Experiment 1.2

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Semester: 5th **Date of Performance:** 22/07/25

Subject Name: ADBMS **Subject Code:** 23CSP-333

1. Aim:

Problem Title: Department-Course Subquery and Access Control

1. Design normalized tables for departments and the courses they offer, maintaining a foreign key relationship.
2. Insert five departments and at least ten courses across those departments.
3. Use a subquery to count the number of courses under each department.
4. Filter and retrieve only those departments that offer more than two courses.
5. Grant SELECT-only access on the courses table to a specific user.

2. Objective:

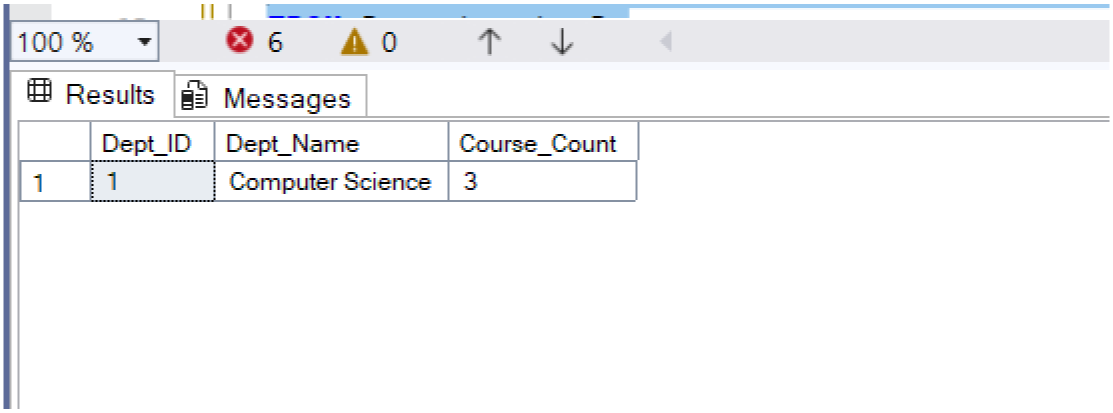
- Create normalized Departments and Courses tables with a foreign key relationship.
- Insert at least 5 departments and 10 courses across them.
- Use a subquery to count the number of courses per department.
- Retrieve only departments that offer more than 2 courses using a subquery filter.
- Grant SELECT-only access on the Courses table to a specific user.

3. Code :

```
CREATE TABLE Departments (
   Dept_ID INT PRIMARY KEY,
   Dept_Name VARCHAR(100) NOT NULL
);

CREATE TABLE Courses (
    Course_ID INT PRIMARY KEY,
    Course_Name VARCHAR(100) NOT NULL,
    Dept_ID INT,
    FOREIGN KEY (Dept_ID) REFERENCES Departments(Dept_ID)
);

INSERT INTO Departments (Dept_ID, Dept_Name) VALUES
(1, 'Computer Science'),
(2, 'Mathematics'),
(3, 'Physics'),
(4, 'Chemistry'),
(5, 'English');

INSERT INTO Courses (Course_ID, Course_Name, Dept_ID) VALUES
(101, 'Data Structures', 1),
(102, 'Operating Systems', 1),
(103, 'Database Systems', 1),
(104, 'Linear Algebra', 2),
(105, 'Calculus', 2),
(106, 'Quantum Mechanics', 3),
(107, 'Thermodynamics', 3),
(108, 'Organic Chemistry', 4),
(109, 'British Literature', 5),
(110, 'World Literature', 5);

SELECT  D.Dept_ID,  D.Dept_Name, COUNT(C.Course_ID) AS Course_Count
FROM Departments D
JOIN Courses C ON D.Dept_ID = C.Dept_ID
```

```
GROUP BY D.Dept_ID, D.Dept_Name
HAVING COUNT(C.Course_ID) > 2;
```

4. Output :



	Dept_ID	Dept_Name	Course_Count
1	1	Computer Science	3