

7)

a)

```
mysql> create database madhu;
Query OK, 1 row affected (0.09 sec)

mysql> use madhu;
Database changed
mysql> CREATE TABLE Customer (
    ->     Cust_id INT PRIMARY KEY,
    ->     Cust_name VARCHAR(100),
    ->     Addr VARCHAR(255),
    ->     ph_no VARCHAR(20),
    ->     pan_no VARCHAR(20)
    -> );
Query OK, 0 rows affected (0.31 sec)
```

```
mysql> select * from Customer;
```

Cust_id	Cust_name	Addr	ph_no	pan_no
1	Aarav Sharma	123 Main St, Mumbai	9876543210	ABCDE1A
2	Ishaan Patel	456 Park Ave, Delhi	8765432109	FGHIJ2B
3	Ananya Gupta	789 Broad Rd, Kolkata	7654321098	KLMNO3C
4	Advait Singh	101 Garden St, Bangalore	6543210987	PQRST4D
5	Diya Reddy	202 Lakeview Dr, Chennai	5432109876	UVWXY5E

```
5 rows in set (0.00 sec)
```

b)

```
mysql> CREATE TABLE Loan (
    ->     Loan_id INT PRIMARY KEY,
    ->     Amount DECIMAL(10, 2),
    ->     Interest DECIMAL(5, 2),
    ->     Cust_id INT,
    ->     FOREIGN KEY (Cust_id) REFERENCES Customer(Cust_id)
    -> );
Query OK, 0 rows affected (1.02 sec)
```

```
mysql> select * from Loan;
```

Loan_id	Amount	Interest	Cust_id
1	5000.00	5.00	1
2	7000.00	6.50	2
3	10000.00	4.00	3
4	8000.00	7.20	4
5	6000.00	5.80	5

```
5 rows in set (0.00 sec)
```

```
mysql> INSERT INTO Customer (Cust_id, Cust_name, Addr, ph_no, pan_no) VALUES
-> (1, 'Aarav Sharma', '123 Main St, Mumbai', '9876543210', 'ABCDE1A'),
-> (2, 'Ishaan Patel', '456 Park Ave, Delhi', '8765432109', 'FGHIJ2B'),
-> (3, 'Ananya Gupta', '789 Broad Rd, Kolkata', '7654321098', 'KLMNO3C'),
-> (4, 'Advait Singh', '101 Garden St, Bangalore', '6543210987', 'PQRST4D'),
-> (5, 'Diya Reddy', '202 Lakeview Dr, Chennai', '5432109876', 'UVWXY5E');
Query OK, 5 rows affected (0.09 sec)
Records: 5  Duplicates: 0  Warnings: 0
```

i)

```
mysql> SELECT DISTINCT c.Cust_name
-> FROM Customer c
-> JOIN Loan l ON c.Cust_id = l.Cust_id;
```

Cust_name
Aarav Sharma
Ishaan Patel
Ananya Gupta
Advait Singh
Diya Reddy

```
5 rows in set (0.00 sec)
```

ii)

```
mysql> SELECT COUNT(l.Loan_id) AS num_of_loans, SUM(l.Amount) AS total_loan_amount
-> FROM Customer c
-> JOIN Loan l ON c.Cust_id = l.Cust_id
-> WHERE c.Cust_name = 'LEENA';
+-----+-----+
| num_of_loans | total_loan_amount |
+-----+-----+
| 0 | NULL |
+-----+-----+
1 row in set (0.04 sec)
```

iii)

```
mysql> SELECT Cust_name
-> FROM Customer
-> WHERE Cust_id NOT IN (SELECT Cust_id FROM Loan);
Empty set (0.01 sec)
```

iv)

```
mysql> ALTER TABLE Customer ADD COLUMN nol INT;
Query OK, 0 rows affected (0.16 sec)
Records: 0 Duplicates: 0 Warnings: 0

mysql> select * from Customer;
+-----+-----+-----+-----+-----+-----+
| Cust_id | Cust_name | Addr | ph_no | pan_no | nol |
+-----+-----+-----+-----+-----+-----+
| 1 | Aarav Sharma | 123 Main St, Mumbai | 9876543210 | ABCDE1A | NULL |
| 2 | Ishaan Patel | 456 Park Ave, Delhi | 8765432109 | FGHIJ2B | NULL |
| 3 | Ananya Gupta | 789 Broad Rd, Kolkata | 7654321098 | KLMNO3C | NULL |
| 4 | Advait Singh | 101 Garden St, Bangalore | 6543210987 | PQRST4D | NULL |
| 5 | Diya Reddy | 202 Lakeview Dr, Chennai | 5432109876 | UVWXY5E | NULL |
+-----+-----+-----+-----+-----+-----+
5 rows in set (0.00 sec)
```

v)

```
DECLARE
  CURSOR c_customers IS
    SELECT * FROM Customer;
  v_cust_id  Customer.Cust_id%TYPE;
  v_cust_name Customer.Cust_name%TYPE;
  v_addr     Customer.Addr%TYPE;
  v_ph_no    Customer.ph_no%TYPE;
  v_pan_no   Customer.pan_no%TYPE;
BEGIN
  OPEN c_customers;
  LOOP
    FETCH c_customers INTO v_cust_id, v_cust_name, v_addr, v_ph_no, v_pan_no;
    EXIT WHEN c_customers%NOTFOUND;
    DBMS_OUTPUT.PUT_LINE('Customer ID: ' || v_cust_id || ', Name: ' || v_cust_name || ',
Address: ' || v_addr || ', Phone: ' || v_ph_no || ', PAN: ' || v_pan_no);
  END LOOP;
  CLOSE c_customers;
END;
```

Output:

Customer ID: 1, Name: Aarav Sharma, Address: 123 Main St, Mumbai, Phone: 9876543210,
PAN: ABCDE1A
Customer ID: 2, Name: Ishaan Patel, Address: 456 Park Ave, Delhi, Phone: 8765432109,
PAN: FGHIJ2B
Customer ID: 3, Name: Ananya Gupta, Address: 789 Broad Rd, Kolkata, Phone: 7654321098,
PAN: KLMNO3C
Customer ID: 4, Name: Advait Singh, Address: 101 Garden St, Bangalore, Phone: 6543210987,
PAN: PQRST4D
Customer ID: 5, Name: Diya Reddy, Address: 202 Lakeview Dr, Chennai, Phone: 5432109876,
PAN: UVWXY5E

vi)

```
import cx_Oracle
```

```
connection = cx_Oracle.connect("username", "password", "database")
```

```
cursor = connection.cursor()
```

```
cursor.callproc("procedure_name", [arguments])
```

```
connection.commit()
```

```
cursor.close()
```

```
connection.close()
```

