Experiment 3

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Subject Name: ADBMS	**Subject Code: 23CSP-333**

1. Aim: To design and implement SQL queries for employee data analysis, which include:

a) Determining the second highest employee ID from the Employee table using subqueries and aggregate functions.

b) Retrieving the highest-paid employees in each department, ensuring all employees with the maximum salary are included.

c) Merging salary records from multiple HR systems to identify each unique employee (by EmpID) with their lowest recorded salary.

2. Objective:

- To learn how to create and manipulate databases and tables in SQL.
- To use subqueries and aggregate functions for analytical problem-solving.
- To identify the highest-paid employees within each department.
- To combine data from multiple tables using set operations like `UNION ALL`.
- To derive insights such as second highest ID or minimum salary across records.
- .

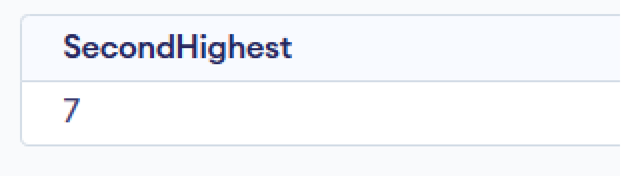
3. DBMS script and output:

Solution-(a)

```
CREATE TABLE Employee (
    EMP_ID INT
);

INSERT INTO Employee (EMP_ID) VALUES
(2),
(4),
(4),
(6),
(6),
(7),
(8),
(8),
(8);

SELECT MAX(EMP_ID) AS SecondHighest
FROM Employee
WHERE EMP_ID < (SELECT MAX(EMP_ID) FROM Employee);
```



SecondHighest
7

Solution-(b)

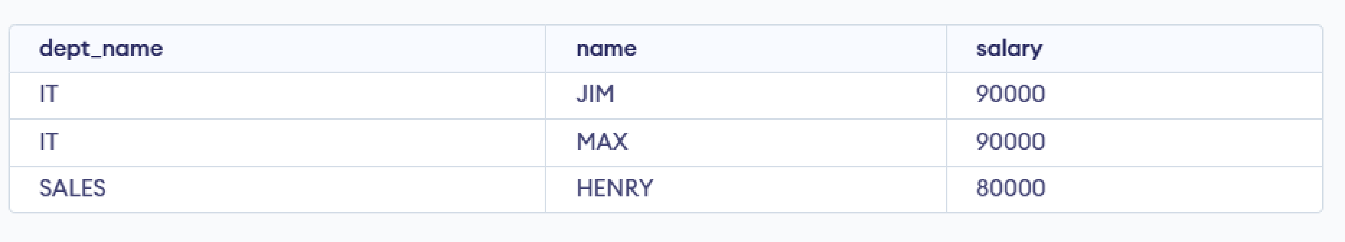
```
CREATE TABLE department (
   id INT PRIMARY KEY,
   dept_name VARCHAR(50)
);

CREATE TABLE employee (
   id INT,
   name VARCHAR(50),
   salary INT,
   department_id INT,
   FOREIGN KEY (department_id) REFERENCES department(id)
);

INSERT INTO department (id, dept_name) VALUES
(1, 'IT'),
(2, 'SALES');

INSERT INTO employee (id, name, salary, department_id) VALUES
(1, 'JOE', 70000, 1),
(2, 'JIM', 90000, 1),
(3, 'HENRY', 80000, 2),
(4, 'SAM', 60000, 2),
(5, 'MAX', 90000, 1);

SELECT d.dept_name, e.name, e.salary
FROM employee e
JOIN department d
ON e.department_id = d.id
WHERE e.salary=(
   SELECT MAX(salary)
   FROM employee
   WHERE department_id = e.department_id)
ORDER BY dept_name;
```



dept_name	name	salary
IT	JIM	90000
IT	MAX	90000
SALES	HENRY	80000

Solution-(c)

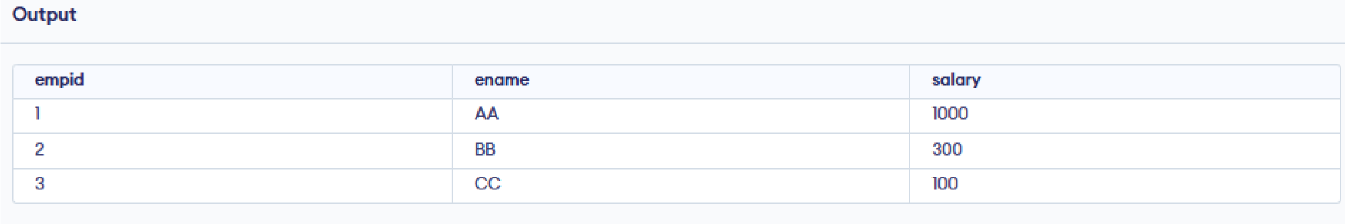
```
CREATE TABLE a (
       empid INT,
       ename VARCHAR(50),
       salary INT
   );

 INSERT INTO a VALUES
   (1, 'AA', 1000),
   (2, 'BB', 300);

  CREATE TABLE b (
       empid INT,
       ename VARCHAR(50),
       salary INT
   );

   INSERT INTO b VALUES
   (2, 'BB', 400),
   (3, 'CC', 100);


   SELECT empid, ename, MIN(salary) AS salary
   FROM (
SELECT * FROM a
UNION ALL
SELECT * FROM b
) s
GROUP BY empid, ename;
```



Output

empid	ename	salary
1	AA	1000
2	BB	300
3	CC	100

4. Learning Outcomes (What I have Learnt):

- Gained hands-on experience in creating databases and defining relational tables.
- Learned how to use aggregate functions and subqueries for analytical queries.
- Understood methods to identify second highest values and top performers in datasets.
- Acquired skills to join multiple tables and extract department-wise insights.
- Practiced combining datasets using UNION ALL and deriving results like minimum salary per employee.