Introduction to Database

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

```
utkarsh@utkarsh:~$ sudo mysql
[sudo] password for utkarsh:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 3
Server version: 5.7.29-0ubuntu0.18.04.1 (Ubuntu)

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owners.

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

```
mysql> create database sales
    -> ;
Query OK, 1 row affected (0.00 sec)
```

2. Design Schema

```
mysql> use sales;
Database changed
mysql> create table salesperson(s_id bigint(20) not null, salesperson_name varchar(30), primary key(s_id));
Query OK, 0 rows affected (0.28 sec)

mysql> desc salesperson;
+------------------+-------------+------+-----+---------+-------+
| Field            | Type        | Null | Key | Default | Extra |
+------------------+-------------+------+-----+---------+-------+
| s_id             | bigint(20)  | NO   | PRI | NULL    |       |
| salesperson_name | varchar(30) | YES  |     | NULL    |       |
+------------------+-------------+------+-----+---------+-------+
2 rows in set (0.00 sec)
```

```
mysql> create table orders(o_id bigint(20) not null, item varchar(20) not null,quantity int(20) not null,c_id bigint(20) not null,sales_id big
int(20) not null, primary key(o_id), foreign key(c_id) references customer(cust_id), foreign key(sales_id) references salesperson(s_id));
Query OK, 0 rows affected (0.52 sec)

mysql> desc orders
    -> ;
+----------+-------------+------+-----+---------+-------+
| Field    | Type        | Null | Key | Default | Extra |
+----------+-------------+------+-----+---------+-------+
| o_id     | bigint(20)  | NO   | PRI | NULL    |       |
| item     | varchar(20) | NO   |     | NULL    |       |
| quantity | int(20)     | NO   |     | NULL    |       |
| c_id     | bigint(20)  | NO   | MUL | NULL    |       |
| sales_id | bigint(20)  | NO   | MUL | NULL    |       |
+----------+-------------+------+-----+---------+-------+
5 rows in set (0.00 sec)
```

```
mysql> create table customer ( cust_id bigint(20) not null auto_increment, name varchar(20) not null, address varchar(20) not null, primary ke
y (cust_id) );
Query OK, 0 rows affected (0.32 sec)
```

```
mysql> desc customer;
+----------+-------------+------+-----+---------+----------------+
| Field    | Type        | Null | Key | Default | Extra          |
+----------+-------------+------+-----+---------+----------------+
| cust_id  | bigint(20)  | NO   | PRI | NULL    | auto_increment |
| name     | varchar(20) | NO   |     | NULL    |                |
| address  | varchar(20) | NO   |     | NULL    |                |
+----------+-------------+------+-----+---------+----------------+
3 rows in set (0.00 sec)
```

3. Create tables

```
mysql> use sales;
Database changed
mysql> create table salesperson(s_id bigint(20) not null, salesperson_name varchar(30), primary key(s_id));
Query OK, 0 rows affected (0.28 sec)

mysql> desc salesperson;
+------------------+-------------+------+-----+---------+-------+
| Field            | Type        | Null | Key | Default | Extra |
+------------------+-------------+------+-----+---------+-------+
| s_id             | bigint(20)  | NO   | PRI | NULL    |       |
| salesperson_name | varchar(30) | YES  |     | NULL    |       |
+------------------+-------------+------+-----+---------+-------+
2 rows in set (0.00 sec)
```

```
mysql> create table orders(o_id bigint(20) not null, item varchar(20) not null,quantity int(20) not null,c_id bigint(20) not null,sales_id big
int(20) not null, primary key(o_id), foreign key(c_id) references customer(cust_id), foreign key(sales_id) references salesperson(s_id));
Query OK, 0 rows affected (0.52 sec)

mysql> desc orders
    -> ;
+----------+-------------+------+-----+---------+-------+
| Field    | Type        | Null | Key | Default | Extra |
+----------+-------------+------+-----+---------+-------+
| o_id     | bigint(20)  | NO   | PRI | NULL    |       |
| item     | varchar(20) | NO   |     | NULL    |       |
| quantity | int(20)     | NO   |     | NULL    |       |
| c_id     | bigint(20)  | NO   | MUL | NULL    |       |
| sales_id | bigint(20)  | NO   | MUL | NULL    |       |
+----------+-------------+------+-----+---------+-------+
5 rows in set (0.00 sec)
```

```
mysql> create table customer ( cust_id bigint(20) not null auto_increment, name varchar(20) not null, address varchar(20) not null, primary ke
y (cust_id) );
Query OK, 0 rows affected (0.32 sec)
```

```
mysql> desc customer;
+----------+-------------+------+-----+---------+----------------+
| Field    | Type        | Null | Key | Default | Extra          |
+----------+-------------+------+-----+---------+----------------+
| cust_id  | bigint(20)  | NO   | PRI | NULL    | auto_increment |
| name     | varchar(20) | NO   |     | NULL    |                |
| address  | varchar(20) | NO   |     | NULL    |                |
+----------+-------------+------+-----+---------+----------------+
3 rows in set (0.00 sec)
```

4. Insert sample data

```
mysql> insert into salesperson values(1,"z");
Query OK, 1 row affected (0.03 sec)

mysql> insert into salesperson values(10,"k");
Query OK, 1 row affected (0.04 sec)

mysql> insert into salesperson values(9,"r");
Query OK, 1 row affected (0.06 sec)

mysql> insert into salesperson values(8,"u");
Query OK, 1 row affected (0.05 sec)

mysql> insert into salesperson values(7,"t");
Query OK, 1 row affected (0.05 sec)

mysql> insert into salesperson values(6,"0");
Query OK, 1 row affected (0.05 sec)
```

```
mysql> insert into salesperson values(2,"p");
Query OK, 1 row affected (0.04 sec)

mysql> insert into salesperson values(3,"j");
Query OK, 1 row affected (0.06 sec)

mysql> insert into salesperson values(4,"k");
Query OK, 1 row affected (0.04 sec)

mysql> insert into salesperson values(5,"r");
Query OK, 1 row affected (0.05 sec)
```

```
mysql> select * from salesperson;
+-------+-----------------+
| s_id  | salesperson_name |
+-------+-----------------+
|     1 | z               |
|     2 | p               |
|     3 | j               |
|     4 | k               |
|     5 | r               |
|     6 | 0               |
|     7 | t               |
|     8 | u               |
|     9 | r               |
|    10 | k               |
+-------+-----------------+
10 rows in set (0.00 sec)
```

```
mysql> insert into customer values(1,"a","delhi");
Query OK, 1 row affected (0.04 sec)

mysql> insert into customer values(2,"b","mumbai");
Query OK, 1 row affected (0.05 sec)

mysql> insert into customer values(3,"c","haryana");
Query OK, 1 row affected (0.05 sec)

mysql> insert into customer values(4,"d","chandigarh");
Query OK, 1 row affected (0.04 sec)

mysql> insert into customer values(5,"e","noida");
Query OK, 1 row affected (0.04 sec)

mysql> insert into customer values(6,"f","gujrat");
Query OK, 1 row affected (0.05 sec)

mysql> insert into customer values(7,"g","delhi");
Query OK, 1 row affected (0.04 sec)

mysql> insert into customer values(8,"h","gujrat");
Query OK, 1 row affected (0.04 sec)

mysql> insert into customer values(9,"i","haryana");
Query OK, 1 row affected (0.04 sec)

mysql> insert into customer values(10,"j","noida");
Query OK, 1 row affected (0.05 sec)
```

```
mysql> select * from customer;
+---------+------+------------+
| cust_id | name | address    |
+---------+------+------------+
|       1 | a    | delhi      |
|       2 | b    | mumbai     |
|       3 | c    | haryana    |
|       4 | d    | chandigarh |
|       5 | e    | noida      |
|       6 | f    | gujrat     |
|       7 | g    | delhi      |
|       8 | h    | gujrat     |
|       9 | i    | haryana    |
|      10 | j    | noida      |
+---------+------+------------+
10 rows in set (0.00 sec)
```

```
mysql> insert into orders values(1,"chairs",20,1,2);
Query OK, 1 row affected (0.05 sec)

mysql> insert into orders values(2,"chairs",20,1,3);
Query OK, 1 row affected (0.05 sec)

mysql> insert into orders values(3,"tables",20,7,2);
Query OK, 1 row affected (0.05 sec)

mysql> insert into orders values(4,"tables",10,3,4);
Query OK, 1 row affected (0.05 sec)

mysql> insert into orders values(5,"markers",5,4,5);
Query OK, 1 row affected (0.04 sec)

mysql> insert into orders values(6,"markers",10,8,5);
Query OK, 1 row affected (0.04 sec)

mysql> insert into orders values(7,"notebok",10,9,10);
Query OK, 1 row affected (0.04 sec)

mysql> insert into orders values(8,"notebok",10,8,8);
Query OK, 1 row affected (0.10 sec)

mysql> insert into orders values(9,"board",10,5,7);
Query OK, 1 row affected (0.04 sec)

mysql> insert into orders values(10,"laptop",1,3,6);
Query OK, 1 row affected (0.05 sec)

mysql> select * from orders;
+------+---------+----------+------+----------+
| o_id | item    | quantity | c_id | sales_id |
+------+---------+----------+------+----------+
|    1 | chairs  |       20 |    1 |        2 |
|    2 | chairs  |       20 |    1 |        3 |
|    3 | tables  |       20 |    7 |        2 |
|    4 | tables  |       10 |    3 |        4 |
|    5 | markers |        5 |    4 |        5 |
|    6 | markers |       10 |    8 |        5 |
|    7 | notebok |       10 |    9 |       10 |
|    8 | notebok |       10 |    8 |        8 |
|    9 | board   |       10 |    5 |        7 |
|   10 | laptop  |        1 |    3 |        6 |
+------+---------+----------+------+----------+
10 rows in set (0.00 sec)
```

5. Find the sales person have multiple orders.

```
mysql> select sales_id, count(*) from orders group by sales_id having count(*)>1;
+----------+----------+
| sales_id | count(*) |
+----------+----------+
|        2 |        2 |
|        5 |        2 |
+----------+----------+
2 rows in set (0.00 sec)

mysql>
```

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

```
mysql> select * from salesperson join orders on salesperson.s_id=orders.sales_id
;
+------+-----------------+------+---------+----------+------+----------+
| s_id | salesperson_name | o_id | item    | quantity | c_id | sales_id |
+------+-----------------+------+---------+----------+------+----------+
|    2 | p               |    1 | chairs  |       20 |    1 |        2 |
|    3 | j               |    2 | chairs  |       20 |    1 |        3 |
|    2 | p               |    3 | tables  |       20 |    7 |        2 |
|    4 | k               |    4 | tables  |       10 |    3 |        4 |
|    5 | r               |    5 | markers |        5 |    4 |        5 |
|    5 | r               |    6 | markers |       10 |    8 |        5 |
|   10 | k               |    7 | notebok |       10 |    9 |       10 |
|    8 | u               |    8 | notebok |       10 |    8 |        8 |
|    7 | t               |    9 | board   |       10 |    5 |        7 |
|    6 | o               |   10 | laptop  |        1 |    3 |        6 |
+------+-----------------+------+---------+----------+------+----------+
10 rows in set (0.00 sec)
```

7. Create index

```
mysql> create index index_i on customer(cust_id,name);
Query OK, 0 rows affected (0.30 sec)
Records: 0  Duplicates: 0  Warnings: 0
```

8. How to show index on a table

```
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 | cust_id     | A         |           8 |     NULL | NULL   |      | BTREE      |         |               |
| customer |          1 | index_i  |            1 | cust_id     | A         |           8 |     NULL | NULL   |      | BTREE      |         |               |
| customer |          1 | index_i  |            2 | name        | A         |           8 |     NULL | NULL   |      | BTREE      |         |               |
+----------+------------+----------+--------------+-------------+-----------+-------------+----------+--------+------+------------+---------+---------------+
3 rows in set (0.00 sec)
```

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

```
mysql> select o.o_id,s.salesperson_name, c.name from orders o inner join salesperson s on o.sales_id=s.s_id inner join customer c  on c.cust_i
d=o.c_id;
+------+-------------------+------+
| o_id | salesperson_name  | name |
+------+-------------------+------+
|    1 | p                 | a    |
|    2 | j                 | a    |
|    3 | p                 | g    |
|    4 | k                 | c    |
|    5 | r                 | d    |
|    6 | r                 | h    |
|    7 | k                 | i    |
|    8 | u                 | h    |
|    9 | t                 | e    |
|   10 | o                 | c    |
+------+-------------------+------+
10 rows in set (0.00 sec)
```