Session 3: Introduction to Databases

Assignment

Problem Statement: There can be multiple customers, who can place multiple orders on the site. Now a sales person can handle these orders will distribute into multiple sales persons (One order will be assign to one salesperson only). So a sales person can have multiple orders of multiple customers.

1) Create Database

```
File  Edit  View  Search  Terminal  Help
root@parth-choudhary:~# mysql -uroot -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 4
Server version: 5.7.33-0ubuntu0.18.04.1 (Ubuntu)

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owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> CREATE DATABASE shopify;
Query OK, 1 row affected (0.00 sec)

mysql> SHOW DATABASES;
+--------------------+
| Database           |
+--------------------+
| information_schema |
| dummy_DB           |
| mysql              |
| performance_schema |
| shopify            |
| sys                |
+--------------------+
6 rows in set (0.00 sec)

mysql> 
```
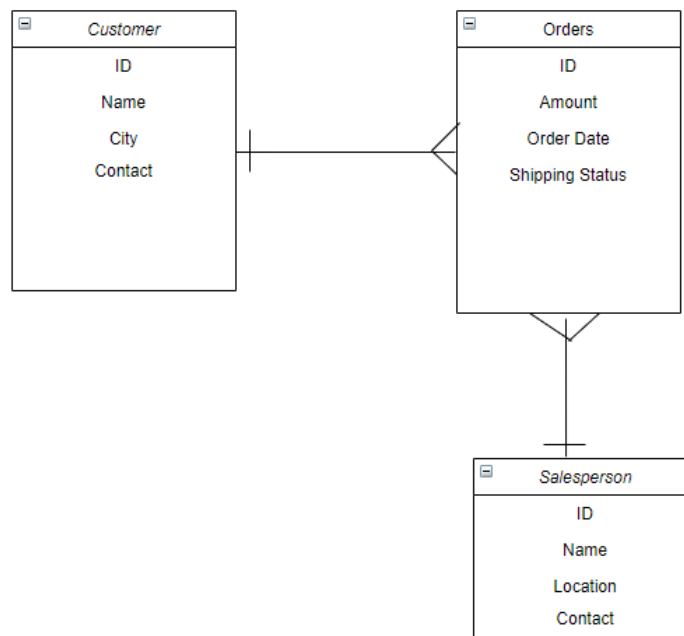
2) Design Schema

```
File  Edit  View  Search  Terminal  Help
mysql> desc customer;
+-----------+-------------+------+-----+---------+----------------+
| Field     | Type        | Null | Key | Default | Extra          |
+-----------+-------------+------+-----+---------+----------------+
| cid       | int(10)     | NO   | PRI | NULL    | auto_increment |
| cust_name | varchar(30) | NO   |     | NULL    |                |
| city      | varchar(15) | YES  |     | NULL    |                |
| phn_no    | int(50)     | YES  |     | NULL    |                |
| supercoin | int(10)     | YES  |     | NULL    |                |
+-----------+-------------+------+-----+---------+----------------+
5 rows in set (0.00 sec)

mysql> desc salesperson;
+--------------+-------------+------+-----+---------+----------------+
| Field        | Type        | Null | Key | Default | Extra          |
+--------------+-------------+------+-----+---------+----------------+
| sid          | int(10)     | NO   | PRI | NULL    | auto_increment |
| salesper_name| varchar(30) | NO   |     | NULL    |                |
| location     | varchar(15) | YES  |     | NULL    |                |
| phn_no       | int(20)     | YES  |     | NULL    |                |
+--------------+-------------+------+-----+---------+----------------+
4 rows in set (0.00 sec)

mysql> desc orders;
+-------------+-------------+------+-----+---------+----------------+
| Field       | Type        | Null | Key | Default | Extra          |
+-------------+-------------+------+-----+---------+----------------+
| oid         | int(10)     | NO   | PRI | NULL    | auto_increment |
| amount      | int(20)     | NO   |     | NULL    |                |
| o_date      | date        | YES  |     | NULL    |                |
| shipped     | tinyint(1)  | YES  |     | NULL    |                |
| customer_id | int(10)     | YES  | MUL | NULL    |                |
| salesper_id | int(10)     | YES  | MUL | NULL    |                |
+-------------+-------------+------+-----+---------+----------------+
6 rows in set (0.00 sec)

mysql>
```

3) Create tables

```
File  Edit  View  Search  Terminal  Help
mysql> use shopify
Database changed
mysql> CREATE TABLE customer(
    -> cid int(10) NOT NULL AUTO_INCREMENT,
    -> cust_name varchar(30) NOT NULL,
    -> city varchar(15) DEFAULT NULL,
    -> phn_no int(50) DEFAULT NULL,
    -> supercoin int(10) DEFAULT NULL,
    -> PRIMARY KEY(cid)
    -> );
Query OK, 0 rows affected (0.41 sec)

mysql> CREATE TABLE salesperson(
    -> sid int(10) NOT NULL AUTO_INCREMENT,
    -> salesper_name varchar(30) NOT NULL,
    -> location varchar(15) DEFAULT NULL,
    -> phn_no int(20) DEFAULT NULL,
    -> PRIMARY KEY(sid)
    -> );
Query OK, 0 rows affected (0.27 sec)

mysql> CREATE TABLE orders(
    -> oid int(10) NOT NULL AUTO_INCREMENT,
    -> amount int(20) NOT NULL,
    -> o_date date,
    -> shipped boolean,
    -> customer_id int(10),
    -> salesper_id int(10),
    -> PRIMARY KEY(oid),
    -> FOREIGN KEY(customer_id) REFERENCES customer(cid),
    -> FOREIGN KEY(salesper_id) REFERENCES salesperson(sid)
    -> );
Query OK, 0 rows affected (0.42 sec)

mysql>
```

4) Insert sample data

```
File  Edit  View  Search  Terminal  Help
mysql> INSERT INTO customer(cust_name, city, phn_no, supercoin) VALUES ("Messi", "Barca", 5685566, 90);
Query OK, 1 row affected (0.04 sec)

mysql> INSERT INTO customer(cust_name, city, phn_no, supercoin) VALUES ("Neymar", "Paris", 5685566, 70);
Query OK, 1 row affected (0.04 sec)

mysql> INSERT INTO customer(cust_name, city, phn_no, supercoin) VALUES ("James", "RIO", 5688566, 60);
Query OK, 1 row affected (0.09 sec)

mysql> INSERT INTO customer(cust_name, city, phn_no, supercoin) VALUES ("Cris", "LA", 5546566, 80);
Query OK, 1 row affected (0.04 sec)

mysql> INSERT INTO customer(cust_name, city, phn_no, supercoin) VALUES ("Nick", "NY", 5014566, 80);
Query OK, 1 row affected (0.04 sec)

mysql> select * from customer;
+-----+-----------+-------+---------+-----------+
| cid | cust_name | city  | phn_no  | supercoin |
+-----+-----------+-------+---------+-----------+
|   1 | Messi     | Barca | 5685566 |        90 |
|   2 | Neymar    | Paris | 5685566 |        70 |
|   3 | James     | RIO   | 5688566 |        60 |
|   4 | Cris      | LA    | 5546566 |        80 |
|   5 | Nick      | NY    | 5014566 |        80 |
+-----+-----------+-------+---------+-----------+
5 rows in set (0.00 sec)

mysql>
```

```
File  Edit  View  Search  Terminal  Help
mysql> INSERT INTO salesperson(salesper_name, location, phn_no) VALUES ("Rahul", "Delhi", 26855566);
Query OK, 1 row affected (0.04 sec)

mysql> INSERT INTO salesperson(salesper_name, location, phn_no) VALUES ("RISHI", "Delhi", 26855566);
Query OK, 1 row affected (0.05 sec)

mysql> INSERT INTO salesperson(salesper_name, location, phn_no) VALUES ("Kabir", "mumbai", 26855566);
Query OK, 1 row affected (0.05 sec)

mysql> INSERT INTO salesperson(salesper_name, location, phn_no) VALUES ("abhi", "pune", 26855566);
Query OK, 1 row affected (0.05 sec)

mysql> INSERT INTO salesperson(salesper_name, location, phn_no) VALUES ("dev", "delhi", 26855566);
Query OK, 1 row affected (0.05 sec)

mysql> select * from salesperson;
+-----+--------------+----------+----------+
| sid | salesper_name | location | phn_no   |
+-----+--------------+----------+----------+
|   1 | Rahul        | Delhi    | 26855566 |
|   2 | RISHI        | Delhi    | 26855566 |
|   3 | Kabir        | mumbai   | 26855566 |
|   4 | abhi         | pune     | 26855566 |
|   5 | dev          | delhi    | 26855566 |
+-----+--------------+----------+----------+
5 rows in set (0.00 sec)

mysql>
```

```
File  Edit  View  Search  Terminal  Help
mysql> INSERT INTO orders(amount, o_date, shipped, customer_id, salesper_id) VALUES (10120, '2018-08-13', FALSE, 3,3);
Query OK, 1 row affected (0.04 sec)

mysql> INSERT INTO orders(amount, o_date, shipped, customer_id, salesper_id) VALUES (7500, '2013-07-17', TRUE, 5,2);
Query OK, 1 row affected (0.03 sec)

mysql> INSERT INTO orders(amount, o_date, shipped, customer_id, salesper_id) VALUES (5700, '2019-03-27', TRUE, 1,2);
Query OK, 1 row affected (0.04 sec)

mysql> INSERT INTO orders(amount, o_date, shipped, customer_id, salesper_id) VALUES (8900, '2012-02-23', TRUE, 2,1);
Query OK, 1 row affected (0.04 sec)

mysql> INSERT INTO orders(amount, o_date, shipped, customer_id, salesper_id) VALUES (10100, '2011-01-07', FALSE, 4,1);
Query OK, 1 row affected (0.05 sec)

mysql> INSERT INTO orders(amount, o_date, shipped, customer_id, salesper_id) VALUES (15200, '2019-07-26', TRUE, 3,4);
Query OK, 1 row affected (0.04 sec)

mysql> INSERT INTO orders(amount, o_date, shipped, customer_id, salesper_id) VALUES (77000, '2021-01-14', TRUE, 5,5);
Query OK, 1 row affected (0.05 sec)

mysql> select * from orders;
+-----+--------+------------+---------+-------------+-------------+
| oid | amount | o_date     | shipped | customer_id | salesper_id |
+-----+--------+------------+---------+-------------+-------------+
|   1 |   2500 | 2020-10-17 |       1 |           2 |           3 |
|   2 |  10120 | 2018-08-13 |       0 |           3 |           3 |
|   3 |   7500 | 2013-07-17 |       1 |           5 |           2 |
|   4 |   5700 | 2019-03-27 |       1 |           1 |           2 |
|   5 |   8900 | 2012-02-23 |       1 |           2 |           1 |
|   6 |  10100 | 2011-01-07 |       0 |           4 |           1 |
|   7 |  15200 | 2019-07-26 |       1 |           3 |           4 |
|   8 |  77000 | 2021-01-14 |       1 |           5 |           5 |
+-----+--------+------------+---------+-------------+-------------+
8 rows in set (0.00 sec)

mysql>
```

5) Find the sales person have multiple orders.

```
File  Edit  View  Search  Terminal  Help
mysql> SELECT DISTINCT sid, salesper_name
    -> FROM salesperson
    -> JOIN orders ON sid = salesper_id
    -> WHERE salesper_id IN(
    -> SELECT DISTINCT salesper_id
    -> FROM orders
    -> GROUP BY salesper_id
    -> HAVING count(*) > 1);
+-----+---------------+
| sid | salesper_name |
+-----+---------------+
|   1 | Rahul         |
|   2 | RISHI         |
|   3 | Kabir         |
+-----+---------------+
3 rows in set (0.00 sec)

mysql>
```

6) Find the all sales person details along with order details

```
File  Edit  View  Search  Terminal  Help
mysql> SELECT *
    -> FROM salesperson
    -> LEFT JOIN orders
    -> ON sid = salesper_id;
+-----+---------------+----------+----------+-----+--------+------------+---------+-------------+-------------+
| sid | salesper_name | location | phn_no   | oid | amount | o_date     | shipped | customer_id | salesper_id |
+-----+---------------+----------+----------+-----+--------+------------+---------+-------------+-------------+
|   3 | Kabir         | mumbai   | 26855566 |   1 |   2500 | 2020-10-17 |       1 |           2 |           3 |
|   3 | Kabir         | mumbai   | 26855566 |   2 |  10120 | 2018-08-13 |       0 |           3 |           3 |
|   2 | RISHI         | Delhi    | 26855566 |   3 |   7500 | 2013-07-17 |       1 |           5 |           2 |
|   2 | RISHI         | Delhi    | 26855566 |   4 |   5700 | 2019-03-27 |       1 |           1 |           2 |
|   1 | Rahul         | Delhi    | 26855566 |   5 |   8900 | 2012-02-23 |       1 |           2 |           1 |
|   1 | Rahul         | Delhi    | 26855566 |   6 |  10100 | 2011-01-07 |       0 |           4 |           1 |
|   4 | abhi          | pune     | 26855566 |   7 |  15200 | 2019-07-26 |       1 |           3 |           4 |
|   5 | dev           | delhi    | 26855566 |   8 |  77000 | 2021-01-14 |       1 |           5 |           5 |
+-----+---------------+----------+----------+-----+--------+------------+---------+-------------+-------------+
8 rows in set (0.00 sec)

mysql>
```

7) Create index

```
File  Edit  View  Search  Terminal  Help
mysql> ALTER TABLE customer ADD INDEX custm_name (cust_name);
Query OK, 0 rows affected (0.30 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> ALTER TABLE customer ADD INDEX city_names (city);
Query OK, 0 rows affected (0.34 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> ALTER TABLE salesperson ADD INDEX salesmen_name (salesper_name);
Query OK, 0 rows affected (0.34 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql>
```

8) How to show index on a table

```
File Edit View Search Terminal Help
mysql> SHOW INDEX FROM customer;
+----------+------------+-----------+--------------+-------------+-----------+-------------+----------+--------+------+------------+---------+---------------+
| Table    | Non_unique | Key_name  | Seq_in_index | Column_name | Collation | Cardinality | Sub_part | Packed | Null | Index_type | Comment | Index_comment |
+----------+------------+-----------+--------------+-------------+-----------+-------------+----------+--------+------+------------+---------+---------------+
| customer |          0 | PRIMARY   |            1 | cid         | A         |           4 |     NULL | NULL   |      | BTREE      |         |               |
| customer |          1 | custm_name |           1 | cust_name   | A         |           5 |     NULL | NULL   |      | BTREE      |         |               |
| customer |          1 | city_names |           1 | city        | A         |           5 |     NULL | NULL   | YES  | BTREE      |         |               |
+----------+------------+-----------+--------------+-------------+-----------+-------------+----------+--------+------+------------+---------+---------------+
3 rows in set (0.00 sec)

mysql> SHOW INDEX FROM salesperson;
+-------------+------------+--------------+--------------+--------------+-----------+-------------+----------+--------+------+------------+---------+---------------+
| Table       | Non_unique | Key_name     | Seq_in_index | Column_name  | Collation | Cardinality | Sub_part | Packed | Null | Index_type | Comment | Index_comment |
+-------------+------------+--------------+--------------+--------------+-----------+-------------+----------+--------+------+------------+---------+---------------+
| salesperson |          0 | PRIMARY      |            1 | sid          | A         |           4 |     NULL | NULL   |      | BTREE      |         |               |
| salesperson |          1 | salesmen_name |           1 | salesper_name | A        |           5 |     NULL | NULL   |      | BTREE      |         |               |
+-------------+------------+--------------+--------------+--------------+-----------+-------------+----------+--------+------+------------+---------+---------------+
2 rows in set (0.00 sec)

mysql>
```

9) Find the order number, sale person name, along with the customer to whom that order belongs to

```
File Edit View Search Terminal Help
mysql> SELECT cust_name, oid, salesper_name
    -> FROM customer
    -> JOIN orders ON cid = customer_id
    -> JOIN salesperson ON sid = salesper_id;
+-----------+-----+---------------+
| cust_name | oid | salesper_name |
+-----------+-----+---------------+
| Neymar    |   1 | Kabir         |
| James     |   2 | Kabir         |
| Nick      |   3 | RISHI         |
| Messi     |   4 | RISHI         |
| Neymar    |   5 | Rahul         |
| Cris      |   6 | Rahul         |
| James     |   7 | abhi          |
| Nick      |   8 | dev           |
+-----------+-----+---------------+
8 rows in set (0.00 sec)

mysql>
```