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❖ ADBMS PRACTISE 4.1

- CODE (Part-A):- **Insert Multiple Fee Payments in a Transaction**

```
CREATE TABLE FeePayments (
    payment_id INT PRIMARY KEY,
    student_name VARCHAR(100),
    amount DECIMAL(10,2),
    payment_date DATE
);
```

```
START TRANSACTION;
```

```
INSERT INTO FeePayments (payment_id, student_name, amount,
payment_date)
VALUES (1, 'Ashish', 5000.00, '2024-06-01'),
      (2, 'Smaran', 4500.00, '2024-06-02'),
      (3, 'Vaibhav', 5500.00, '2024-06-03');
```

```
COMMIT;  
SELECT * FROM FeePayments;
```

- OUTPUT

payment_id	student_name	amount	payment_date
1	Ashish	5000.00	2024-06-01T00:00:00.000Z
2	Smaran	4500.00	2024-06-02T00:00:00.000Z
3	Vaibhav	5500.00	2024-06-03T00:00:00.000Z

- CODE (Part-B):- **Demonstrate ROLLBACK for Failed Payment Insertion**

```
START TRANSACTION;
```

```
INSERT INTO FeePayments (payment_id, student_name, amount,  
payment_date)
```

```
VALUES
```

```
    (4, 'Kiran', 6000.00, '2024-06-04'),
```

```
    (1, 'Ashish', -3000.00, '2024-06-05');
```

```
ROLLBACK;
```

```
SELECT * FROM FeePayments;
```

- OUTPUT

payment_id	student_name	amount	payment_date
1	Ashish	5000.00	2024-06-01T00:00:00.000Z
2	Smaran	4500.00	2024-06-02T00:00:00.000Z
3	Vaibhav	5500.00	2024-06-03T00:00:00.000Z

- CODE (Part-C):- **Simulate Partial Failure and Ensure Consistent State**

START TRANSACTION;

INSERT INTO FeePayments (payment_id, student_name, amount,
payment_date)

VALUES (4, 'Kiran', 6000.00, '2024-06-04'),
(5, NULL, 4000.00, '2024-06-05');

ROLLBACK;

SELECT * FROM FeePayments;

OUTPUT: No rows are inserted due to null value.

- CODE (Part-D):- **Verify ACID Compliance with Transaction Flow**

-- Atomicity + Consistency

START TRANSACTION;

INSERT INTO FeePayments (payment_id, student_name, amount, payment_date)

VALUES (9, 'Rohit', 5200.00, '2024-06-10'),

```
(1, 'DuplicateID', 4000.00, '2024-06-11'); -- fails (duplicate PK)
```

```
ROLLBACK;
```

```
-- no partial data inserted
```

```
SELECT * FROM FeePayments;
```

```
-- Durability
```

```
START TRANSACTION;
```

```
INSERT INTO FeePayments (payment_id, student_name, amount, payment_date)
```

```
VALUES (10, 'Priya', 5300.00, '2024-06-12');
```

```
COMMIT;
```

```
-- record is permanently saved
```

```
SELECT * FROM FeePayments;
```

```
-- Isolation (run in another session for demo)
```

```
START TRANSACTION;
```

```
INSERT INTO FeePayments (payment_id, student_name, amount, payment_date)
```

```
VALUES (11, 'Temporary', 5400.00, '2024-06-13');
```

-- In Session 1 (uncommitted), run:

```
SELECT * FROM FeePayments;
```

-- In Session 2 (parallel), run:

```
SELECT * FROM FeePayments; -- won't show payment_id = 11 until commit
```

```
COMMIT;
```

-- Final check after commit

```
SELECT * FROM FeePayments;
```

OUTPUT:

payment_id	student_name	amount	payment_date
1	Ashish	5000.00	2024-06-01T00:00:00.000Z
2	Smaran	4500.00	2024-06-02T00:00:00.000Z
3	Vaibhav	5500.00	2024-06-03T00:00:00.000Z
10	Priya	5300.00	2024-06-12T00:00:00.000Z
11	Temporary	5400.00	2024-06-13T00:00:00.000Z