

University Institute of Engineering Department of Computer Science & Engineering

EXPERIMENT: 3

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BRANCH: BE-CSE SECTION/GROUP: KRG 3B

SEMESTER: 5TH SUBJECT CODE: 23CSP-333

SUBJECT NAME: ADBMS

1. Aim Of The Practical:

Max Value without Duplicates [EASY]

- Create a table of Employee IDs.
- Insert sample IDs (with duplicates).
- Write a query to return the maximum EmpID excluding duplicate values using subqueries.

Department Salary Champions [MEDIUM]

- Create dept and employee tables with a relationship.
- Insert sample department and employee data.
- Use subqueries to find the employee(s) with the highest salary in each department.
- If multiple employees share the max salary in a department, include all.

Merging Employee Histories: Who Earned Least? [HARD]

- Create two legacy tables (TableA and TableB).
- Insert sample records (some overlapping).
- Merge both tables and find the minimum salary per employee using subqueries.
- 2. Tools Used: SQL Server Management Studio
- 3. Code:

```
--easy question
   CREATE TABLE EMFLLOYEE (EMFLID INT)
  INSERT INTO EMFILOYEE VALUES (1)
  INSERT INTO EMFILOYEE VALUES (2)
   INSERT INTO EMFILOYEE VALUES (3)
  INSERT INTO EMFILOYEE VALUES (2)
  INSERT INTO EMFILOYEE VALUES (4)
  INSERT INTO EMFLLOYEE VALUES (6)
  INSERT INTO EMFILOYEE VALUES (6)
   INSERT INTO EMFILOYEE VALUES (7)
  INSERT INTO EMFILOYEE VALUES (7)
  SELECT * FROM EMfILOYEE
  SELECT MAX(EMflID) as empid FROM EMflLOYEE WHERE EMflID NOT IN
  (SELECT EMflID
  FROM EMFLLOYEE
  GROUFL BY EMFLID HAVING COUNT(EMFLID) > 1)
  --medium question
CREATE TABLE dept (
id INT flRIMARY KEY,
    Dept_Name VARCHAR(50) NOT NULL
);
CREATE TABLE employee (
id INT flRIMARY KEY,
    EmpName VARCHAR(50),
    Salary INT,
    Dept_Id INT FOREIGN KEY REFERENCES dept(id)
);
INSERT INTO dept VALUES (1, 'IT'), (2, 'SALES');
INSERT INTO employee 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.EmpName, E.Salary
FROM employee AS E
```

```
INNER JOIN dept AS D
      ON E.Dept_Id = D.id
  WHERE E.Salary IN (
      SELECT MAX(E2.Salary)
      FROM employee AS E2
      WHERE E2.Dept_Id = E.Dept_Id
  );
--hard question
CREATE TABLE TableA (
    Empid INT,
    Ename VARCHAR(50),
    Salary INT
);
CREATE TABLE TableB (
    Empid INT,
    Ename VARCHAR(50),
    Salary INT
);
INSERT INTO TableA VALUES (1, 'AA', 1000), (2, 'BB', 300);
INSERT INTO TableB VALUES (2, 'BB', 400), (3, 'CC', 100);
-- Find each employee with minimum salary across both tables
SELECT Empid, Ename, MIN(Salary) AS LowestSalary
FROM (
    SELECT Empid, Ename, Salary FROM TableA
    UNION ALL
    SELECT Empid, Ename, Salary FROM TableB
) AS Combined
GROUfl BY Empid, Ename;
```

4. Output:

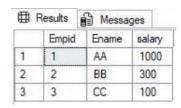
[EASY]

| | empid | |
|---|-------|--|
| 1 | 4 | |

[MEDIUM]

| Results Messages | | | | |
|------------------|---------------|--------|----|--|
| | department_id | salary | id | |
| 1 | 2 | 80000 | 2 | |
| 2 | 1 | 90000 | 1 | |
| 3 | 1 | 90000 | 1 | |

[HARD]



5. Learning Outcomes:

- Learn to create and define relational database tables using the CREATE TABLE command, along with understanding common data types such as INT and VARCHAR.
- Build practical skills in setting up primary keys to ensure each record can be uniquely identified.
- Understand how to define and enforce foreign key constraints to preserve data consistency between linked tables (e.g., Books linked to Authors).
- Gain the ability to perform INNER JOIN operations to merge records from multiple tables using a shared key (such as author_id).
- Learn how to structure normalized relational schemas with foreign key relationships for real-world examples like departments and courses.
 Become comfortable inserting several rows into related tables using the INSERT INTO statement.
- Master the use of subqueries alongside GROUP BY and HAVING to summarize and filter aggregated results.
- Apply query logic to select data from a parent table based on conditions derived from aggregated results in a related child table.