



DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

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Experiment 3

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Subject Name: ADBMS

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1. Aim:

To design and implement SQL queries for creating tables, inserting data, and retrieving meaningful information using relational concepts.

- To apply aggregate functions, joins, subqueries, and set operations for solving database problems.

◆ **Part A – Easy Level:**

- To create a table for storing employee IDs and insert sample data.
- To identify and retrieve the maximum employee ID that does not have duplicates.

◆ **Part B – Medium Level:**

- To create department and employee tables with a foreign key relationship.
- To retrieve the employee(s) having the highest salary in each department using joins and subqueries.

◆ **Part C – Hard Level:**

- To create two tables containing employee details with salaries.
- To combine the tables and retrieve the minimum salary for each employee using grouping and aggregate functions.

2. Objective:

- ✓ To understand the use of **GROUP BY** and **aggregate functions** for filtering data.
- ✓ To apply **joins and subqueries** for department-wise salary analysis.
- ✓ To implement **foreign key relationships** for relational database design.
- ✓ To use **UNION ALL** and **grouping** for analyzing data across multiple tables.
- ✓ To strengthen SQL query writing skills for handling duplicates, aggregation, and joins.



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3. ADBMS script and output:

EASY-LEVEL PROBLEM

```
CREATE TABLE Employeee (
    EmpID INT ,
);

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

Select Max(EmpID) as [Maximum ID] from (Select EmpID from Employeee Group by EmpID having Count(*) < 2)as Subquery;

MEDIUM LEVEL PROBLEM:

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



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);

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

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

```
INSERT INTO employeee (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 departmentt as d Join employeee as e on d.id = e.department_id where e.salary in (

Select max(e2.salary) from employeee as e2 where e2.department_id = e.department_id);

HARD LEVEL PROBLEM

Create table A1 (ID int , Ename varchar(50), Salary int);

Create Table B1(ID int, Ename varchar(50), Salary int);

Insert into A1 values(1,'AA',1000);

Insert into A1 values(2,'BB',300);

Insert into B1 values(2,'BB',400);



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Insert into B1 values(3,'CC',100);

Select ID, EName, Min(Salary) as Min_Salary from
(Select * from A1 Union All Select* from B1) as combined Group by Ename, ID;

OUTPUTS:

Maximum ID	
1	7

Figure 1: Easy Level Problem

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

Figure 2: Medium level Problem



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	ID	EName	Min_Salary
1	1	AA	1000
2	2	BB	300
3	3	CC	100

Figure 3: Hard Level Problem