# **Experiment 2**

**AIM:-** Create a PostgreeSQL Query for Department-Course Subquery and Access Control

**Explanation:-** Here in this query we will be looking forward to create three tables named Students, Courses and Enrolments with three students named Ashish, Samaran and Vaibhav along with their courses called DBMS, Operating System and Computer Networks and for the Access control we will be creating a user with any name and for granting the permission for any kind of statement like Select statements we will use the keyword Grant and in order to take that granted permission back we will be using the keyword Revoke

## Code:

--creating the tables we use the following queries

CREATE TABLE Students(student\_id INT PRIMARY KEY, name VARCHAR(100), dob DATE);

CREATE TABLE Courses(course\_id INT PRIMARY KEY, title VARCHAR(100));

CREATE TABLE Enrollments(enroll\_id INT PRIMARY KEY, student\_id INT, course\_id INT, grade VARCHAR(2), FOREIGN KEY (student\_id) REFERENCES Students(student\_id), FOREIGN KEY (course\_id) REFERENCES Courses(course\_id));

--for inserting the values to the table we use the following queries

Insert into Students( student\_id, name, dob) values(1, 'Ashish', '2002-03-14'), (2, 'Samaran', '2003-01-05'), (3, 'Vaibhav', '2003-01-05');

Insert into Courses(course\_id, title) values (101,'DBMS'), (102,'Operating System'), (103, 'Computer Networks');

Insert into Enrollments(enroll\_id, student\_id, course\_id, grade) values (1, 1, 101, 'A') , (2, 1, 102, 'B+');

-- To showcase all the tables so created we use the following queries

Select \* from Students;

Select \* from Courses:

select \* from Enrollments;

-- to delete the table

**DROP TABLE Courses;** 

**DROP TABLE Students**;

DROP TABLE Enrollments;

Begin; --here the (TCL) starts

Savepoint Here; --here we create a checkpoint

select \* from Enrollments; --for showcasing the table

INSERT INTO Enrollments(enroll\_id, student\_id, course\_id, grade) VALUES (1, 2, 103, 'A+'); -- This is created to fail intentionally

Rollback to savepoint Here; -- Checkpoint created

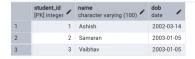
COMMIT; -- used to to finalize the safe state

SELECT Students.name AS student\_name, Courses.title AS course\_title, Enrollments.grade

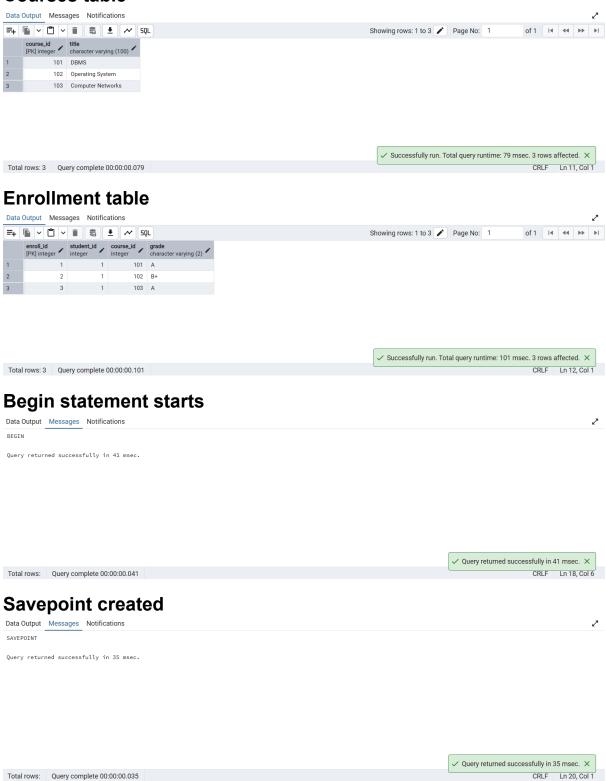
FROM Enrollments JOIN Students ON Enrollments.student\_id = Students.student\_id JOIN Courses ON Enrollments.course\_id = Courses.course\_id; --the tables created above are joined together to make all data required by the dev to be showcased the way we want in lesser time

### **OUTPUT:**

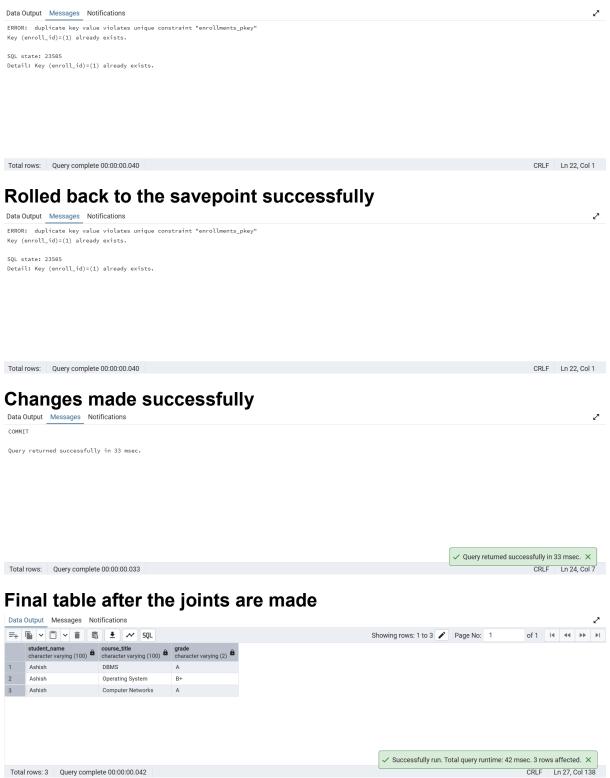
#### Students table



#### **Courses table**



### The failed testcase as mentioned in the code



## **Learning Outcomes:**

1. we learnt how the tables are created and how the values are inserted

- **2.** we learnt how the TCL commands are used (Begin, Savepoint, Rollback, Commit)
- **3.** we learnt about joins of the tables