NAME- Himangi Bhatt

UID-23BCC70020

SUB-ADBMS

EXPERIMENT-02

* AIM:- Part A

Title: Create Department and Course Tables with Normalization (up to 3NF)

* **CODE:-**

-- Drop if exists for clean re-execution

DROP TABLE IF EXISTS Courses;

DROP TABLE IF EXISTS Departments;

-- Create Departments table

CREATE TABLE Departments ( dept\_id INT PRIMARY KEY,

dept\_name VARCHAR(50) UNIQUE NOT NULL

);

-- Create Courses table

CREATE TABLE Courses ( course\_id INT PRIMARY KEY, course\_name VARCHAR(100) NOT NULL, dept\_id INT NOT NULL,

FOREIGN KEY (dept\_id) REFERENCES Departments(dept\_id) ON DELETE

CASCADE

);

• AIM :- **Part B :-**

**Title**: Insert Sample Data into Department and Course Tables

➢ **INSERTION OF DATA:**

**-- Insert Departments**

INSERT INTO Departments (dept\_id, dept\_name) VALUES

(1, 'Computer Science'),

(2, 'Electrical'),

(3, 'Mechanical'),

(4, 'Civil'),

(5, 'Electronics');

**-- Insert Courses**

INSERT INTO Courses (course\_id, course\_name, dept\_id) VALUES

(101, 'DBMS', 1),

(102, 'Operating Systems', 1),

(103, 'Power Systems', 2),

(104, 'Digital Circuits', 2),

(105, 'Thermodynamics', 3),

(106, 'Fluid Mechanics', 3),

(107, 'Structural Engineering', 4),

(108, 'Surveying', 4),

(109, 'Embedded Systems', 5),

(110, 'VLSI Design', 5);

**-- Insert Courses if more than 2 courses**

SELECT dept\_name

FROM Departments

WHERE dept\_id IN (

SELECT dept\_id

FROM Courses

GROUP BY dept\_id

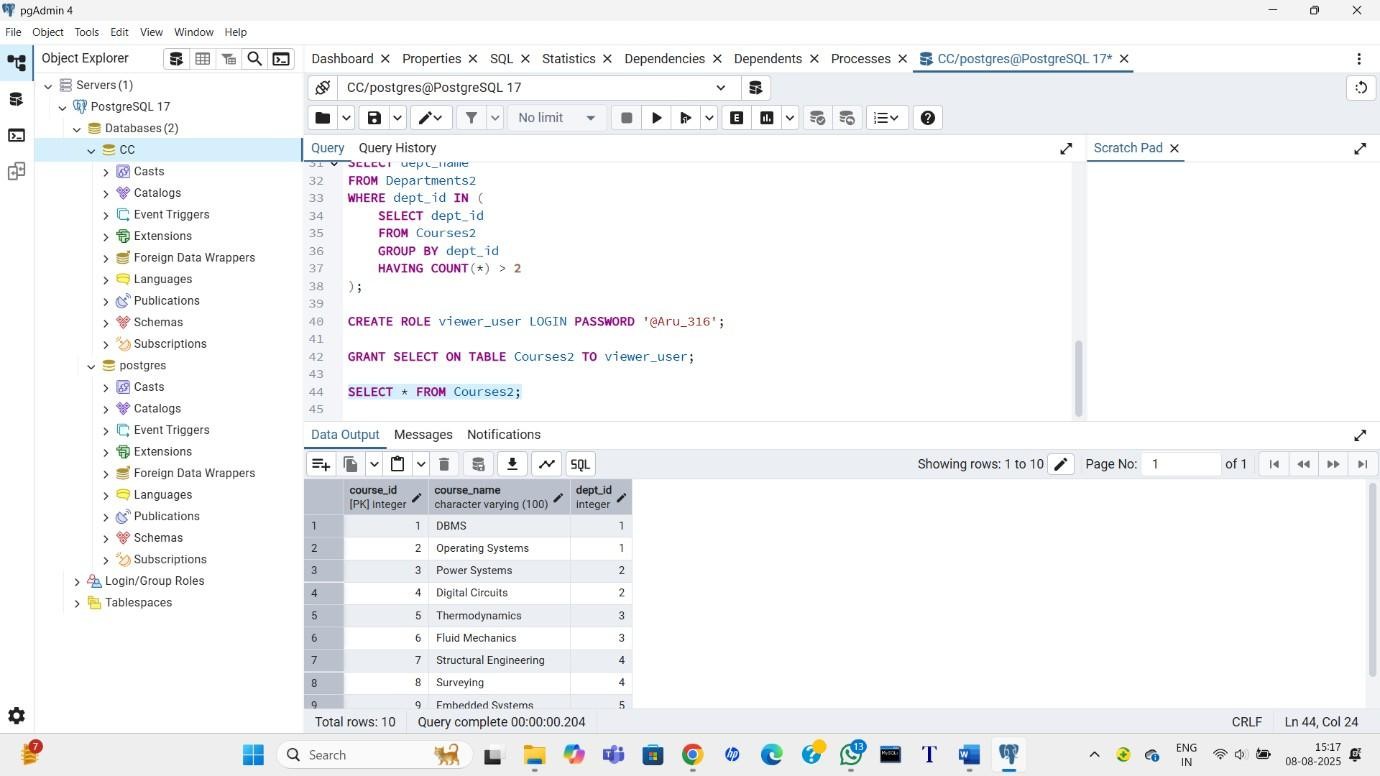
HAVING COUNT(\*) > 2

);

**-- Grant Access to the user**

GRANT SELECT ON TABLE Courses TO viewer\_user;

* **OUTPUTS:-**



* **LEARNING OUTCOMES:-**
* Understand and apply **3NF normalization** in database design. ➢ Use **foreign key constraints** to maintain referential integrity.
* Write **subqueries** using GROUP BY and HAVING to analyze relationships.
* Implement **access control** using GRANT statements in PostgreSQL.
* Handle **real-world schema modeling** and data organization tasks efficiently.