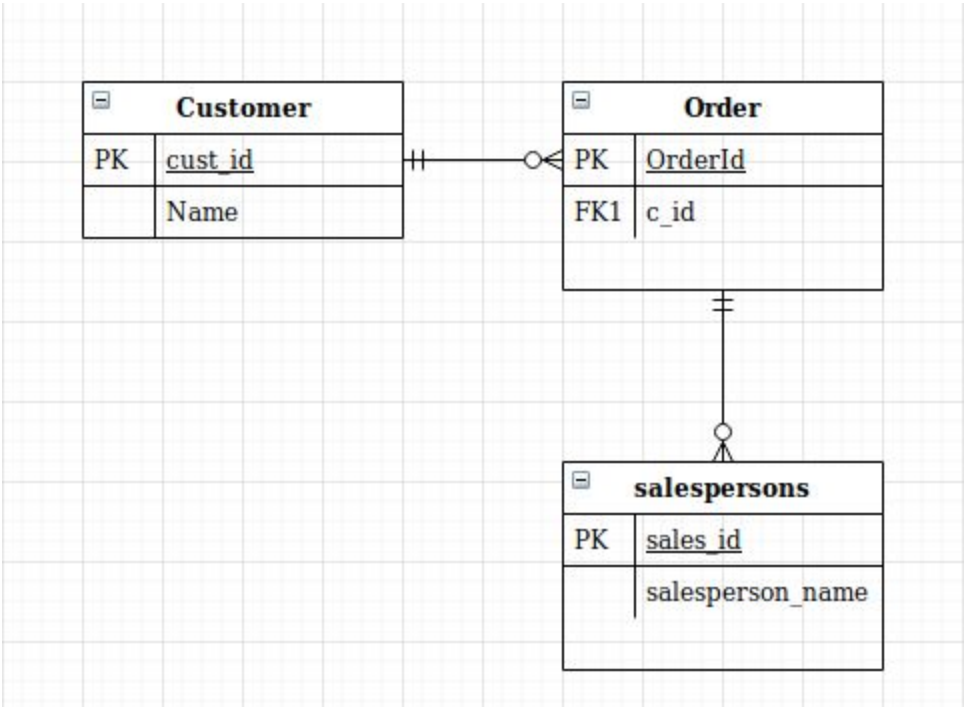
Introduction to Databases
Exercise

1. Create Database

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

```
mysql> show databases;
+--------------------+
| Database           |
+--------------------+
| information_schema |
| db_arpit           |
| exercise           |
| mysql              |
| performance_schema |
| sys                |
+--------------------+
6 rows in set (0.00 sec)
```

2. Design Schema



3. Create tables

```
mysql> use exercise;
Database changed
mysql> create table customer (cust_id bigint(20) NOT NULL AUTO_INCREMENT, name v
archar(20) NOT NULL, address varchar(40) NOT NULL, primary key (cust_id));
Query OK, 0 rows affected (0.04 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(40) | NO   |     | NULL    |                |
+---------+-------------+------+-----+---------+----------------+
3 rows in set (0.01 sec)
```

```
mysql> create table salespersons (sales_id bigint(20) NOT NULL, salesperson_name
 varchar(30),primary key (sales_id));
Query OK, 0 rows affected (0.03 sec)

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

```
mysql> create table orders(order_id bigint(20) not null, item varchar(20) not nu
ll, c_id bigint(20) not null, s_id bigint(20) not null, primary key (order_id),
foreign key(c_id) references customer(cust_id), foreign key(s_id) references sal
espersons(sales_id));
Query OK, 0 rows affected (0.04 sec)

mysql> desc orders;
+----------+-------------+------+-----+---------+-------+
| Field    | Type        | Null | Key | Default | Extra |
+----------+-------------+------+-----+---------+-------+
| order_id | bigint(20)  | NO   | PRI | NULL    |       |
| item     | varchar(20) | NO   |     | NULL    |       |
| c_id     | bigint(20)  | NO   | MUL | NULL    |       |
| s_id     | bigint(20)  | NO   | MUL | NULL    |       |
+----------+-------------+------+-----+---------+-------+
4 rows in set (0.01 sec)
```

4. Insert sample data

```
mysql> insert into salespersons values(3,'kfj');
Query OK, 1 row affected (0.01 sec)

mysql> insert into salespersons values(4,'okf');
Query OK, 1 row affected (0.01 sec)

mysql> insert into salespersons values(5,'kgj');
Query OK, 1 row affected (0.01 sec)

mysql> insert into salespersons values(6,'ell');
Query OK, 1 row affected (0.01 sec)

mysql> insert into salespersons values(7,'qlo');
Query OK, 1 row affected (0.01 sec)

mysql> insert into salespersons values(8,'llk');
Query OK, 1 row affected (0.02 sec)

mysql> insert into salespersons values(9,'zxx');
Query OK, 1 row affected (0.01 sec)

mysql> insert into salespersons values(10,'thh');
```

```
mysql> insert into customer values(5,'e','noida');
Query OK, 1 row affected (0.02 sec)

mysql> insert into customer values(6,'f','dhanolti');
Query OK, 1 row affected (0.02 sec)

mysql> insert into customer values(7,'g','pune');
Query OK, 1 row affected (0.02 sec)

mysql> insert into customer values(8,'h','delhi');
Query OK, 1 row affected (0.01 sec)

mysql> insert into customer values(9,'i','bihar');
Query OK, 1 row affected (0.02 sec)

mysql> insert into customer values(19,'j','meerut');
Query OK, 1 row affected (0.01 sec)

mysql> insert into orders values(1,'shirt',1,2);
Query OK, 1 row affected (0.02 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(40) | NO   |     | NULL    |                |
+---------+-------------+------+-----+---------+----------------+
3 rows in set (0.01 sec)

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

mysql> desc orders;
+----------+-------------+------+-----+---------+-------+
| Field    | Type        | Null | Key | Default | Extra |
+----------+-------------+------+-----+---------+-------+
| order_id | bigint(20)  | NO   | PRI | NULL    |       |
| item     | varchar(20) | NO   |     | NULL    |       |
| c_id     | bigint(20)  | NO   | MUL | NULL    |       |
| s_id     | bigint(20)  | NO   | MUL | NULL    |       |
+----------+-------------+------+-----+---------+-------+
4 rows in set (0.00 sec)
```

5. Find the sales person have multiple orders.

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

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

```
mysql> select * from salespersons s join orders o on s.sales_id=o.s_id;
+----------+------------------+----------+----------+------+------+
| sales_id | salesperson_name | order_id | item     | c_id | s_id |
+----------+------------------+----------+----------+------+------+
|        2 | asd              |        1 | shirt    |    1 |    2 |
|        3 | kfj              |        2 | pants    |    1 |    3 |
|        2 | asd              |        3 | laptop   |    7 |    2 |
|        4 | okf              |        4 | chair    |    3 |    4 |
|        5 | kgj              |        5 | table    |    4 |    5 |
|        5 | kgj              |        6 | notebook |    8 |    5 |
|       10 | thh              |        7 | chair    |    9 |   10 |
|        8 | llk              |        8 | pen      |    8 |    8 |
|        7 | qlo              |        9 | jacket   |    5 |    7 |
|        6 | ell              |       10 | phone    |    3 |    6 |
+----------+------------------+----------+----------+------+------+
10 rows in set (0.00 sec)
```

7. Create index

```
mysql> create index index_1 on customer(cust_id,name);
Query OK, 0 rows affected (0.04 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_1  |            1 | cust_id     | A         |          10 |     NULL | NULL   |      | BTREE      |         |
              |
| customer |          1 | index_1  |            2 | name        | A         |          10 |     NULL | NULL   |      | BTREE      |         |
              |
+----------+------------+----------+--------------+-------------+-----------+-------------+----------+--------+------+------------+---------+---
--------------+
3 rows in set (0.01 sec)
```

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

```
mysql> select o.order_id,s.salesperson_name, c.name from orders o inner join salespersons s on o.s_id=s.sales_id inner join customer c on c.cu
st_id=o.c_id;
+----------+-----------------+------+
| order_id | salesperson_name | name |
+----------+-----------------+------+
|        1 | asd             | a    |
|        2 | kfj             | a    |
|        3 | asd             | g    |
|        4 | okf             | c    |
|        5 | kgj             | d    |
|        6 | kgj             | h    |
|        7 | thh             | i    |
|        8 | llk             | h    |
|        9 | qlo             | e    |
|       10 | ell             | c    |
+----------+-----------------+------+
10 rows in set (0.00 sec)
```