Name:	Krish Arora
UID:	24BCS80046
Subject:	ADBMS
Section:	622-B

Ans 4.1:

Code:

```
DROP TABLE IF EXISTS FeePayments;

CREATE TABLE FeePayments (
    payment_id INT PRIMARY KEY,
    student_name VARCHAR(100) NOT NULL,
    amount DECIMAL(10,2) NOT NULL CHECK (amount > 0),
    payment_date DATE NOT NULL
) ENGINE=InnoDB;

-- Part A
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'),
```

```sql
                 (3, 'Vaibhav', 5500.00, '2024-06-03');
COMMIT;
SELECT * FROM FeePayments;


-- Part B: Demonstrate rollback


START TRANSACTION;
INSERT INTO FeePayments VALUES (4, 'Kiran', 6000.00, '2024-06-04');
INSERT INTO FeePayments VALUES (1, 'Ashish', -4000.00, '2024-06-05'); -- fails
ROLLBACK;
SELECT * FROM FeePayments;


-- Part C: Partial failure (NULL student_name)


START TRANSACTION;
INSERT INTO FeePayments VALUES (5, 'Ramesh', 7000.00, '2024-06-06');
INSERT INTO FeePayments VALUES (6, NULL, 6500.00, '2024-06-07');
ROLLBACK;
SELECT * FROM FeePayments;


-- Part D: ACID demonstration


START TRANSACTION;
INSERT INTO FeePayments VALUES (7, 'Pooja', 8000.00, '2024-06-08'),
                                (8, 'Arjun', 7500.00, '2024-06-09');
COMMIT;
```

START TRANSACTION;

INSERT INTO FeePayments VALUES (9, 'Neha', 8200.00, '2024-06-10');

INSERT INTO FeePayments VALUES (2, 'Duplicate', 9000.00, '2024-06-11');

ROLLBACK;

-- Final table state

SELECT * FROM FeePayments;

(a) Department's detail:

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

(b) Courses detail:

```
Error: Check constraint 'feepayments_chk_1' is violated.
```

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

(c)

Error: Column 'student_name' cannot be null

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

(d)

Error: Duplicate entry '2' for key 'feepayments.PRIMARY'

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
7	Pooja	8000.00	2024-06-08T00:00:00.000Z
8	Arjun	7500.00	2024-06-09T00:00:00.000Z