Experiment - 3

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Subject Name: Advanced Database and Management System
Subject Code: 23CSP-333

1. **Aim:**

Medium-Problem Title: Identification of Highest-Paid Employee(s) in Each Department

Procedure (Step-by-Step):

1. Create DEPARTMENT and EMPLOYEES tables with primary and foreign keys.
2. Insert sample records into both tables.
3. Verify data using SELECT *.
4. Use INNER JOIN to link employees with their departments.
5. Apply correlated subquery with MAX(SALARY) to fetch top earners in each department.
6. Display department name, employee name, and salary.

Sample Output Description:

The output should display a list of: **Department Name, Employee Name , Salary.** The records must be grouped and ordered by department. Each department will show only those employee(s) whose salary equals the maximum salary of that department.

Hard-Problem Title: Identify Each Employee's Lowest Salary Across Two Legacy HR Systems

Procedure (Step-by-Step):

1. Create tables A and B with columns EMPID, ENAME, SALARY.
2. Insert sample employee records into both tables.
3. Verify data using SELECT *.
4. Merge tables with UNION ALL.
5. Use GROUP BY with MIN(SALARY) to find each employee's lowest salary.
6. Display EMPID, ENAME, and lowest SALARY.

Sample Output Description:

The result shows each employee from both systems with their **lowest salary**. Duplicate employees across tables are merged, and only the minimum salary is retained for each EMPID.

2. **Objective:** To design SQL queries that consolidate employee and departmental records from different scenarios—identifying the highest-paid employee(s) in each department (Medium Level) and retrieving each unique employee with their lowest salary across multiple HR systems (Hard Level)—thereby ensuring accurate and meaningful insights from relational databases.

3. **Expected Results-**

Medium Problem-

Input table: (Employee) -

ID	NAME	SALARY	DEPT_ID
1	JOE	70000	1
2	JIM	90000	1
3	HENRY	80000	2
4	SAM	60000	2
4	MAX	90000	1

Department table-

ID	DEPT_NAME
1	IT
2	SALES

Output table -

DEPT_NAME	NAME	SALARY
IT	MAX	90000
IT	JIM	90000
SALES	HENRY	80000

Hard Level Problem -

Table A -

EmpID	Ename	Salary
1	AA	1000
2	BB	300

Table B -

EmpID	Ename	Salary
2	BB	400
3	CC	100

Output table -

EmpID	Ename	Salary
1	AA	1000
2	BB	300
3	CC	100

4. SQL QUERY AND OUTPUTS -

Medium Problem -

```
------------EXPERIMENT-3 (MEDIUM LEVEL)-----------

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

CREATE TABLE EMPLOYEES (
    id INT PRIMARY KEY,
    emp_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 EMPLOYEES (id, emp_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 * from employee;
select * from department;


SELECT D.dept_name AS [DEPT_NAME],E.EMP_NAME,E.SALARY
FROM EMPLOYEES AS E
INNER JOIN
DEPARTMENT AS D
ON D.ID=E.department_id
WHERE E.SALARY IN
(
SELECT MAX(SALARY) FROM EMPLOYEES AS E2 WHERE E2.department_id=E.department_id
);
```

OUTPUTS OBTAINED -

Results | Messages

	id	emp_name	salary	department_id
1	1	JOE	70000	1
2	2	JIM	90000	1
3	3	HENRY	80000	2
4	4	SAM	60000	2
5	5	MAX	90000	1

Results | Messages

	id	dept_name
1	1	IT
2	2	SALES

```
SELECT D.dept_name AS [DEPT_NAME],E.EMP_NAME,E.SALARY
FROM EMPLOYEES AS E
INNER JOIN
DEPARTMENT AS D
ON D.ID=E.department_id
WHERE E.SALARY IN
(
SELECT MAX(SALARY) FROM EMPLOYEES AS E2 WHERE E2.department_id=E.department_id
);
```

100 % 4 0

Results Messages

	DEPT_NAME	EMP_NAME	SALARY
1	SALES	HENRY	80000
2	IT	MAX	90000
3	IT	JIM	90000

Hard Problem -

```
----------------EXPERIMENT-3(HARD LEVEL)------------------
CREATE TABLE A (
EMPID INT, ENAME VARCHAR(50),SALARY INT
);

CREATE TABLE B(
EMPID INT, ENAME VARCHAR(50),SALARY INT
);

INSERT INTO A(EMPID,ENAME,SALARY) VALUES
(1,'AA',1000),
(2,'BB',300);

INSERT INTO B(EMPID,ENAME,SALARY) VALUES
(2,'BB',600),
(3,'CC',100);

SELECT * FROM A;
SELECT * FROM B;

SELECT EMPID,ENAME AS ENAME ,MIN(SALARY) AS SALARY
FROM
(
SELECT *FROM A
UNION ALL
SELECT *FROM B
)
AS INTERMEDIATE_RESULT
GROUP BY EMPID,ENAME;
```

OUTPUTS OBTAINED-

```
59  SELECT * FROM A;
```

100 % 4 0

Results Messages

	EMPID	ENAME	SALARY
1	1	AA	1000
2	2	BB	300

```
60  SELECT * FROM B;
```

100 % 4 0

Results Messages

	EMPID	ENAME	SALARY
1	2	BB	600
2	3	CC	100

```
62  SELECT EMPID,ENAME AS ENAME ,MIN(SALARY) AS SALARY
63  FROM
64  (
65  SELECT *FROM A
66  UNION ALL
67  SELECT *FROM B
68  )
69  AS INTERMEDIATE_RESULT
70  GROUP BY EMPID,ENAME;
```

100 % 4 0

Results Messages

	EMPID	ENAME	SALARY
1	1	AA	1000
2	2	BB	300
3	3	CC	100