**Introduction to Databases - Exercise Solutions**
**February 06, 2019**

**Question 1:**
Create database

```
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owners.

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

mysql> show databases;
+--------------------+
| Database           |
+--------------------+
| information_schema |
| deedb              |
| mysql              |
| performance_schema |
| sys                |
+--------------------+
5 rows in set (0.00 sec)

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

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

mysql>
```
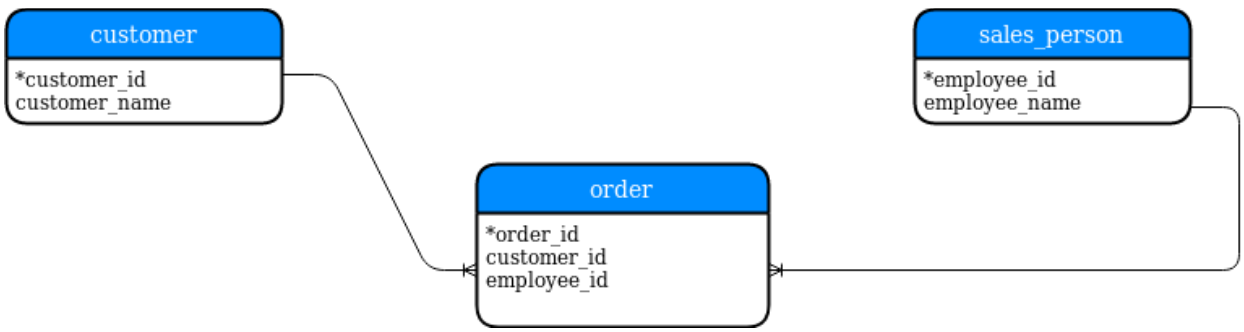

**Question 2:**
Design schema



**Question 3:**
Create tables

create table customer (customer_id integer primary key, customer_name varchar(20));

create table sales_person (employee_id integer primary key, employee_name varchar(20));

```
mysql> create table shop_order (
    -> order_id integer primary key,
    -> customer_id integer,
    -> employee_id integer,
    -> foreign key (customer_id) references customer (customer_id),
    -> foreign key (employee_id) references sales_person (employee_id));
Query OK, 0 rows affected (0.40 sec)
```

```
+--------------------+
| Tables_in_shop_db |
+--------------------+
| customer           |
| sales_person       |
| shop_order         |
+--------------------+
3 rows in set (0.00 sec)

mysql> describe customer;
+---------------+-------------+------+-----+---------+-------+
| Field         | Type        | Null | Key | Default | Extra |
+---------------+-------------+------+-----+---------+-------+
| customer_id   | int(11)     | NO   | PRI | NULL    |       |
| customer_name | varchar(20) | NO   |     | NULL    |       |
+---------------+-------------+------+-----+---------+-------+
2 rows in set (0.00 sec)

mysql> describe sales_person
    -> ;
+---------------+-------------+------+-----+---------+-------+
| Field         | Type        | Null | Key | Default | Extra |
+---------------+-------------+------+-----+---------+-------+
| employee_id   | int(11)     | NO   | PRI | NULL    |       |
| employee_name | varchar(20) | NO   |     | NULL    |       |
+---------------+-------------+------+-----+---------+-------+
2 rows in set (0.00 sec)

mysql> describe shop_order;
+-------------+---------+------+-----+---------+-------+
| Field       | Type    | Null | Key | Default | Extra |
+-------------+---------+------+-----+---------+-------+
| order_id    | int(11) | NO   | PRI | NULL    |       |
| customer_id | int(11) | YES  | MUL | NULL    |       |
| employee_id | int(11) | YES  | MUL | NULL    |       |
+-------------+---------+------+-----+---------+-------+
3 rows in set (0.00 sec)
```

**Question 4:**
Insert sample data

```
mysql> insert into customer values (3322, "Deepika");
Query OK, 1 row affected (0.09 sec)

mysql> insert into customer values (3338, "Divya");
Query OK, 1 row affected (0.13 sec)

mysql> insert into customer values (3002, "Aanchal");
Query OK, 1 row affected (0.08 sec)

mysql> insert into customer values (3410, "Deepshikha");
Query OK, 1 row affected (0.08 sec)

mysql> insert into customer values (3710, "Anisha");
Query OK, 1 row affected (0.10 sec)

mysql> select * from customer;
+-------------+---------------+
| customer_id | customer_name |
+-------------+---------------+
|        3002 | Aanchal       |
|        3322 | Deepika       |
|        3338 | Divya         |
|        3410 | Deepshikha    |
|        3710 | Anisha        |
+-------------+---------------+
5 rows in set (0.00 sec)
```

```
mysql> insert into sales_person values
    -> (1001, "Ravi"),
    -> (1002, "Ramesh"),
    -> (1003, "Aakash"),
    -> (1004, "Rohit"),
    -> (1005, "Nitesh");
Query OK, 5 rows affected (0.07 sec)
Records: 5  Duplicates: 0  Warnings: 0

mysql> select * from sales_person
    -> ;
+-------------+---------------+
| employee_id | employee_name |
+-------------+---------------+
|        1001 | Ravi          |
|        1002 | Ramesh        |
|        1003 | Aakash        |
|        1004 | Rohit         |
|        1005 | Nitesh        |
+-------------+---------------+
5 rows in set (0.00 sec)

mysql>
```

```
mysql> insert into shop_order values
    -> (1, 3002, 1005),
    -> (2, 3410, 1004),
    -> (3, 3002, 1001),
    -> (4, 3338, 1003),
    -> (5, 3322, 1002),
    -> (6, 3710, 1001);
Query OK, 6 rows affected (0.05 sec)
Records: 6  Duplicates: 0  Warnings: 0

mysql> select * from shop_order;
+----------+-------------+-------------+
| order_id | customer_id | employee_id |
+----------+-------------+-------------+
|        1 |        3002 |        1005 |
|        2 |        3410 |        1004 |
|        3 |        3002 |        1001 |
|        4 |        3338 |        1003 |
|        5 |        3322 |        1002 |
|        6 |        3710 |        1001 |
+----------+-------------+-------------+
6 rows in set (0.00 sec)

mysql>
```

**Question 5:**
Find the salesperson having multiple orders

```
mysql> select sp.*, count(o.employee_id) as number_of_orders
    -> from sales_person sp
    -> join shop_order o
    -> on sp.employee_id = o.employee_id
    -> group by o.employee_id
    -> having count(o.employee_id) > 1;
+-------------+---------------+------------------+
| employee_id | employee_name | number_of_orders |
+-------------+---------------+------------------+
|        1001 | Ravi          |                2 |
+-------------+---------------+------------------+
1 row in set (0.00 sec)

mysql>
```

**Question 6:**
Find the all salesperson details along with order details

```
mysql> select sp.*, o.order_id, o.customer_id
    -> from sales_person sp
    -> join shop_order o
    -> on sp.employee_id = o.employee_id;
+-------------+---------------+----------+-------------+
| employee_id | employee_name | order_id | customer_id |
+-------------+---------------+----------+-------------+
|        1001 | Ravi          |        3 |        3002 |
|        1001 | Ravi          |        6 |        3710 |
|        1002 | Ramesh        |        5 |        3322 |
|        1003 | Aakash        |        4 |        3338 |
|        1004 | Rohit         |        2 |        3410 |
|        1005 | Nitesh        |        1 |        3002 |
+-------------+---------------+----------+-------------+
6 rows in set (0.00 sec)

mysql>
```

**Question 7:**
Create index

```
mysql> create index idx_cname on customer (customer_name);
Query OK, 0 rows affected (0.34 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql>
```

**Question 8:**
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 | customer_id  | A         |           4 |     NULL | NULL   |      | BTREE      |         |
         |
| customer |          1 | idx_cname |           1 | customer_name | A        |           5 |     NULL | NULL   |      | BTREE      |         |
         |
+----------+------------+----------+--------------+--------------+-----------+-------------+----------+--------+------+------------+---------+------
---------+
2 rows in set (0.00 sec)

mysql>
```

**Question 9:**
Find the order number, salesperson name, along with the customer to whom that order belongs to

```
mysql> select o.order_id, sp.employee_name, c.customer_name, c.customer_id
    -> from shop_order o inner join sales_person sp inner join customer c
    -> on o.employee_id = sp.employee_id and o.customer_id = c.customer_id;
+----------+---------------+---------------+-------------+
| order_id | employee_name | customer_name | customer_id |
+----------+---------------+---------------+-------------+
|        3 | Ravi          | Aanchal       |        3002 |
|        6 | Ravi          | Anisha        |        3710 |
|        5 | Ramesh        | Deepika       |        3322 |
|        4 | Aakash        | Divya         |        3338 |
|        2 | Rohit         | Deepshikha    |        3410 |
|        1 | Nitesh        | Aanchal       |        3002 |
+----------+---------------+---------------+-------------+
6 rows in set (0.01 sec)

mysql>
```