

1. Create a table Customer with columns cid and cname. cid should be a primary key in the table and cname should be NOT NULL.

```
mysql> create database customer;
Query OK, 1 row affected (0.01 sec)

mysql> use customer;
Database changed
mysql> CREATE TABLE Customer (
  ->   cid INT PRIMARY KEY,
  ->   cname VARCHAR(255) NOT NULL
  -> );
Query OK, 0 rows affected (0.06 sec)

mysql> _
```

2. Insert three customer data into the table.

```
mysql> INSERT INTO Customer (cid, cname) VALUES (1, 'Ramesh');
Query OK, 1 row affected (0.02 sec)

mysql> INSERT INTO Customer (cid, cname) VALUES (2, 'Suresh');
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO Customer (cid, cname) VALUES (3, 'Rajesh');
Query OK, 1 row affected (0.00 sec)

mysql> _
```

3. Add columns age, city and phnum. Age > 20, city default value should be 'Bangalore' and phnum should be unique.

```
mysql> ALTER TABLE Customer
  -> ADD COLUMN age INT CHECK (age > 20),
  -> ADD COLUMN city VARCHAR(255) DEFAULT 'Bangalore',
  -> ADD COLUMN phnum VARCHAR(255) UNIQUE;
Query OK, 3 rows affected (0.16 sec)
Records: 3 Duplicates: 0 Warnings: 0

mysql> _
```

4. Turn on the transaction on.

```
mysql> START TRANSACTION;
Query OK, 0 rows affected (0.01 sec)
```

5. Insert another two customer data into the table without city value.

```
mysql> START TRANSACTION;
Query OK, 0 rows affected (0.01 sec)

mysql> INSERT INTO Customer (cid, cname, age, phnum) VALUES (4, 'Manoj', 25, '9876543210');
Query OK, 1 row affected (0.01 sec)

mysql> INSERT INTO Customer (cid, cname, age, phnum) VALUES (5, 'Priya', 30, '8765432109');
Query OK, 1 row affected (0.00 sec)

mysql> _
```

6. Display data from the table.

```
mysql> SELECT * FROM Customer;
+----+-----+-----+-----+-----+
| cid | cname | age | city | phnum |
+----+-----+-----+-----+-----+
| 1 | Ramesh | NULL | Bangalore | NULL |
| 2 | Suresh | NULL | Bangalore | NULL |
| 3 | Rajesh | NULL | Bangalore | NULL |
| 4 | Manoj | 25 | Bangalore | 9876543210 |
| 5 | Priya | 30 | Bangalore | 8765432109 |
+----+-----+-----+-----+-----+
5 rows in set (0.00 sec)
```

7. Create a savepoint 'ins'.

```
mysql> SAVEPOINT ins;
Query OK, 0 rows affected (0.01 sec)

mysql>
```

8. Update the first age of all the customers.

```
mysql> UPDATE Customer SET age = 22;
Query OK, 5 rows affected (0.01 sec)
Rows matched: 5 Changed: 5 Warnings: 0

mysql>
```

9. Display data from the table.

```
mysql> SELECT * FROM Customer;
+----+-----+-----+-----+-----+
| cid | cname | age | city | phnum |
+----+-----+-----+-----+-----+
| 1 | Ramesh | 22 | Bangalore | NULL |
| 2 | Suresh | 22 | Bangalore | NULL |
| 3 | Rajesh | 22 | Bangalore | NULL |
| 4 | Manoj | 22 | Bangalore | 9876543210 |
| 5 | Priya | 22 | Bangalore | 8765432109 |
+----+-----+-----+-----+-----+
5 rows in set (0.00 sec)
```

10. Create savepoint 'up1';

```
mysql> SAVEPOINT up1;
Query OK, 0 rows affected (0.00 sec)

mysql>
```

11. Update all the customer's city of the first three customers

```
mysql> UPDATE Customer
-> SET city = 'Mysore'
-> WHERE cid IN (1, 2, 3);
Query OK, 3 rows affected (0.01 sec)
Rows matched: 3 Changed: 3 Warnings: 0

mysql>
```

12. Display data from the table.

```
mysql> SELECT * FROM Customer;
+----+-----+-----+-----+-----+
| cid | cname | age | city | phnum |
+----+-----+-----+-----+-----+
| 1 | Ramesh | 22 | Mysore | NULL |
| 2 | Suresh | 22 | Mysore | NULL |
| 3 | Rajesh | 22 | Mysore | NULL |
| 4 | Manoj | 22 | Bangalore | 9876543210 |
| 5 | Priya | 22 | Bangalore | 8765432109 |
+----+-----+-----+-----+-----+
5 rows in set (0.00 sec)

mysql>
```

13. Create savepoint 'up2'.

```
mysql> SAVEPOINT up2;
Query OK, 0 rows affected (0.00 sec)

mysql>
```

14. Roll back to up1.

```
Query OK, 0 rows affected (0.00 sec)

mysql> ROLLBACK TO SAVEPOINT up1;
Query OK, 0 rows affected (0.00 sec)

mysql>
```

15. Display data from the table.

```
mysql> SELECT * FROM Customer;
+----+-----+-----+-----+-----+
| cid | cname | age | city | phnum |
+----+-----+-----+-----+-----+
| 1 | Ramesh | 22 | Bangalore | NULL |
| 2 | Suresh | 22 | Bangalore | NULL |
| 3 | Rajesh | 22 | Bangalore | NULL |
| 4 | Manoj | 22 | Bangalore | 9876543210 |
| 5 | Priya | 22 | Bangalore | 8765432109 |
+----+-----+-----+-----+-----+
5 rows in set (0.00 sec)

mysql>
```

16. Commit.

```
mysql> COMMIT;
Query OK, 0 rows affected (0.01 sec)

mysql>
```

17. Display data from the table.

```
mysql> SELECT * FROM Customer;
+----+-----+-----+-----+-----+
| cid | cname | age | city | phnum |
+----+-----+-----+-----+-----+
| 1 | Ramesh | 22 | Bangalore | NULL |
| 2 | Suresh | 22 | Bangalore | NULL |
| 3 | Rajesh | 22 | Bangalore | NULL |
| 4 | Manoj | 22 | Bangalore | 9876543210 |
| 5 | Priya | 22 | Bangalore | 8765432109 |
+----+-----+-----+-----+-----+
5 rows in set (0.00 sec)

mysql>
```

18. Turn off the transactions.

```
mysql> COMMIT;
Query OK, 0 rows affected (0.01 sec)

mysql>
```