

# **Experiment 3**

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Subject Name: ADBMS

Subject Code: 23CSP-333

## 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.

# 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)
```

```
);
CREATE TABLE employeeee (
  id INT,
  name VARCHAR(50),
  salary INT,
  department id INT,
  FOREIGN KEY (department_id) REFERENCES departmentt(id)
);
INSERT INTO departmentt (id, dept name) VALUES
(1, 'IT'),
(2, 'SALES');
INSERT INTO employeeee (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 department as d Join employeeee as e on d.id =
e.department id where e.salary in (
Select max(e2.salary) from employeeee 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);
```

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:**

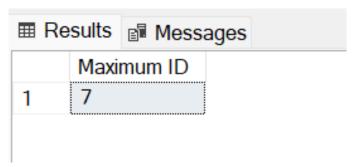


Figure 1: Easy Level Problem

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

Figure 2: Medium level Problem

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

Figure 3: Hard Level Problem