**Experiment 1-B**

**Student Name: Aryan Anthwal UID: 23BCS13302**

**Branch: BE-CSE Section/Group: Krg-3A**

**Semester: 5th Subject Name: ADBMS Subject Code: 23CSH-301 Date: 17 / 07 / 2025**

## Aim:

##### **Medium-Level Problem**

##### **Problem Title**: Department-Course Subquery and Access Control

**Procedure (Step-by-Step):**

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.

**Sample Output Description:**

The result shows the names of departments which are associated with more than two courses in the system.

**Code:**

-- Create Department Table

CREATE TABLE Department (

DeptID INT PRIMARY KEY,

DeptName VARCHAR(100)

);

-- Create Course Table

CREATE TABLE Course (

CourseID INT PRIMARY KEY,

CourseName VARCHAR(100),

DeptID INT,

FOREIGN KEY (DeptID) REFERENCES Department(DeptID)

);

-- Insert Departments

INSERT INTO Department VALUES

(1, 'Computer Science'),

(2, 'Physics'),

(3, 'Mathematics'),

(4, 'Chemistry'),

(5, 'Biology');

-- Insert Course

INSERT INTO Course VALUES

(101, 'Data Structures', 1),

(102, 'Operating Systems', 1),

(103, 'Quantum Mechanics', 3),

(104, 'Electromagnetism', 2),

(105, 'Linear Algebra', 3),

(106, 'Calculus', 3),

(107, 'Organic Chemistry', 4),

(108, 'Physical Chemistry', 4),

(109, 'Genetics', 5),

(110, 'Molecular Biology', 5);

SELECT DeptName

FROM Department

WHERE DeptID IN (

SELECT DeptID

FROM COURSE

GROUP BY DeptID

HAVING COUNT(\*) > 2

)

-- Step 1: Create Login at server level (run this in the master database)

CREATE LOGIN AMAN

WITH PASSWORD = 'AMAN@04';

-- Step 2: Switch to your target database (replace with your actual database name)

USE DB\_KRG\_3A;

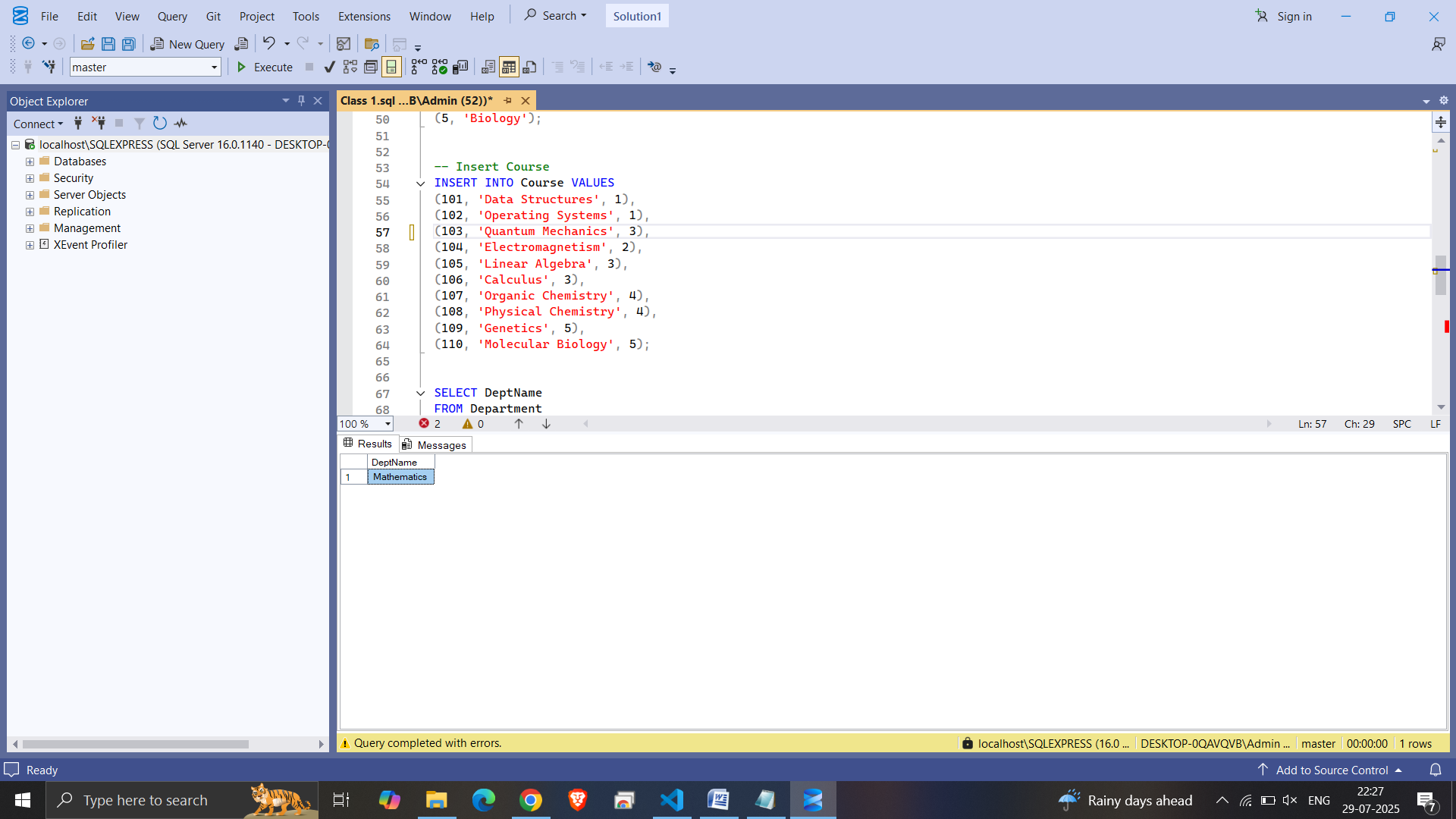
-- Step 3: Create a user for that login inside the current database

CREATE USER AMAN\_04 FOR LOGIN AMAN;

-- Step 4: Grant SELECT-only access on the Course table

GRANT SELECT ON Course TO AMAN;

**Output:**

****