

## Experiment 8

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**Subject Name:** ADBMS

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### 1. Aim:

Design a robust PostgreSQL transaction system for the students table where multiple student records are inserted in a single transaction. If any insert fails due to invalid data, only that insert should be rolled back while preserving the previous successful inserts using savepoints. The system should provide clear messages for both successful and failed insertions, ensuring data integrity and controlled error handling.

### 2. Procedure:

- Drop the existing table (if any) and create a new students table.
- Perform a transaction block with multiple inserts and exception handling.
- Demonstrate a wrong data type scenario with SAVEPOINTS.

### 3. DBMS script and output:

```
CREATE TABLE students (  
id SERIAL PRIMARY KEY,  
name VARCHAR(50),  
age INT,  
class INT  
); -- First transaction: all valid data  
DO $$  
BEGIN  
INSERT INTO students(name, age, class) VALUES ('Anisha',16,8);  
INSERT INTO students(name, age, class) VALUES ('Neha',17,8);  
INSERT INTO students(name, age, class) VALUES ('Mayank',19,9);  
RAISE NOTICE 'Transaction Successfully Done';
```



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```
END;
$$;
SELECT * FROM students; -- Second scenario: partial rollback using savepoints
BEGIN; -- start transaction
SAVEPOINT sp1;
INSERT INTO students(name, age, class) VALUES ('Aarav',16,8);
SAVEPOINT sp2; -- Try an invalid insert (will fail)
INSERT INTO students(name, age, class) VALUES ('Rahul','wrong',9); -- Rollback only the
failed one
ROLLBACK TO SAVEPOINT sp2; -- Continue with valid data
INSERT INTO students(name, age, class) VALUES ('Sita',17,10);
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COMMIT; -- Show final data
SELECT * FROM students;commit all successful inserts
```

## 4. Ouput:

```
DROP TABLE
CREATE TABLE
DO
  id |  name  | age | class
-----+-----+-----+-----
  1  | Anisha |  16 |     8
  2  | Neha   |  17 |     8
  3  | Mayank |  19 |     9
(3 rows)

BEGIN
SAVEPOINT
INSERT 0 1
SAVEPOINT

psql:commands.sql:2: NOTICE:  table "students" does not exist, skipping
psql:commands.sql:19: NOTICE:  Transaction Successfully Done
psql:commands.sql:31: ERROR:  invalid input syntax for type integer: "wrong"
LINE 1: ...T INTO students(name, age, class) VALUES ('Rahul','wrong',9)...
                                     ^
```