**Tutorial 6 Solutions**

Q1.

Consider the following schema:

Suppliers(*sid:* integer, *sname:* string, *address:* string)

Parts(*pid:* integer, *pname:* string, *color:* string)

Catalog(*sid:* integer, *pid:* integer, *cost:* real)

Write the following queries in SQL:

1. Find the *pname*s of parts for which there is some supplier.

SELECT P.pname FROM Parts P, Catalog C WHERE P.pid=C.pid

1. Find the name of supplier who some red parts.

**Answer:**

select S.sname

from Suppliers S, Parts P, Catalog C

where P.colour='red' and C.pid=P.pid and C.sid=S.sid

or

select sname

from Suppliers natural join Catalog natural join Parts

where P.colour='red'

1. Fine the sids of suppliers who supply some red part and some green part

(select C.sid

from Parts P, Catalog C

where P.color='red' and P.pid=C.pid

)

intersect

(select C.sid

from Parts P, Catalog C

where P.color='green' and P.pid=C.pid)

select C.sid

from Parts P, Catalog C

where (P.colour='red' or P.colour='green') and C.pid=P.pid

or

select sid

from Catalog C natural join Parts P

where (P.colour='red' or P.colour='green')

1. Find the sids of suppliers who supply some red part or are at 221 packers street

select S.sid

from Suppliers S

where S.address='221 Packer Street'

or S.sid in (select C.sid

from Parts P, Catalog C

where P.color='red' and P.pid=C.pid

)

1. Find the color and cost of parts supplied by supplier “john”

Select p.color, c.cost from parts p, catalog c, supp s where s/sid=c.sid and c.pid=p.pid and sname=’john’

1. Find the name of most costly part.

Select pname, max(c.cost) from parts p , catalog c where p.pid=c.pid

Q2.

Consider the following schema:

Worker(Worker\_ID, First\_Name, Salary, Joining\_Date, Department)

Bonus (WORKER\_REF\_ID, BONUS\_DATE BONUS\_AMOUNT)

Title (WORKER\_REF\_ID, Worker\_Title, Affected\_form)

Write the following queries in SQL:

1. Print details of the Workers whose SALARY lies between 100000 and 500000 and bonus amount in between 5000 to 10000.
2. Print details of the Workers who are also Managers.

| SELECT DISTINCT W.FIRST\_NAME, T.WORKER\_TITLE |
| --- |
|  | FROM Worker W JOIN Title T |
|  | ON W.WORKER\_ID = T.WORKER\_REF\_ID |
|  | AND T.WORKER\_TITLE in ('Manager'); |

1. Print the list of employees with the same salary.

select \*

from worker w1 join worker w2

on w1.salary = w2.salary and w1.worker\_id <> w2.worker\_id;

1. Print the salary and bonus amount details of all managers
2. Update the 10% extra bonus amount to all employees of CSE department.

**(SQL-Nested Queries)**

1. Consider the following relational schemas:

*students*(id,name,class\_id,gpa)

*teachers*(id,name,subject,class\_id,monthly\_salary)

*classes*(id,grade,teacher\_id,num\_of\_students)

1. Find all students that have above-average GPAs.

*Solution*:

**SELECT** \*

**FROM** students

**WHERE** GPA >(**SELECT** AVG(GPA)

**FROM** students);

1. Calculate the average number of students in classes where the teacher teaches DSW or DSA.

*Solution*:

**SELECT** **AVG**(number\_of\_students)

**FROM** classes

**WHERE** teacher\_id **IN** (

**SELECT** id

**FROM** teachers

**WHERE** subject = 'DSW' OR subject = 'DSA');

1. Display all information about the students in the class with the highest number of students.

*Solution*:

**SELECT** \*

**FROM** students

**WHERE** class\_id = (

**SELECT** id

**FROM** classes

**WHERE** number\_of\_students = (

**SELECT** **MAX**(number\_of\_students)

**FROM** classes));

1. Display the subject area that corresponds to the highest average teacher salary.

Solution:

**SELECT** subject, **MAX**(salary\_by\_subject.avg\_salary) **AS** max\_salary

**FROM** (

**SELECT** subject, **AVG**(monthly\_salary) **AS** avg\_salary

**FROM** teachers

**GROUP** BY subject) salary\_by\_subject;

1. Consider the following relational schemas:

*Film*(title, genre, year, director\_id, minutes, budget, gross)

*Director* (director\_id, n

ame, birth, city)

1. A film is considered to be a super-hit if the gross income is more than 1.5 times the budget. Display the name and city of all those directors whose films are super-hit.

*Solution:*

**SELECT** name, city

**FROM** ( **SELECT** director\_id **FROM** Film **WHERE** gross > (1.5\*budget)) **AS** Superhit, Director

**WHERE** Superhit.director\_id = Director.director\_id;

1. Display the film with highest budget.

*Solution:*

**SELECT** \*

**FROM** Film

**WHERE** budget = ( **SELECT** **MAX**(budget) **FROM** Film);

1. List all the names of directors whose films are produced with a budget below 20 crores.

*Solution:*

**SELECT** name

**FROM** ( **SELECT** director\_id **FROM** Film **WHERE** budget <200000000) **AS** LowBudget, Director

**WHERE** LowBudget.director\_id = Director.director\_id;