” college.

D3

PASSENGER (pid, pname, pgender, pcity)

AGENCY (a-id, aname, acity)

BUS (bid, bdate, time, source, destination)

BOOKING (pid, aid, bid, bdate)

Write SQL queries to

- Find the details of all buses from Mumbai to Pune.
- Find the name of passengers who booked at least one bus.
- Find the bus number of the passenger with pid=p04 for bus to “Surat” before 20/12/2023.
- Find the name of passenger who does not booked any bus.
- Find the details of male passengers associated with “Kesari” agency.

D4

EMP (ename, street, city)

WORKS (ename, company_name, salary)

COMPANY (company_name, city)

MANAGES (ename, manager_name)

Write SQL queries to

- Display name of all employees works for “First Bank Corporation”.
- Display name street and city of employees who are working for “First Bank Corporation”.
- Display name, street and city of all employees who are working for company “First Bank Corporation” and earn more than Rs. 10,00,000 per annum.

- Find name of all employees in the database who lives in the same city as the company for which they work.
- Find the name of persons who live in the same city and same street as do their managers.
- Find the name of all employees who do not work for “First Bank Corporation”.
- Find the name of all employees of “First Bank Corporation” who earn more than every employee of “Second Bank Corporation”.

D5

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

- List the titles of all movies directed by ‘Hitchcock’.
- Find the movie names where one or more actors acted in two or more movies.
- List all actors who acted in a movie before 2000 and also in a movie after 2015 (use JOIN operation).
- 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.
- Update rating of all movies directed by ‘Steven Spielberg’ to 5.

D6.

BRANCH (b_name, Assets, b_city)

ACCOUNT (acc_no, balance, b_name)

DEPOSITOR (c_name, acc_no)

CUSTOMER (c_name, c_address, c_city)

BARROWER (c_name, l_no)

LOAN (l_no, amount, b_name)

Write SQL Query to:

- Find all the customer name having an account or loan or both.
- Find all the customer name having an account and loan.
- Find all the customer name having an account but not loan loan.
- Cartesian Product- queries on multiple relations / Natural Join
- Find the name of the customers having account in katol road branch
- Find loan number and amount of loan from the branch situated in Sitabuldi
- Find customer names which have loan from branch having assets $\leq 1,00,000$

D7.

BUS (BusNo, Source, Destination, Coach Type)

TICKET (TicketNo, DOJ, Address, ContactNo, BusNo, SeatNo, Source, Destination)

PASSENGER (PassportID, TicketNo, Name, ContactNo, Age, Sex, Address)

RESERVATION (PNRNo, DOJ, No_of_Seats, Address, ContactNo, BusNo, SeatNo)

CANCELLATION (PNRNo, DOJ, SeatNo, ContactNo, Status)

Write SQL queries to

- Display unique PNR_NO of all passengers
- Display all the names of male passengers.
- Display the ticket numbers and names of all the passengers.
- Find the ticket numbers of the passengers whose name start with 'r' and ends with 'h'.
- Find the names of Passengers whose age is between 30 and 45.
- Display all the passengers names beginning with 'A'. 7. Display the sorted list of Passengers names
- Write a Query to display the information present in the passenger and cancellation tables
- Display the number of days in a week on which the AP123 bus is available
- Find number of tickets booked for each PNR_No using GROUP BY CLAUSE
- Find the distinct PNR Numbers that are present.

D8.

BOOK (Book_id, Title, Publisher_Name, Pub_Year)

BOOK_AUTHORS (Book_id, Author_Name)

PUBLISHER (Name, Address, Phone)

BOOK_COPIES (Book_id, Branch_id, No-of_Copies)

BOOK_LENDING (Book_id, Branch_id, Card_No, Date_Out, Due_Date)

LIBRARY_BRANCH (Branch_id, Branch_Name, Address)

Write SQL queries to

- Retrieve details of all books in the library – id, title, name of publisher, authors, number of copies in each branch, etc.
- Get the particulars of borrowers who have borrowed more than 3 books, but from Jan 2017 to Jun2017
- Delete a book in BOOK table. Update the contents of other tables to reflect this data manipulation operation.
- Partition the BOOK table based on year of publication. Demonstrate its working with a simple query.
- Create a view of all books and its number of copies that are currently available in the Library.

D9.

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

- List the titles of all movies directed by 'Hitchcock'.

- Find the movie names where one or more actors acted in two or more movies.
- List all actors who acted in a movie before 2000 and also in a movie after 2015 (use JOIN operation).
- 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.
- Update rating of all movies directed by 'Steven Spielberg' to 5.

D10.

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)

Write SQL queries to

- 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.
- Show the resulting salaries if every employee working on the 'IoT' project is given a 10 per cent raise.
- 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
- Retrieve the name of each employee who works on all the projects controlled by department number 5 (use NOT EXISTS operator). 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.

D11.

BOOK (book_id, title, publisher_name)

BOOK_AUTHOR (book_id, author_name)

PUBLISHER (name, address, phone_no)

BOOK_COPIES (book_id, branch_id, no_of_copies)

BOOK_LOAN (book_id, branch_id, card_no, date_out, due_date)

LIBRARY_BRANCH (branch_id, branch_name, address)

BORROWER (card_no, name, address, phone)

Write SQL queries to

- Retrieve details of all books in the library – id, title, name of publisher, authors, number of copies in each branch, etc.
- Get the particulars of borrowers who have borrowed more than 3 books, but from Jan 2017 to Jun2017
- Delete a book in BOOK table. Update the contents of other tables to reflect this data manipulation operation.
- Partition the BOOK table based on year of publication. Demonstrate its working with a simple query.
- Create a view of all books and its number of copies that are currently available in the Library.

D12.

BOATMAN (bid, name, rating, age)

BOATS (boat_id, boat_name, color)

RESERVES (bid, boat_id, day)

Write SQL queries to

- Find the names of boatmans who have reserved boat number 110.
- Find the bids of boatmans who have reserved a red boat.
- Find the names of boatmans who have reserved a red boat.
- Find the colors of boats reserved by Luke.
- Find the names of boatmans who have reserved at least one boat.
- Find names of boatmans who've reserved a red or a green boat
- Find names of all boatmans who've reserved red boat but not green boat.
- Find bid's of all boatmans who have a rating of 10 or reserved boat 111.
- Find names of boatmans who've reserved boat #110

D13

EMP (empno, ename, job , mgr-no , hiredate, sal, commission, deptno)

DEPT (deptno, dname, location)

Write SQL queries to

- Count the number of jobs in the organization.
- Find the names of employees whose names begin with letter J.
- List the unique jobs in emp table.
- Find min and max salary in organization.
- Find min, max, avg and total salary in each job.
- Find the names of those employees who are working in department. 20 and their job is either clerk or salesman.
- Find the names of those employees whose commission is highest.
- Find the names of employees whose job is either clerk or salesman or manager.
- Find the names of employees whose joining date is between 17-DEC-99 and 23-MAY-02.

D14.

CUSTOMER (custno, custname, state, phone)

ITEM (itemno, itemname, itemprice, qtyonhand) [Constraint qtyonhand >= 0]

INVOICE (invno, invdate, custno)

INVITEM (invno, itemno, qty)

Write SQL queries to

- Find items with start letter N in their Name
- Sort all customers alphabetically by their state and custname
- Display min, max, and avg itemprice
- Display all item Prices Rounded to the nearest Rupees
- Display the itemname with the highest price.
- Find the payment due date if the payment is due in two months from the invoice date
- Display invoice dates in “September 05,2003” Format
- Display how many different items are available for customers
- Find customers Who are not from New Delhi or Mumbai.
- Find the two items with the lowest quantity on hand.
- Find the items with the top three prices

D15

EMP (empno, ename, job , mgr-no , hiredate, sal, commission, deptno)

DEPT (deptno, dname, location)

Write SQL queries to

- Count the number of department in the organization.
- Find the names of employees whose names begin with letter M.
- Find min, max,avg and total salary in each job.
- Find min, max,avg and total salary in each department.
- Find the names of those employees whose commission is highest.
- Find the names of employees whose job is either clerk or salesman or manager.
- Find the names of employees who are working as clerks.
- Find the names of employee who are working under BLAKE.
- Find the names of employee who are working in research department.
- Display the name of employee earning second highest salary.
- Find second highest salary in the organization.
- Find the names of employees whose salary is more than avg salary in department 20.
- Find the average salary at each department where deptno is less than 30.

D16.

BANKER_INFO (banker_id, banker_name, banker_email)

BRANCH (branch_name, branch_city, assets)

CUSTOMER (customer_id, customer_name, customer_street, customer_city)

LOAN (loan_number, customer_id, amount)

ACCOUNT (account_no, balance, category)

CREDIT_CARD (credit_card_no, customer_name, expiry_date, limit)

Write SQL queries to

- Find the details of customers whose name is starting with letter 'M'.
- Find the total assests of the SBI Kingsway Nagpur Branch.
- Find the name of all customers who have credit card along with the credit card details.
- Find the entire banker names whose account is with Katol Road branch of Nagpur city.
- Find the name of all the customers along with the loan amount who have taken loan.

D17.

STUDENT (Roll_No, fname, mname, lname, gender, dob, email_id, mob_no, address_area, city, dept_name, oe_id)

DEPARTMENT (dept_id, dept_name, building, hod_name, oe_id)

FACULTY (faculty_id, faculty_fname, faculty_lname, gender, dept_id)

OE (oe_code, oe_course_code, oe_name, dept_id, faculty_id)

INTERNAL_MARKS (Roll_no, fname, mname, lname, oe_id, oe_marks)

Write any 10 SQL query of your choice provided that the SQL queries should belong to DDL, DML and at least two DQL with JOINS.

APART from the above task implement the following commands on the database designed by you:

1. Implement DDL commands of SQL

CREATE TABLE

ALTER TABLE (ADD, DROP, MODIFY)

DROP TABLE

TRUNCATE TABLE

RENAME TABLE

COMMENT

2. Implement DML commands of SQL

INSERT INTO

UPDATE

DELETE FROM

3. Implement DQL command of SQL

SELECT FROM

SELECT FROM WHERE

GROUP BY

ORDER BY

HAVING

BETWEEN.... AND

IN/ NOT IN

LIKE

LIMIT

ALIAS

CASE

4. Implement various type aggregation functions

COUNT

MAX

MIN,

SUM

AVERAGE

5. Implement various types of operators in SQL

Arithmetic Operators

Logical Operators

Comparison Operator

Special Operator

Set Operation

6. Implement various types of Joins

Inner Join

Outer Join

Left Join

Right join

Full Join

Natural Join etc.

(Dr. Rajesh Raut)

Course coordinator

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Rubrics for Evaluation

	Excellent (3)	Good (2)	Satisfactory (1)
Database Design	Schema is created and inserted data as per the instructions. Student wrote optimized SQL query for each and every task.	Schema is created and inserted data as per the instructions. Student could not write optimized query for some of the tasks.	Student wrote optimized SQL query for each and every task. Student could not write optimized query for most of the tasks.

	Excellent (5)	Good (4)	Fair (3)	Satisfactory (2)	Not Satisfactory (1)
Demonstration	Demonstrated clarity in understanding all the concepts and written all the queries correctly	Demonstrated clarity in understanding the few concepts and written all the queries correctly	Demonstrated clarity in understanding the few concepts and unable to write some queries correctly	Lacks in understanding of concepts and able to write a few queries correctly	Able to write only one query correctly

Report (3 Marks)	Good (2)	Satisfactory (1)
	Worked very well to write report and covered all the tasks assigned (2)	Worked well to write report and missed some of the tasks assigned (1)

(Dr. Rajesh Raut)
Course Coordinator