

### Problem Statement 8 (JOINS & SUBQUERIES USING MYSQL)

Consider Following Schema

Employee (Employee\_id, First\_name, last\_name , hire\_date, salary, Job\_title, manager\_id, department\_id)

Departments(Department\_id, Department\_name, Manager\_id, Location\_id)

Locations(location\_id ,street\_address ,postal\_code, city, state, country\_id)

Manager(Manager\_id, Manager\_name)

Create the tables with referential integrity. Solve following queries using joins and subqueries.

1. Write a query to find the names (first\_name, last\_name) and the salaries of the employees who have a higher salary than the employee whose last\_name='Singh'.

2. Write a query to find the names (first\_name, last\_name) of the employees who have a manager and work for a department based in the United States.

2. Write a query to find the names (first\_name, last\_name), the salary of the employees whose salary is greater than the average salary.

3. Write a query to find the employee id, name (last\_name) along with their manager\_id, manager name (last\_name).

4. Find the names and hire date of the employees who were hired after 'Jones'.

```
mysql> show databases;
```

```
+-----+
| Database |
+-----+
| ass2     |
| ass3     |
| assign2  |
| db       |
| db1      |
| information_schema |
| loginpage |
| mysql    |
| performance_schema |
| sys      |
+-----+
```

10 rows in set (0.00 sec)

```
mysql> use db1;
```

Database changed

```
mysql> CREATE TABLE Manager (
->     Manager_id INT PRIMARY KEY,
->     Manager_name VARCHAR(50)
-> );
```

Query OK, 0 rows affected (0.04 sec)

```
mysql> CREATE TABLE Locations (
->     Location_id INT PRIMARY KEY,
->     Street_address VARCHAR(100),
->     Postal_code VARCHAR(20),
->     City VARCHAR(50),
->     State VARCHAR(50),
```

```
-> Country_id CHAR(2)
-> );
Query OK, 0 rows affected (0.04 sec)
```

```
mysql> CREATE TABLE Departments (
-> Department_id INT PRIMARY KEY,
-> Department_name VARCHAR(50),
-> Manager_id INT,
-> Location_id INT,
-> FOREIGN KEY (Manager_id) REFERENCES Manager(Manager_id),
-> FOREIGN KEY (Location_id) REFERENCES Locations(Location_id)
-> );
Query OK, 0 rows affected (0.07 sec)
```

```
mysql>
mysql> CREATE TABLE Employee (
-> Employee_id INT PRIMARY KEY,
-> First_name VARCHAR(50),
-> Last_name VARCHAR(50),
-> Hire_date DATE,
-> Salary DECIMAL(10, 2),
-> Job_title VARCHAR(50),
-> Manager_id INT,
-> Department_id INT,
-> FOREIGN KEY (Manager_id) REFERENCES Manager(Manager_id),
-> FOREIGN KEY (Department_id) REFERENCES Departments(Department_id)
-> );
Query OK, 0 rows affected (0.07 sec)
```

```
mysql> show tables;
+-----+
| Tables_in_db1 |
+-----+
| departments   |
| employee      |
| locations     |
| manager       |
| student       |
+-----+
5 rows in set (0.00 sec)
```

```
mysql> ^C
mysql> INSERT INTO Manager (Manager_id, Manager_name) VALUES
-> (1, 'Amit Sharma'),
-> (2, 'Priya Singh'),
-> (3, 'Rajesh Patel');
Query OK, 3 rows affected (0.02 sec)
Records: 3 Duplicates: 0 Warnings: 0
```

```
mysql> INSERT INTO Locations (Location_id, Street_address, Postal_code, City,
State, Country_id) VALUES
-> (1, '15 MG Road', '110001', 'New Delhi', 'Delhi', 'IN'),
-> (2, '22 Bhopal Road', '452010', 'Bhopal', 'Madhya Pradesh', 'IN'),
-> (3, '45 Juhu Beach', '400049', 'Mumbai', 'Maharashtra', 'IN');
Query OK, 3 rows affected (0.02 sec)
Records: 3 Duplicates: 0 Warnings: 0
```

```
mysql> INSERT INTO Departments (Department_id, Department_name, Manager_id,
```

```

Location_id) VALUES
-> (1, 'Software Development', 1, 1),
-> (2, 'Human Resources', 2, 2),
-> (3, 'Sales and Marketing', 3, 3);
Query OK, 3 rows affected (0.02 sec)
Records: 3 Duplicates: 0 Warnings: 0

```

```

mysql> INSERT INTO Employee (Employee_id, First_name, Last_name, Hire_date, Salary,
Job_title, Manager_id, Department_id) VALUES
-> (1, 'Ravi', 'Kumar', '2020-01-15', 75000, 'Software Engineer', 1, 1),

-> (2, 'Neha', 'Singh', '2021-02-20', 80000, 'HR Manager', 2, 2),
-> (3, 'Amit', 'Verma', '2019-05-25', 95000, 'HR Specialist', 2, 2),
-> (4, 'Vikram', 'Sharma', '2020-06-10', 72000, 'Junior Developer', 1, 1),
-> (5, 'Anjali', 'Patel', '2021-03-18', 110000, 'Senior Engineer', 1, 1),
-> (6, 'Rohit', 'Joshi', '2018-07-02', 86000, 'Product Marketing Manager', 3,
3);
Query OK, 6 rows affected (0.02 sec)
Records: 6 Duplicates: 0 Warnings: 0

```

```

mysql> SELECT * FROM Employee;
+-----+-----+-----+-----+-----+-----+
| Employee_id | First_name | Last_name | Hire_date | Salary | Job_title |
| Manager_id | Department_id |
+-----+-----+-----+-----+-----+-----+
| 1 | Ravi | Kumar | 2020-01-15 | 75000.00 | Software Engineer |
| 1 | 1 | 1 |
| 2 | Neha | Singh | 2021-02-20 | 80000.00 | HR Manager |
| 2 | 2 | 2 |
| 3 | Amit | Verma | 2019-05-25 | 95000.00 | HR Specialist |
| 2 | 2 | 2 |
| 4 | Vikram | Sharma | 2020-06-10 | 72000.00 | Junior Developer |
| 1 | 1 | 1 |
| 5 | Anjali | Patel | 2021-03-18 | 110000.00 | Senior Engineer |
| 1 | 1 | 1 |
| 6 | Rohit | Joshi | 2018-07-02 | 86000.00 | Product Marketing |
Manager | 3 | 3 |
+-----+-----+-----+-----+-----+-----+
6 rows in set (0.01 sec)

```

```

mysql> SELECT First_name, Last_name, Salary
-> FROM Employee
-> WHERE Salary > (SELECT Salary FROM Employee WHERE Last_name = 'Singh');
+-----+-----+-----+
| First_name | Last_name | Salary |
+-----+-----+-----+
| Amit | Verma | 95000.00 |
| Anjali | Patel | 110000.00 |
| Rohit | Joshi | 86000.00 |
+-----+-----+-----+
3 rows in set (0.00 sec)

```

```

mysql> SELECT E.First_name, E.Last_name
-> FROM Employee E
-> JOIN Departments D ON E.Department_id = D.Department_id
-> JOIN Locations L ON D.Location_id = L.Location_id

```

```
-> WHERE E.Manager_id IS NOT NULL
-> AND L.Country_id = 'IN';
```

```
+-----+-----+
| First_name | Last_name |
+-----+-----+
| Ravi       | Kumar    |
| Vikram     | Sharma   |
| Anjali     | Patel    |
| Neha       | Singh    |
| Amit       | Verma    |
| Rohit      | Joshi    |
+-----+-----+
6 rows in set (0.00 sec)
```

```
mysql> SELECT First_name, Last_name, Salary
-> FROM Employee
-> WHERE Salary > (SELECT AVG(Salary) FROM Employee);
```

```
+-----+-----+-----+
| First_name | Last_name | Salary |
+-----+-----+-----+
| Amit       | Verma     | 95000.00 |
| Anjali     | Patel     | 110000.00 |
+-----+-----+-----+
2 rows in set (0.00 sec)
```

```
mysql> SELECT E.Employee_id, E.Last_name AS Employee_Last_name, E.Manager_id,
M.Manager_name AS Manager_Last_name
-> FROM Employee E
-> JOIN Manager M ON E.Manager_id = M.Manager_id;
```

```
+-----+-----+-----+-----+
| Employee_id | Employee_Last_name | Manager_id | Manager_Last_name |
+-----+-----+-----+-----+
| 1           | Kumar              | 1          | Amit Sharma       |
| 2           | Singh              | 2          | Priya Singh       |
| 3           | Verma              | 2          | Priya Singh       |
| 4           | Sharma             | 1          | Amit Sharma       |
| 5           | Patel              | 1          | Amit Sharma       |
| 6           | Joshi              | 3          | Rajesh Patel      |
+-----+-----+-----+-----+
6 rows in set (0.00 sec)
```

```
mysql> SELECT First_name, Last_name, Hire_date
-> FROM Employee
-> WHERE Hire_date > (SELECT Hire_date FROM Employee WHERE Last_name =
'Singh');
```

```
+-----+-----+-----+
| First_name | Last_name | Hire_date |
+-----+-----+-----+
| Anjali     | Patel     | 2021-03-18 |
+-----+-----+-----+
1 row in set (0.01 sec)
```