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| Subject: | ADBMS |
| Section: | 620-B |

# Part A: Insert Multiple Fee Payments in a Transaction

Ans:

# Code:

-- Make sure table exists

CREATE TABLE IF NOT EXISTS FeePayments (

payment\_id INT PRIMARY KEY, student\_name VARCHAR(100) NOT NULL,

amount DECIMAL(10,2) CHECK (amount > 0), payment\_date DATE NOT NULL

) ENGINE=InnoDB;

-- Start transaction START TRANSACTION;

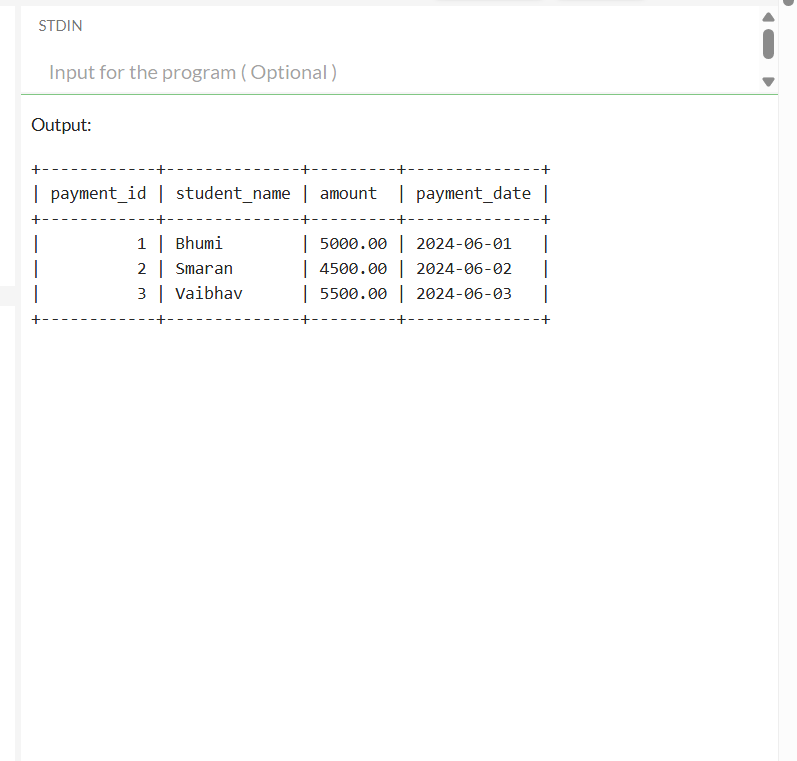
INSERT INTO FeePayments (payment\_id, student\_name, amount, payment\_date) VALUES

(1, 'Bhumi', 5000.00, '2024-06-01'),

(2, 'Smaran', 4500.00, '2024-06-02'),

(3, 'Vaibhav', 5500.00, '2024-06-03'); COMMIT;

SELECT \* FROM FeePayments;



# Part B: Demonstrate ROLLBACK for Failed Payment Insertion

IF OBJECT\_ID('FeePayments', 'U') IS NOT NULL

DROP TABLE FeePayments; GO

CREATE TABLE FeePayments ( payment\_id INT PRIMARY KEY,

student\_name VARCHAR(100) NOT NULL, amount DECIMAL(10,2) CHECK (amount > 0), payment\_date DATE NOT NULL

); GO

BEGIN 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; GO

SELECT \* FROM FeePayments; GO

BEGIN TRANSACTION;

INSERT INTO FeePayments (payment\_id, student\_name, amount, payment\_date) VALUES (4, 'Kiran', 4800.00, '2024-06-04');

-- Invalid insert (duplicate payment\_id and negative amount)

INSERT INTO FeePayments (payment\_id, student\_name, amount, payment\_date) VALUES (1, 'Ashish', -500.00, '2024-06-05');

ROLLBACK;

GO

SELECT \* FROM FeePayments;



# Part C: Simulate Partial Failure and Ensure Consistent State

IF OBJECT\_ID('FeePayments', 'U') IS NOT NULL

DROP TABLE FeePayments; GO

CREATE TABLE FeePayments ( payment\_id INT PRIMARY KEY,

student\_name VARCHAR(100) NOT NULL, amount DECIMAL(10,2) CHECK (amount > 0), payment\_date DATE NOT NULL

); GO

BEGIN 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; GO

-- Verify initial records

SELECT \* FROM FeePayments; GO

BEGIN TRANSACTION;

-- Valid insert

INSERT INTO FeePayments (payment\_id, student\_name, amount, payment\_date) VALUES (4, 'Kiran', 4800.00, '2024-06-04');

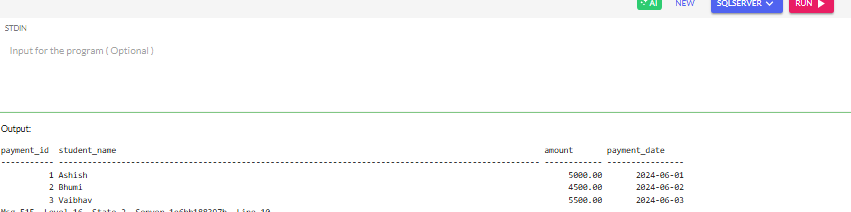
-- Invalid insert (student\_name is NULL)

INSERT INTO FeePayments (payment\_id, student\_name, amount, payment\_date) VALUES (5, NULL, 4600.00, '2024-06-05');

-- Rollback entire transaction due to failure ROLLBACK;

GO

SELECT \* FROM FeePayments; GO



Part D: Verify ACID Compliance with Transaction Flow CREATE TABLE FeePayments (

payment\_id INT PRIMARY KEY, student\_name VARCHAR(100) NOT NULL,

amount DECIMAL(10,2) CHECK (amount > 0), payment\_date DATE NOT NULL

); GO

BEGIN 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;

GO

BEGIN TRANSACTION;

INSERT INTO FeePayments (payment\_id, student\_name, amount, payment\_date) VALUES (4, 'Kiran', 4800.00, '2024-06-04'); -- valid

INSERT INTO FeePayments (payment\_id, student\_name, amount, payment\_date) VALUES (1, 'Ashish', -500.00, '2024-06-05'); -- invalid: duplicate + negative ROLLBACK;

GO

BEGIN TRANSACTION;

INSERT INTO FeePayments (payment\_id, student\_name, amount, payment\_date) VALUES (5, 'Neha', 5000.00, '2024-06-05'); -- valid

INSERT INTO FeePayments (payment\_id, student\_name, amount, payment\_date) VALUES (6, NULL, 4600.00, '2024-06-06'); -- invalid: student\_name NULL ROLLBACK;

GO

BEGIN TRANSACTION;

INSERT INTO FeePayments (payment\_id, student\_name, amount, payment\_date) VALUES (7, 'Rohit', 4700.00, '2024-06-06');

COMMIT; GO

BEGIN TRANSACTION;

INSERT INTO FeePayments (payment\_id, student\_name, amount, payment\_date) VALUES (8, 'Simran', 4800.00, '2024-06-07'); -- valid

INSERT INTO FeePayments (payment\_id, student\_name, amount, payment\_date) VALUES (1, 'Ashish', 5000.00, '2024-06-01'); -- invalid

ROLLBACK;

GO

BEGIN TRANSACTION;

INSERT INTO FeePayments (payment\_id, student\_name, amount, payment\_date) VALUES (9, 'Ankit', 4600.00, '2024-06-08');

COMMIT; GO

SELECT 'Final ACID-Compliant Table' AS Stage; SELECT \* FROM FeePayments ORDER BY payment\_id; GO

