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

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

mysql> use abcsales;
Database changed
mysql>
```

2.Design Schema

```
mysql> desc Customers;
+---------------+-------------+------+-----+---------+----------------+
| Field         | Type        | Null | Key | Default | Extra          |
+---------------+-------------+------+-----+---------+----------------+
| CUST_ID       | int(11)     | NO   | PRI | NULL    | auto_increment |
| CUST_NAME     | varchar(30) | NO   |     | NULL    |                |
| CUST_EMAIL    | varchar(30) | NO   |     | NULL    |                |
| CUST_PHONE    | varchar(15) | NO   |     | NULL    |                |
| CUST_CITY     | varchar(20) | NO   |     | NULL    |                |
| SALES_ID      | int(11)     | YES  | MUL | NULL    |                |
| ORDER_INFO_ID | int(11)     | YES  | MUL | NULL    |                |
+---------------+-------------+------+-----+---------+----------------+
7 rows in set (0.00 sec)

mysql> desc SalesMan;
+-------------+-------------+------+-----+---------+----------------+
| Field       | Type        | Null | Key | Default | Extra          |
+-------------+-------------+------+-----+---------+----------------+
| SALES_ID    | int(11)     | NO   | PRI | NULL    | auto_increment |
| SALES_NAME  | varchar(20) | NO   |     | NULL    |                |
| SALES_PHONE | varchar(15) | NO   |     | NULL    |                |
| SALES_CITY  | varchar(20) | NO   |     | NULL    |                |
+-------------+-------------+------+-----+---------+----------------+
4 rows in set (0.00 sec)
```

```
mysql> desc Order_Info;
+-----------------+-------------+------+-----+---------+----------------+
| Field           | Type        | Null | Key | Default | Extra          |
+-----------------+-------------+------+-----+---------+----------------+
| ORDER_INFO_ID   | int(11)     | NO   | PRI | NULL    | auto_increment |
| ORDER_INFO_NAME | varchar(20) | NO   |     | NULL    |                |
| ORDER_INFO_AMT  | int(10)     | NO   |     | NULL    |                |
+-----------------+-------------+------+-----+---------+----------------+
3 rows in set (0.01 sec)

mysql> desc Order_Cust;
+---------------+-----------+------+-----+-------------------+----------------+
| Field         | Type      | Null | Key | Default           | Extra          |
+---------------+-----------+------+-----+-------------------+----------------+
| ORDER_ID      | int(11)   | NO   | PRI | NULL              | auto_increment |
| ORDER_DATE    | timestamp | NO   |     | CURRENT_TIMESTAMP |                |
| CUST_ID       | int(11)   | YES  | MUL | NULL              |                |
| SALES_ID      | int(11)   | YES  |     | NULL              |                |
| ORDER_INFO_ID | int(11)   | YES  |     | NULL              |                |
+---------------+-----------+------+-----+-------------------+----------------+
5 rows in set (0.00 sec)
```

3. Create tables

```
mysql> CREATE TABLE Order_Info (
    ->        ORDER_INFO_ID int primary key AUTO_INCREMENT,
    ->        ORDER_INFO_NAME varchar(20) NOT NULL,
    ->        ORDER_INFO_AMT int(10) NOT NULL
    -> );
Query OK, 0 rows affected (0.47 sec)
```

```
mysql> CREATE TABLE SalesMan (
    ->        SALES_ID int primary key AUTO_INCREMENT,
    ->        SALES_NAME varchar(20) NOT NULL,
    ->        SALES_PHONE varchar(15) NOT NULL,
    ->        SALES_CITY varchar (20) NOT NULL
    -> );
Query OK, 0 rows affected (0.44 sec)
```

```
mysql> CREATE TABLE Customers (
    ->      CUST_ID int primary key AUTO_INCREMENT,
    ->      CUST_NAME varchar(30) NOT NULL,
    ->      CUST_EMAIL varchar(30) NOT NULL,
    ->      CUST_PHONE varchar(15) NOT NULL,
    ->      CUST_CITY varchar (20) NOT NULL,
    ->      SALES_ID INT,
    ->      CONSTRAINT fk_Sales FOREIGN KEY (SALES_ID)
    -> REFERENCES SalesMan(SALES_ID),
    ->      ORDER_INFO_ID INT,
    ->      CONSTRAINT fk_Order_Info FOREIGN KEY (ORDER_INFO_ID)
    -> REFERENCES Order_Info(ORDER_INFO_ID)
    ->
    ->     );
Query OK, 0 rows affected (0.41 sec)
```

```
mysql> CREATE TABLE Order_Cust (
    ->      ORDER_ID int primary key AUTO_INCREMENT,
    ->
    ->      ORDER_DATE TIMESTAMP DEFAULT CURRENT_TIMESTAMP,
    ->
    ->      CUST_ID INT,
    ->   CONSTRAINT fk_CustOrder FOREIGN KEY (CUST_ID)
    ->   REFERENCES Customers(CUST_ID),
    ->
    ->      SALES_ID INT,
    ->   ORDER_INFO_ID INT
    -> );
Query OK, 0 rows affected (0.39 sec)
```

4. Insert sample data

```
mysql> INSERT INTO `abcsales`.`Order_Info` (`ORDER_INFO_NAME`, `ORDER_INFO_AMT`)
 VALUES ('Smart Phone', '10000');
Query OK, 1 row affected (0.15 sec)

mysql> INSERT INTO `abcsales`.`Order_Info` (`ORDER_INFO_NAME`, `ORDER_INFO_AMT`)
 VALUES ('Smart TV', '45000');
Query OK, 1 row affected (0.04 sec)

mysql> INSERT INTO `abcsales`.`Order_Info` (`ORDER_INFO_NAME`, `ORDER_INFO_AMT`)
 VALUES ('Laptop', '35000');
Query OK, 1 row affected (0.08 sec)

mysql> INSERT INTO `abcsales`.`Order_Info` (`ORDER_INFO_NAME`, `ORDER_INFO_AMT`)
 VALUES ('Monitor', '22000');
Query OK, 1 row affected (0.09 sec)

mysql> INSERT INTO `abcsales`.`Order_Info` (`ORDER_INFO_NAME`, `ORDER_INFO_AMT`)
 VALUES ('Mouse and Keyboard', '1000');
Query OK, 1 row affected (0.10 sec)
```

```
mysql> INSERT INTO `abcsales`.`SalesMan` (`SALES_NAME`, `SALES_PHONE`, `SALES_CI
TY`) VALUES ('Abe Lincoln', '9898981900', 'DELHI');
Query OK, 1 row affected (0.11 sec)

mysql> INSERT INTO `abcsales`.`SalesMan` (`SALES_NAME`, `SALES_PHONE`, `SALES_CI
TY`) VALUES ('Ram', '9868981900', 'KOLKATA');
Query OK, 1 row affected (0.04 sec)

mysql> INSERT INTO `abcsales`.`SalesMan` (`SALES_NAME`, `SALES_PHONE`, `SALES_CI
TY`) VALUES ('Shyam', '8688981900', 'CHENNAI');
Query OK, 1 row affected (0.09 sec)

mysql> INSERT INTO `abcsales`.`SalesMan` (`SALES_NAME`, `SALES_PHONE`, `SALES_CI
TY`) VALUES ('Manoj', '7898981900', 'MUMBAI');
Query OK, 1 row affected (0.08 sec)
```

```
mysql> INSERT INTO `abcsales`.`Customers` (`CUST_NAME`, `CUST_EMAIL`, `CUST_PHON
E`, `CUST_CITY`, `SALES_ID`, `ORDER_INFO_ID`) VALUES ('Raju', 'raju@g.com', '989
8080709', 'DELHI', '2', '2');
Query OK, 1 row affected (0.08 sec)

mysql> INSERT INTO `abcsales`.`Customers` (`CUST_NAME`, `CUST_EMAIL`, `CUST_PHON
E`, `CUST_CITY`, `SALES_ID`, `ORDER_INFO_ID`) VALUES ('Shyam', 'shy@g.com', '980
8070809', 'NOIDA', '3', '1');
Query OK, 1 row affected (0.03 sec)

mysql> INSERT INTO `abcsales`.`Customers` (`CUST_NAME`, `CUST_EMAIL`, `CUST_PHON
E`, `CUST_CITY`, `SALES_ID`, `ORDER_INFO_ID`) VALUES ('Ram', 'ram@g.com', '98109
10290', 'KOLKATA', '1', '3');
Query OK, 1 row affected (0.10 sec)

mysql> INSERT INTO `abcsales`.`Customers` (`CUST_NAME`, `CUST_EMAIL`, `CUST_PHON
E`, `CUST_CITY`, `SALES_ID`, `ORDER_INFO_ID`) VALUES ('Anjali', 'anj@g.com', '98
01010293', 'MUMBAI', '4', '2');
Query OK, 1 row affected (0.03 sec)

mysql> INSERT INTO `abcsales`.`Customers` (`CUST_NAME`, `CUST_EMAIL`, `CUST_PHON
E`, `CUST_CITY`, `SALES_ID`, `ORDER_INFO_ID`) VALUES ('Ritvik', 'rit@g.com', '98
10293029', 'NOIDA', '3', '4');
Query OK, 1 row affected (0.09 sec)
```

```
mysql> INSERT INTO Order_Cust (CUST_ID, SALES_ID, ORDER_INFO_ID)
    -> SELECT CUST_ID, SALES_ID, ORDER_INFO_ID FROM Customers;
Query OK, 5 rows affected (0.11 sec)
Records: 5  Duplicates: 0  Warnings: 0
```

5. Find the sales person have multiple orders.

```
mysql> SELECT SALES_NAME FROM SalesMan
    -> WHERE SALES_ID IN (
    ->     SELECT DISTINCT SALES_ID
    ->     FROM Order_Cust a
    ->     WHERE EXISTS (
    ->         SELECT *
    ->         FROM Order_Cust b
    ->         WHERE b.SALES_ID=a.SALES_ID
    ->         AND b.CUST_ID<>a.CUST_ID));
+------------+
| SALES_NAME |
+------------+
| Shyam      |
+------------+
1 row in set (0.00 sec)
```

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

```
mysql> SELECT a.SALES_ID, a.SALES_NAME, a.SALES_PHONE, a.SALES_CITY, c.Order_Inf
o_ID, c.Order_Info_Name, c.Order_Info_Amt
    -> FROM SalesMan a
    -> INNER JOIN Order_Cust b
    -> ON a.Sales_ID = b.Sales_ID
    -> INNER JOIN Order_Info c
    -> ON b.Order_Info_ID = c.Order_Info_ID
    -> ORDER BY SALES_ID;
+----------+-------------+-------------+------------+---------------+-----------
------+---------------+
| SALES_ID | SALES_NAME  | SALES_PHONE | SALES_CITY | Order_Info_ID | Order_Info
_Name | Order_Info_Amt |
+----------+-------------+-------------+------------+---------------+-----------
------+---------------+
|        1 | Abe Lincoln | 9898981900  | DELHI      |             3 | Laptop
      |         35000 |
|        2 | Ram         | 9868981900  | KOLKATA    |             2 | Smart TV
      |         45000 |
|        3 | Shyam       | 8688981900  | CHENNAI    |             1 | Smart Phon
e     |         10000 |
|        3 | Shyam       | 8688981900  | CHENNAI    |             4 | Monitor
      |         22000 |
|        4 | Manoj       | 7898981900  | MUMBAI     |             2 | Smart TV
      |         45000 |
+----------+-------------+-------------+------------+---------------+-----------
------+---------------+
5 rows in set (0.00 sec)
```

7.Create index

```
mysql> CREATE INDEX id_index on Order_Cust(SALES_ID);
Query OK, 0 rows affected (0.46 sec)
Records: 0  Duplicates: 0  Warnings: 0
```

8.How to show index on a table

```
mysql> SHOW INDEX FROM Order_Cust;
+------------+------------+--------------+--------------+-------------+-----------+-------------+----------+--------+------+------------+----
----+---------------+
| Table      | Non_unique | Key_name     | Seq_in_index | Column_name | Collation | Cardinality | Sub_part | Packed | Null | Index_type | Comm
ent | Index_comment |
+------------+------------+--------------+--------------+-------------+-----------+-------------+----------+--------+------+------------+----
----+---------------+
| Order_Cust |          0 | PRIMARY      |            1 | ORDER_ID    | A         |           5 |     NULL | NULL   |      | BTREE      |
    |               |
| Order_Cust |          1 | fk_CustOrder |            1 | CUST_ID     | A         |           5 |     NULL | NULL   | YES  | BTREE      |
    |               |
| Order_Cust |          1 | id_index     |            1 | SALES_ID    | A         |           4 |     NULL | NULL   | YES  | BTREE      |
    |               |
+------------+------------+--------------+--------------+-------------+-----------+-------------+----------+--------+------+------------+----
----+---------------+
3 rows in set (0.00 sec)
```

9.

```
mysql> SELECT c.Order_Info_ID, a.SALES_NAME, d.CUST_NAME
    -> FROM SalesMan a
    -> INNER JOIN Order_Cust b
    -> ON a.Sales_ID = b.Sales_ID
    -> INNER JOIN Customers d
    -> ON b.CUST_ID = d.CUST_ID
    -> INNER JOIN Order_Info c
    -> ON b.Order_Info_ID = c.Order_Info_ID
    -> ORDER BY Order_Info_ID;
+---------------+-------------+-----------+
| Order_Info_ID | SALES_NAME  | CUST_NAME |
+---------------+-------------+-----------+
|             1 | Shyam       | Shyam     |
|             2 | Manoj       | Anjali    |
|             2 | Ram         | Raju      |
|             3 | Abe Lincoln | Ram       |
|             4 | Shyam       | Ritvik    |
+---------------+-------------+-----------+
5 rows in set (0.00 sec)
```