



Experiment 8

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Subject Name: Advanced Database and
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1. Aim:

[HARD] 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. Tools Used: pgAdmin4

3. Code:

```
-- ARD
CREATE TABLE students
( id SERIAL PRIMARY
  KEY, name
  VARCHAR(50),
  age INT,
  class INT
);

DO
$$
BEGIN
  -- Start a transaction
  BEGIN
    -- Insert multiple students
    INSERT INTO students(name, age, class) VALUES
    ('Anisha', 16, 8);
  END
END
$;
```

```

INSERT INTO students(name, age, class) VALUES
N
('cha',17,8);

N N
INSERT INTO students(name, age, class) VALUES
(M y n ' 19 9 ;
-- If all succeed
RAISE NOTICE 'Transaction Successfully Done';

EXCEPTION
WHEN OTHERS THEN
-- If any insert fails
RAISE NOTICE 'Transaction Failed..! Rolling back changes.';
RAISE; -- this will rollback the entire
transaction
END;
END;
$$;

SELECT * FROM students

-----WRONG DATA TYPE SCENARIO-----
-----BEGIN-----
N N
BEGIN; -- start transaction

SAVEPOINT sp1;
INSERT INTO students(name, age, class) VALUES
('Aara',1,8);
students(name, age, class) VALUES
('Rahul','wrong',9); -- fails
EXCEPTION WHEN OTHERS THEN
RAISE NOTICE 'Failed to insert Rahul, rolling back to savepoint sp2';
ROLLBACK TO SAVEPOINT sp2;
END;

-- Next insert
INSERT INTO students(name, age, class) VALUES ('Sita',17,10);

COMMIT;-- commit all successful inserts

```

4. Output:

[HARD]



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Data Output Messages Notifications

ERROR: current transaction is aborted, commands ignored until end of transaction block

SQL state: 25P02

5. Learning Outcomes:

- Understand transaction control in PostgreSQL ☐
Implement save points for partial rollbacks.
- Handle run time errors using exception blocks.