**Exercises for DBMS Lab Exam**

1. **Product Database**

**Product(pid: integer, name: varchar(20), min\_age: integer)  
Manufacturer(mid: integer, name: varchar(20), address: varchar(50))  
Supplier(sid: integer, name: varchar(20), address: varchar(50))  
Inventory(pid:integer, stock: integer)  
Manufactures(mid:integer, pid: integer)  
Supplies(sid: integer, pid: integer)**

Create tables by using above structures and answer the following queries.

1) List the ids and names of all products whose inventory is below 5.

2) List the ids and names of all suppliers for products manufactured by "manufacturer\_2". The id and name of each supplier should appear only once.

 3) List the ids, names, and number in stock of all products in inventory. Order the list by decreasing number in stock and decreasing product ids.

 4) List the ids and names of all products for whom there is only one supplier.

 5) Find the ids and names of the products with the lowest inventory. Do NOT assume these are always products with an inventory of zero.

 6) List the id and name of each supplier along with the total number of products it supplies.

 7) Find the id and name of the manufacturer who produces toys on average for the youngest children.

1. **Consider the following student database who are enrolled in different subjects**

**student(id, name)**

**enrolledIn(id, code)**

**subject(code, lecturer)**

1. What are the names of students enrolled in cs3020?
2. Which subjects is Hector taking?
3. Who teaches cs1500 or cs3020?
4. Who teaches at least two different subjects?
5. What are the names of students in cs1500 or cs3010?
6. What are the names of students in both cs1500 and cs1200?
7. What are the names of students in at least two different subjects?
8. What are the names of all the students in cs1500?
9. What are the names of students taking a subject taught by Roger.
10. What are the names of students who are taking a subject not taught by Roger?
11. For the following relation schema of **employee** database

**employee (employee-name, street, city)**

**works (employee-name, company-name, salary)**

**company(company-name, city)**

**manages(employee-name, manager-name).**

1. Find the names, street address, and cities of residence for all employees who work for 'First Bank Corporation' and earn more than $10,000.
2. Find the names of all employees in the database who live in the same cities as the companies for which they work.
3. Find the names of all employees in the database who do not work for 'First Bank Corporation'. Assume that all people work for exactly one company.
4. Find the names of all employees in the database who earn more than every employee of 'Small Bank Corporation'. Assume that all people work for at most one company.
5. Assume that the companies may be located in several cities. Find all companies located in every city in which 'Small Bank Corporation' is located.
6. Find the names of all employees who earn more than the average salary of all employees of their company. Assume that all people work for at most one company.
7. Find the name of the company that has the smallest payroll.
8. **Consider the following tables**

Sailors **(sid**, sname, rating, age)

Boats (**bid**, bname, color)

Reserves (**sid, bid**, date)

1. Find the colors of boats reserved by Albert.
2. Find all sailor id’s of sailors who have a rating of at least 8 or reserved boat 103.
3. Find the names of sailors who have not reserved a boat whose name contains the string “storm”. Order the names in ascending order.
4. Find the sailor id’s of sailors with age over 20 who have not reserved a boat whose name includes the string “thunder”.
5. Find the names of sailors who have reserved all boats.
6. Find the sailor id’s of sailors whose rating is better than some sailor called Bob.
7. Find the sailor id’s of sailors with the highest rating.
8. Find the name and age of the oldest sailor.
9. Find the names of sailors who have reserved every boat reserved by those with a lower rating.
10. **Consider the following tables**

Customer (**CustomerID**, Customername, Address, PhoneNo, City)

Bank (**branch\_name, branch\_city**, assets)

Account (**acc\_no**, balance)

Deposit (**acc\_no,Customer\_id**, branch\_name, amount)

1. Find bank accounts with a balance under $700:
2. Retrieve a list of all bank branch details, ordered by branch city, with each city’s branches listed in reverse order of holdings.
3. Find customerid’s and average balance of accounts at Perryridge branch
4. Find all customers with more than one account.
5. Find all cities with more than two customers living in the city.
6. Find the largest total account balance of any branch.
7. Add 2% interest to all bank account balances with a balance of $500 or less.
8. Find the largest balance amount at each branch.
9. Find all branches with assets greater than at least one branch in Brooklyn.
10. Find branches with assets greater than all branches in Brooklyn.
11. Consider the following tables

Movie (**Code,** Title, Rating)

MovieTheatres (**Code, Name**, Movie)

Musician (**musician\_id**, mname, dob, specialized\_instrument)

Perform (**musid, instid**, function\_date, function)

Instrument (**instrument\_id**, iname, price, type)

1. Find the name, address and birth date of the patients whose name starts with ‘r‘.

2. Find the name of the patient, name of doctor, date of check-up and diagnosis.

3. Display each specialization and number of doctors available for that specialization.

4. Print the numbers of doctors who have checked Hari, also print average fees.

5. Find the name and price of the string type instruments.

6. Display the names of instruments along with their price which were used in New Year function.

7. Display names of musicians, their specialized instrument and function held after 2005.

8. Print the name of instrument for which number of musicians specialized is more than 1.

1. **Consider the following schema for a Library Database:**

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*)

1. Retrieve details of all books in the library – id, title, name of publisher, authors, number of copies in each branch, etc.
2. Get the particulars of borrowers who have borrowed more than 3 books, but from Jan 2017 to Jun 2017.
3. Display list of all publishers who published the book titled “C Programming”.
4. List the book and branch details which is having more than 100 copies in library.
5. List the book details which have been borrowed and not returned back for more than 10 days.
6. Find the details of libraries which are located in Bangalore.
7. **Supplier (Sno, Sname, City)**

**Part( Pno, Pname, Price)**

**Supply(Sno, Pno, qty)**

* 1. Display the part names in alphabetical order.
  2. Display average and sum of price of all the parts.
  3. Display the supplier details keeping supplier number in descending order.
  4. Display the price of those parts for which name ends with ‘t’;
  5. Display the names of parts whose price is less than 30;
  6. Display part details of part supplied by supplier whose name starts with ‘r’.
  7. Display the part details of part which are supplied by supplier lives in city ‘Bangalore’.
  8. Display supplier number and total number of parts supplied by each supplier.
  9. Select the supplier number for the suppliers who supply exactly two parts.
  10. Display the supplier number and total quantity supplied by each supplier.

1. Consider the following tables

professor (**prof\_id,** pname, rank, age, research\_specialization)

project (**proj\_num**, sponsor\_name, st\_date, end\_date, budget, PI\_profid)

student (**USN**, sname, age, degree, prof\_id)

prof\_work (**prof\_id, proj\_num**)

student\_work (**USN, proj\_num**)

1. Retrieve the names of all professors who do not have an ongoing project of more than 1 lakh.
2. Retrieve the names of all graduate students along with their professors under whom they work and project sponsor.
3. List the professors and sum of the budget of their projects started after 2005 but ended in 2010.
4. List the names of professors who has a total worth of project greater than the average budget of projects sanctioned
5. List the professors who work on all the projects.
6. List the students who are working on more than 2 projects.
7. **Consider the schema for Movie Database:**

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**)

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

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.

6. List all the female actors who have acted in movies directed by ‘Steven Spielberg’

7. List all the directors who have directed movies having rating greater than 3.