UNIVERSITY INSTITUTE of COMPUTING
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NAAC GRADE A+ ACCREDITED UNIVERSITY

Worksheet -3

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Semester:2nd **Date of Performance: 27/01/2026**
Subject Name: TECHNICAL TRAINING I **Subject Code: 25CAP-652**

1. Aim/Overview of the practical:

To implement conditional decision-making logic in PostgreSQL using IF-ELSE constructs and CASE expressions for classification, validation, and rule-based data processing.

2. Objective:

- To understand conditional execution in SQL
- To implement decision-making logic using CASE expressions
- To simulate real-world rule validation scenarios
- To classify data based on multiple conditions
- To strengthen SQL logic skills required in interviews and back-end systems.

3. S/W Requirement:

→ Oracle Database Express Edition
→ pgAdmin.

Procedure:

Start PostgreSQL Environment

Prerequisite Understanding

First create a table that stores:

- A unique identifier
- A schema or entity name
- A numeric count representing violations or issues

Populate the table with multiple records having different violation counts.

Step 1: Classifying Data Using CASE Expression

- Retrieve schema names and their violation counts.
- Use conditional logic to classify each schema into categories such as:
  - No Violation
  - Minor Violation
  - Moderate Violation
  - Critical Violation

Step 2: Applying CASE Logic in Data Updates

- Add a new column to store approval status.
- Update this column based on violation count using conditional rules such as:
  - Approved
  - Needs Review
  - Rejected

Step 3: Implementing IF–ELSE Logic Using PL/pgSQL

- Use a procedural block instead of a SELECT statement.
- Declare a variable representing violation count.
- Display different messages based on the value of the variable using IF–ELSE logic.

Step 4: Real-World Classification Scenario (Grading System)

- Create a table to store student names and marks.
- Classify students into grades based on their marks using conditional logic.

Step 5: Using CASE for Custom Sorting

- Retrieve schema details.
- Apply conditional priority while sorting records based on violation severity.

4.Code:

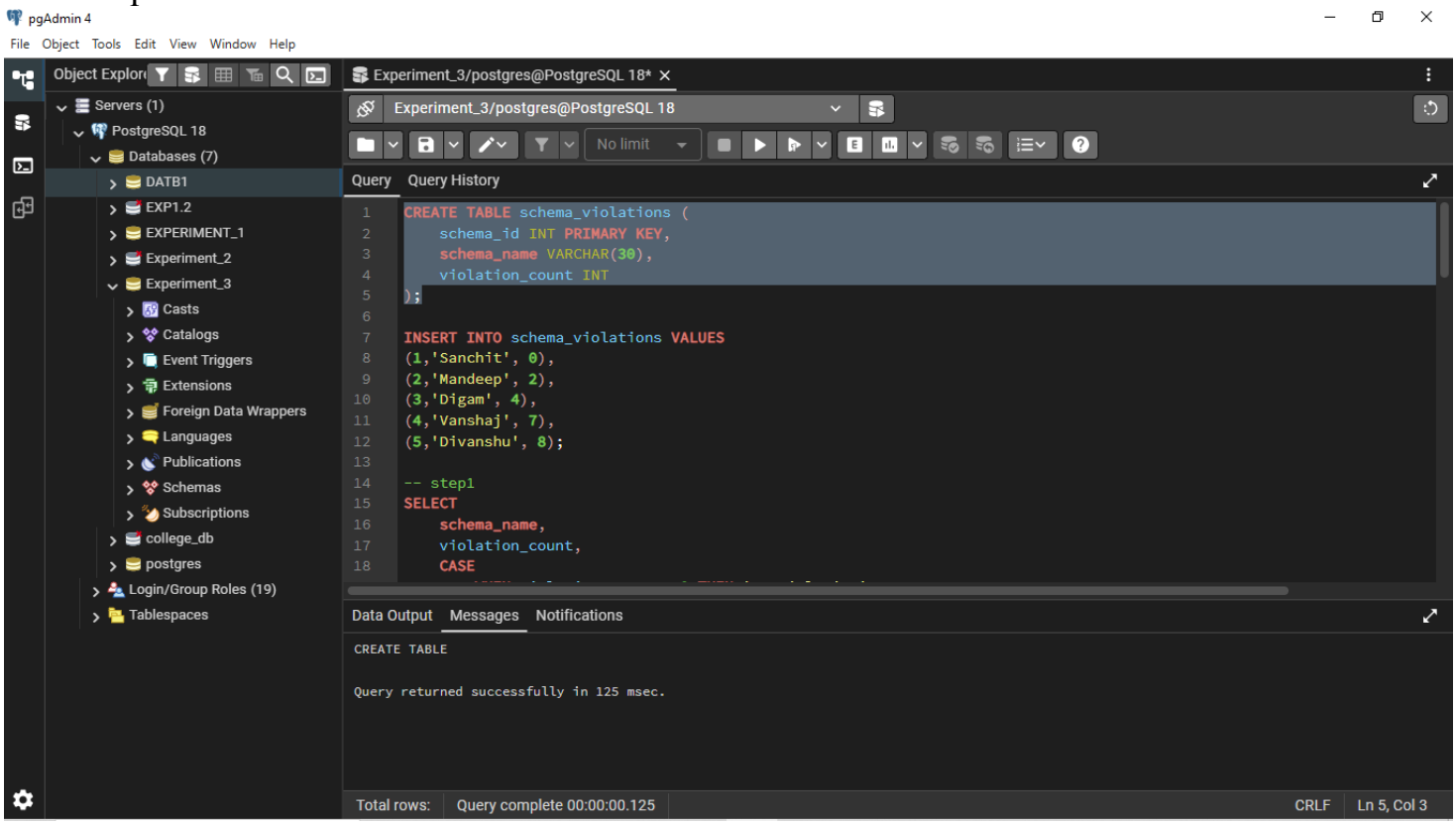
```
CREATE TABLE schema_violations (
   schema_id INT PRIMARY KEY,
   schema_name VARCHAR(30),
   violation_count INT
);

INSERT INTO schema_violations VALUES
(1,'Sanchit', 0),
(2,'Mandeep', 2),
(3,'Digam', 4),
(4,'Vanshaj', 7),
(5,'Divanshu', 8);

-- step1
SELECT
   schema_name,
   violation_count,
   CASE
                WHEN violation_count = 0 THEN 'No Violation'
                WHEN violation_count BETWEEN 1 AND 3 THEN 'Minor Violation'
                WHEN violation_count BETWEEN 4 AND 7 THEN 'Moderate Violation' ELSE 'Critical
Violation' END AS violation_status
FROM schema_violations;


-- step2

ALTER TABLE schema_violations
ADD COLUMN approval_status VARCHAR(20);

UPDATE schema_violations
SET approval_status = CASE WHEN violation_count = 0 THEN 'Approved' WHEN violation_count <= 5
THEN 'Needs Review' ELSE 'Rejected' END;

SELECT * FROM schema_violations;

--step 3
```

```
DO $$
DECLARE
   v_count INT := 6;
BEGIN
   IF v_count = 0 THEN
      RAISE NOTICE 'No violations detected';
   ELSIF v_count <= 5 THEN
      RAISE NOTICE 'Minor violations review required';
   ELSE
      RAISE NOTICE 'Critical violations access denied';
   END IF;
END $$;

--step 4
CREATE TABLE students (
   student_id INT PRIMARY KEY,
   student_name VARCHAR(30),
   marks INT
);

INSERT INTO students VALUES
(1,'Sanchit', 88),
(2,'Mandeep', 80),
(3,'Digam', 72),
(4,'Vanshaj',45),
(5,'Divanshu', 30);


SELECT student_name,marks,
   CASE
      WHEN marks >= 80 THEN 'A'
      WHEN marks >= 70 THEN 'B'
      WHEN marks >= 60 THEN 'C'
      WHEN marks >= 40 THEN 'D'
      ELSE 'F'
   END AS grade
FROM students;

--step 5

SELECT schema_name,violation_count FROM schema_violations
ORDER BY CASE
         WHEN violation_count = 0 THEN 1
         WHEN violation_count <= 3 THEN 2
         WHEN violation_count <= 7 THEN 3
```

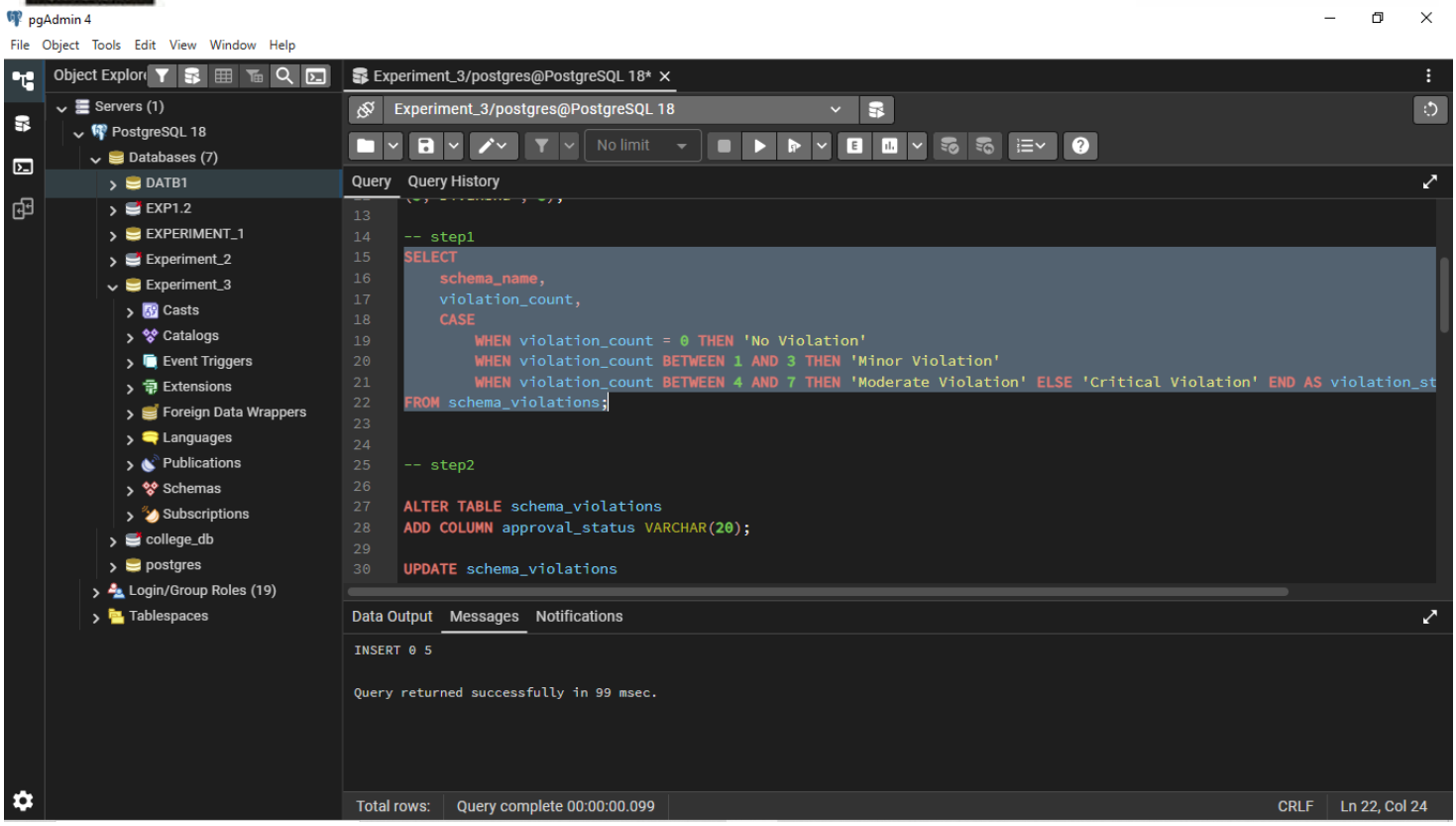
```
    ELSE 4
        END;
```

5.Output:

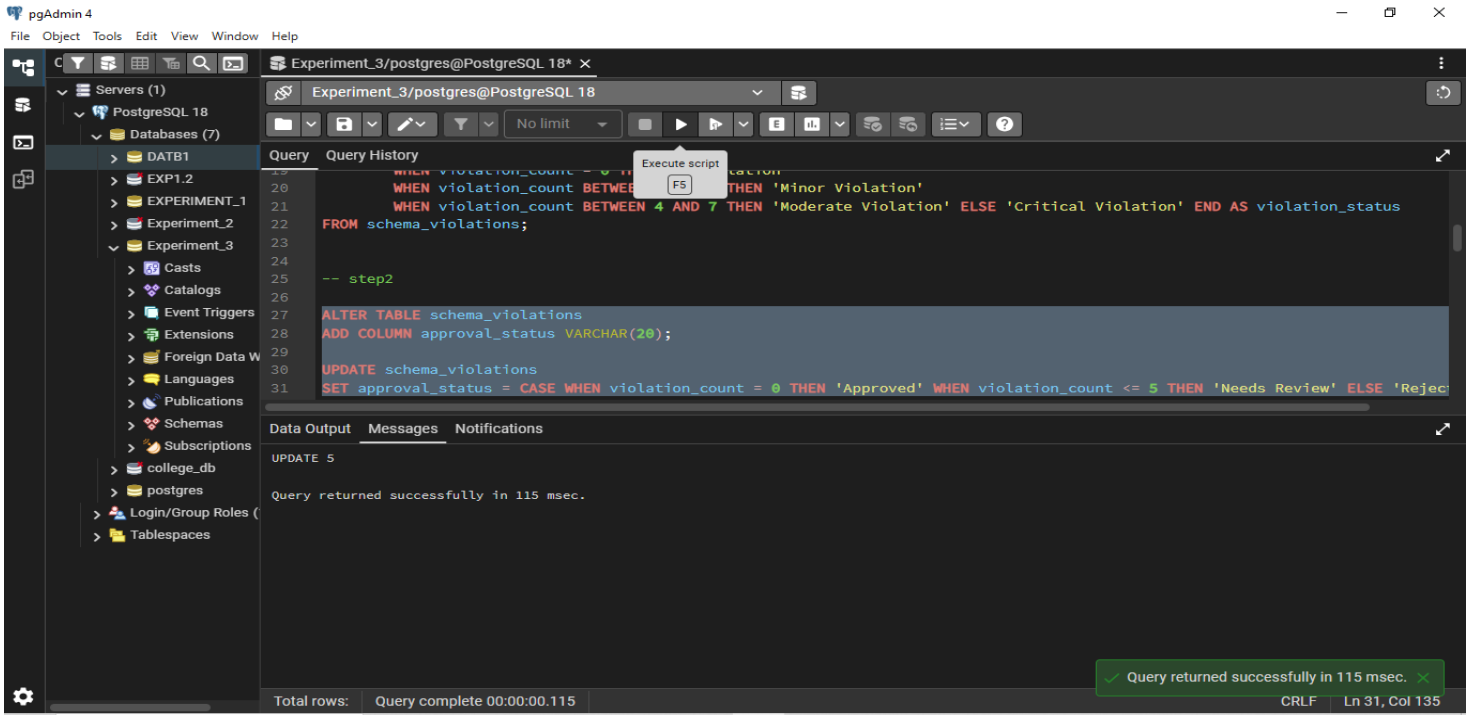
Prerequisite table creation



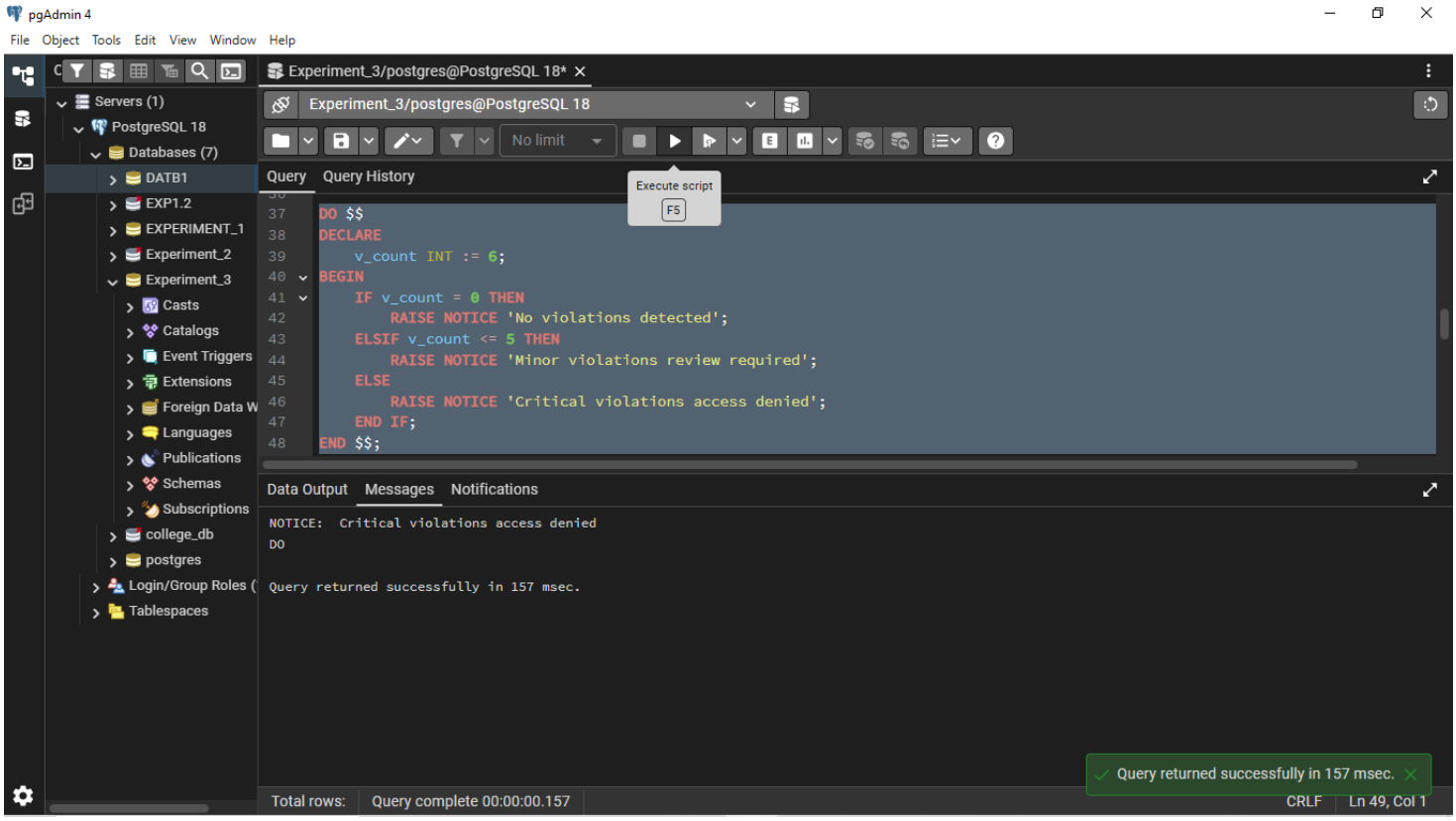
Step1



Step2 add – update - alter column



Step3


pgAdmin 4
File Object Tools Edit View Window Help
Experiment_3/postgres@PostgreSQL 18*
Servers (1)
PostgreSQL 18
Databases (7)
DATB1
EXP1.2
EXPERIMENT_1
Experiment_2
Experiment_3
Casts
Catalogs
Event Triggers
Extensions
Foreign Data W
Languages
Publications
Schemas
Subscriptions
college_db
postgres
Login/Group Roles
Tablespaces
Experiment_3/postgres@PostgreSQL 18
No limit
Query
Query History
Execute script
F5
DO $$
DECLARE
v_count INT := 6;
BEGIN
IF v_count = 0 THEN
RAISE NOTICE 'No violations detected';
ELSIF v_count <= 5 THEN
RAISE NOTICE 'Minor violations review required';
ELSE
RAISE NOTICE 'Critical violations access denied';
END IF;
END $$;
Data Output
Messages
Notifications
NOTICE: Critical violations access denied
DO
Query returned successfully in 157 msec.
Query returned successfully in 157 msec.
Total rows:
Query complete 00:00:00.157
CRLF
Ln 49, Col 1

Step4

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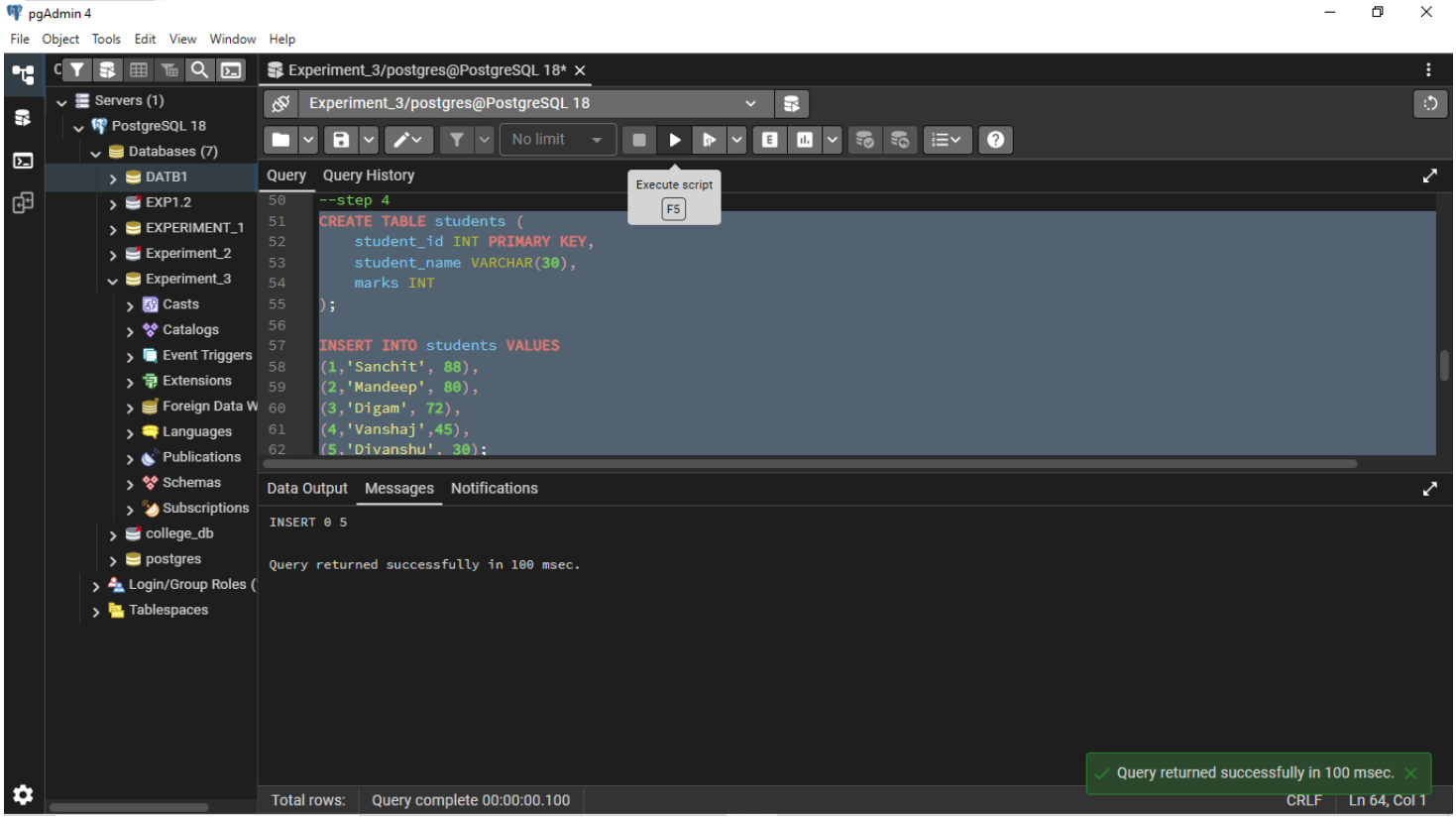
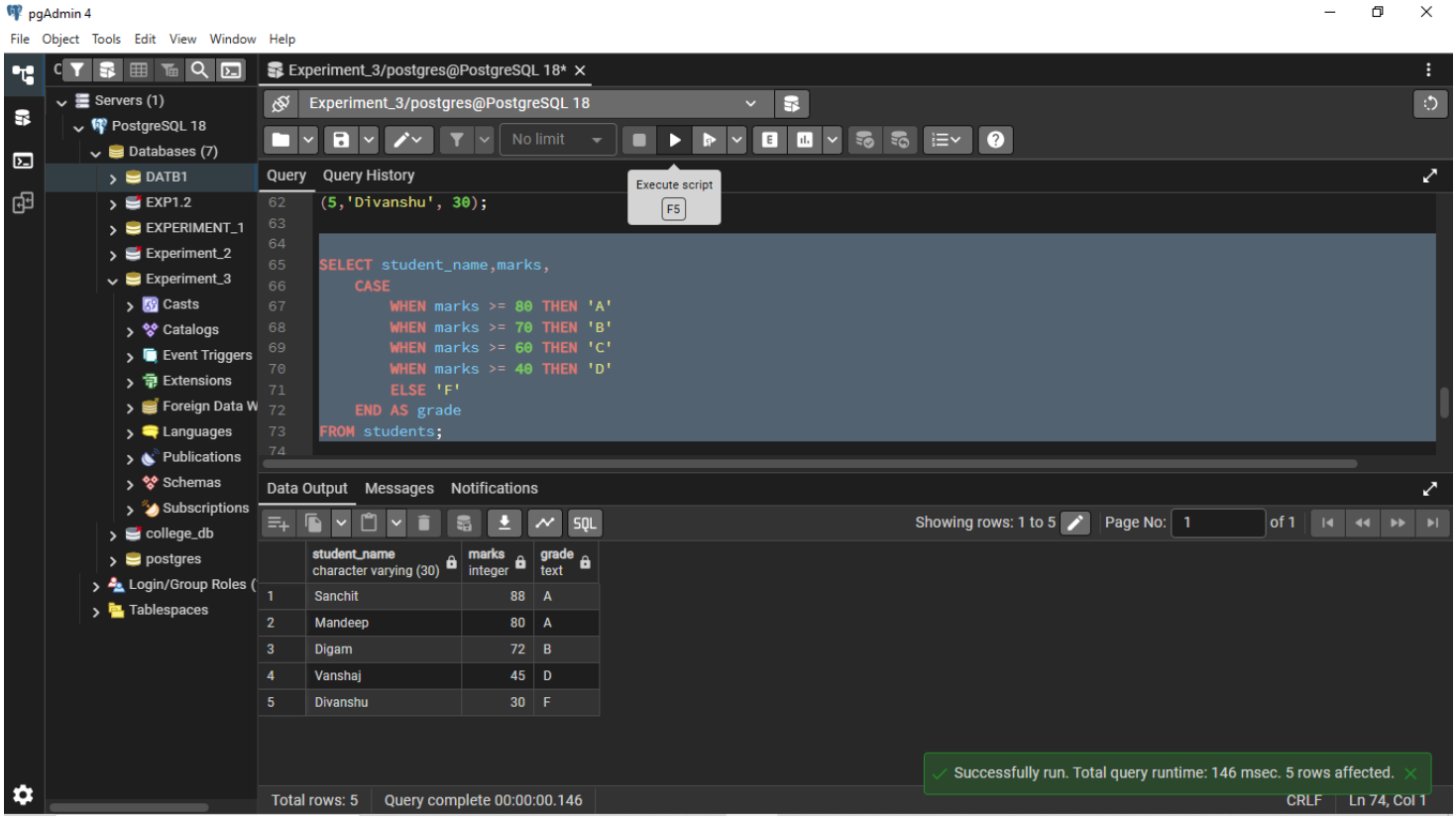
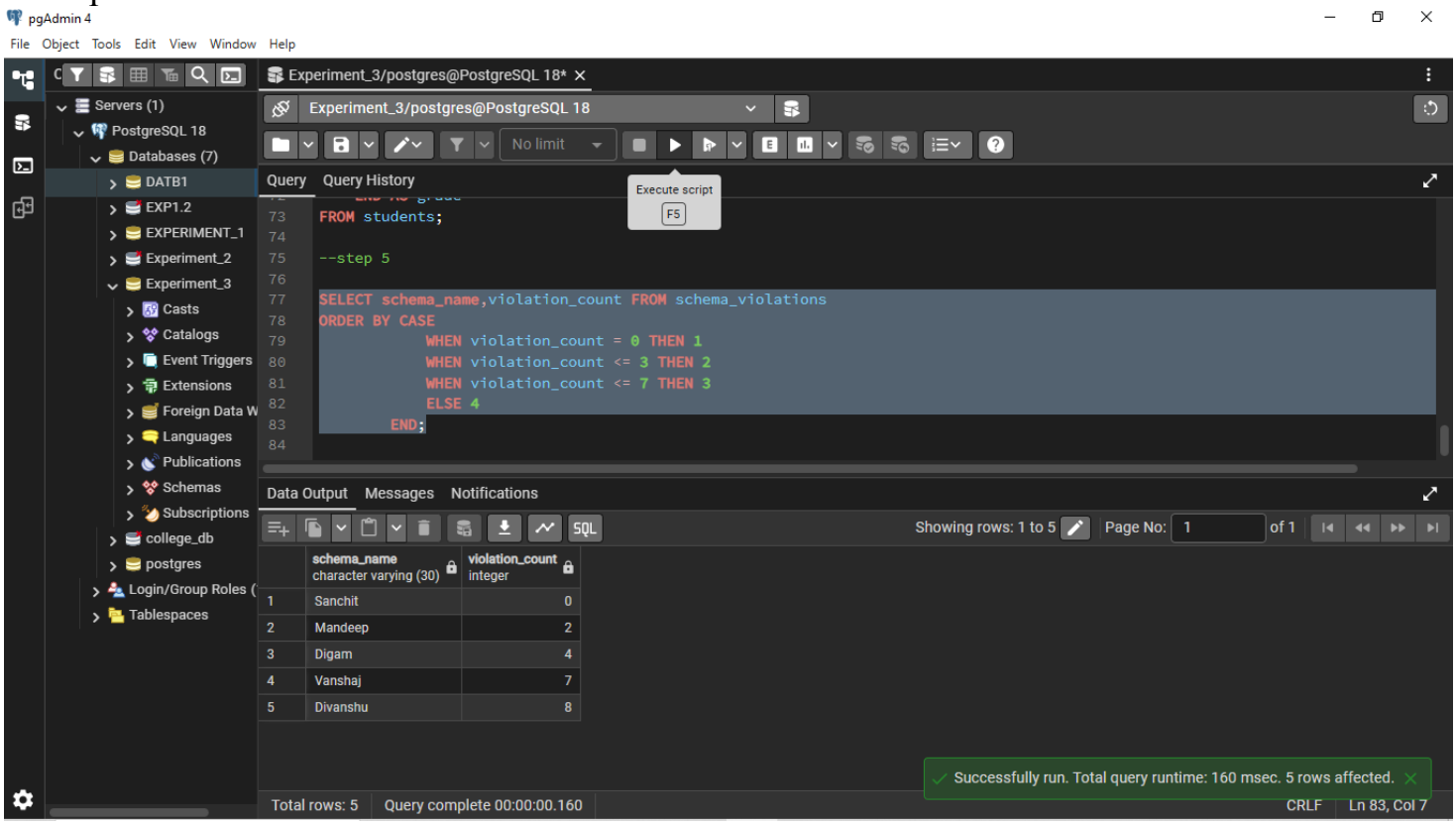




Step5



6.Learning Outcomes:

* Understood how conditional logic is implemented in PostgreSql and using CASE expressions and IF-ELSE constructs.
* Learnt how rule-based SQL logic helps in data classification and validation.
* Gained the ability to apply conditional statements
* Clearly able to use CASE-based logic for analytics and compliance reporting scenarios.