



Experiment 3

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**Subject Name: Advanced Database
and Management System**

Subject Code: 23CSP-333

1. Aim:

[EASY] Generate an Employee relation with only one attribute i.e, Emp_ID. Then, find the maximum Emp_ID, but excluding the duplicates.

[MEDIUM] Create Two Tables. Department (ID, name) and Employees (ID, name, Salary, deptID). Then output the highest earners from each department.

[HARD] Create two tables A and B with the attributes (EmpID, EmpName, Salary) and output the lowest salary of each employee across the two tables.

2. Tools Used: SQL Server Management Studio

3. Code:

-- EASY

```
CREATE TABLE TBL_EMPLOYEE (  
    EMP_ID INT  
);
```

```
INSERT INTO TBL_EMPLOYEE  
VALUES  
(2), (4), (4), (6), (6), (7), (8), (8);
```

```
SELECT * FROM TBL_EMPLOYEE;
```

```
SELECT MAX(EMP_ID)  
FROM TBL_EMPLOYEE  
WHERE EMP_ID IN
```



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```
(SELECT EMP_ID FROM TBL_EMPLOYEE GROUP BY EMP_ID HAVING  
COUNT(EMP_ID) = 1);
```

----- MEDIUM -----

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

-- Create Employee Table

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

-- Insert into Department Table

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

-- Insert into Employee Table

```
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 as e  
inner join  
department d  
on e.department_id = d.id  
where e.salary in  
(select max(salary) from  
employee group by department_id);
```



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```
-- or
```

```
Select e.name, d.dept_name, e.salary
from
employee as e
inner join
department d
on e.department_id = d.id
where e.salary in
(Select max(salary) from
employee where department_id = e.department_id)
order by d.dept_name;
```

```
-- HARD: GIVEN TWO TABLES OUTPUT THEM AS FOLLOWS:
```

```
CREATE TABLE TBL_A (
    EMP_ID INT PRIMARY KEY,
    E_NAME VARCHAR(20),
    SALARY INT
);
```

```
CREATE TABLE TBL_B (
    EMP_ID INT PRIMARY KEY,
    E_NAME VARCHAR(20),
    SALARY INT
);
```

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

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

```
/*
OUTPUT-
EMP_ID E_NAME SALARY
```



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```
1      AA      1000
2      BB      300 (MIN)
3      CC      100
*/
```

```
SELECT EMP_ID, E_NAME, MIN(SALARY)
FROM(
SELECT * FROM TBL_A AS A
UNION ALL
SELECT * FROM TBL_B AS B
) AS RES
GROUP BY EMP_ID, E_NAME;
```

4. Output:

[EASY]

	EMP_ID
1	2
2	4
3	4
4	6
5	6
6	7
7	8
8	8

	(No column name)
1	7

[MEDIUM]

	dept_name	name	salary
1	IT	JIM	90000
2	IT	MAX	90000
3	SALES	HENRY	80000

[HARD]

	EMP_ID	E_NAME	(No column name)
1	1	AA	1000
2	2	BB	300
3	3	CC	100

5. Learning Outcomes:

- Understand the role of subqueries in simplifying complex SQL operations.
- Apply sub-queries in SELECT, WHERE, FROM clauses to retrieve specific data.
- Utilize sub-queries for filtering, aggregation, and conditional logic.
- Analyze query performance implications when using sub-queries versus joins.