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Exercise 3

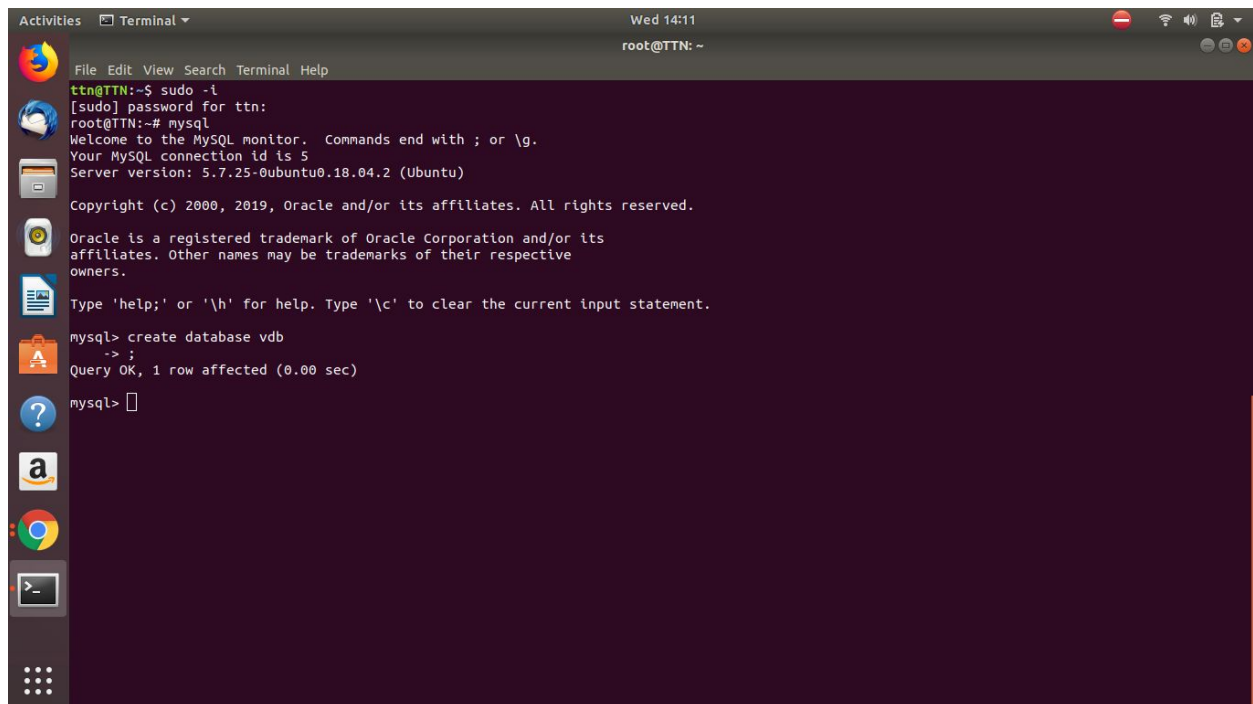
Introduction to Database

Problem Statement: There can be multiple customers, who can place multiple orders on the site. Now 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

Command:

mysql> create database vdb ;



```
Activities  Terminal  Wed 14:11
root@TTN: ~

ttn@TTN:~$ sudo -i
[sudo] password for ttn:
root@TTN:~# mysql
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 5
Server version: 5.7.25-0ubuntu0.18.04.2 (Ubuntu)

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owners.

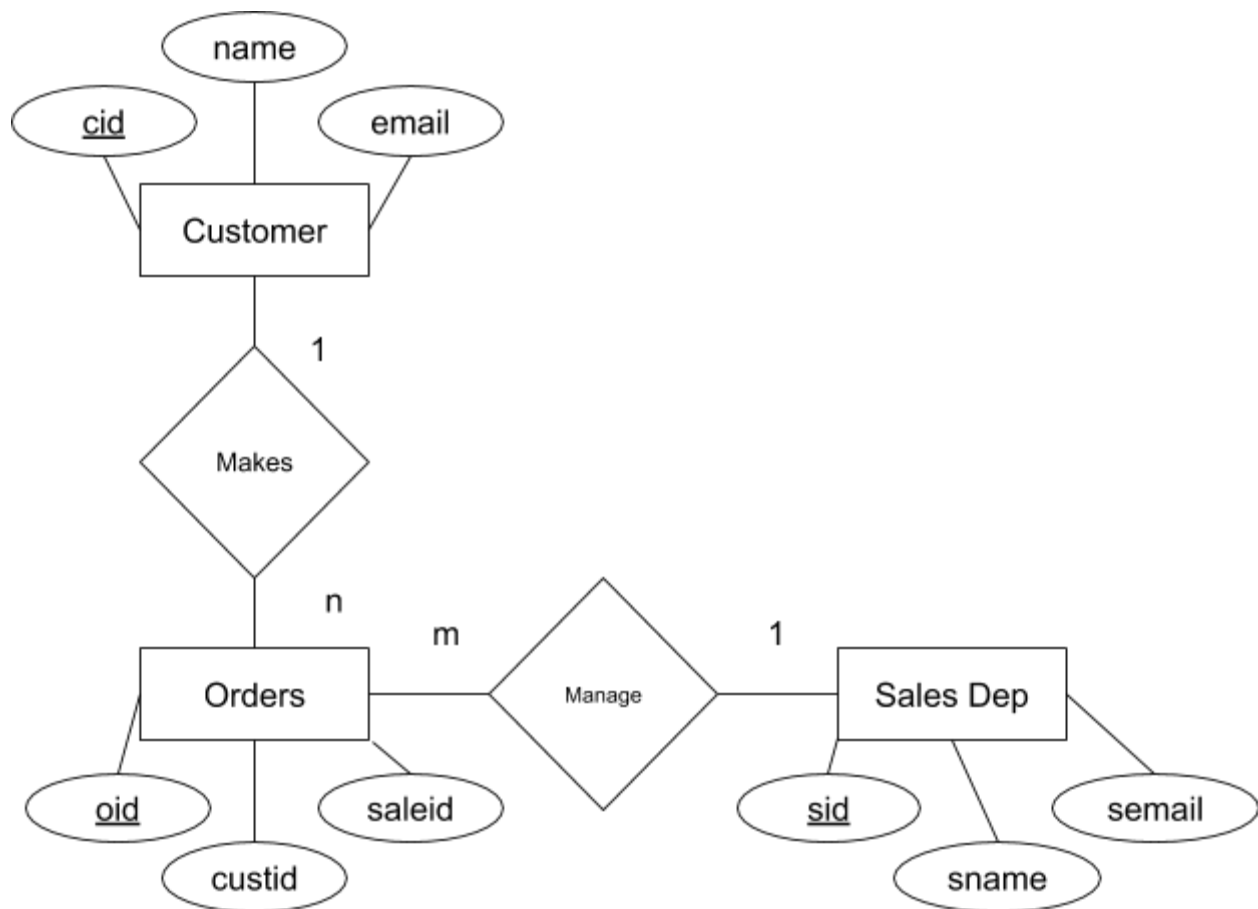
Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

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

mysql>
```

2. Design Schema

Entity Relationship Diagram for the above Schema



3. Create tables

Command:

```
mysql> use vdb
```

Database changed

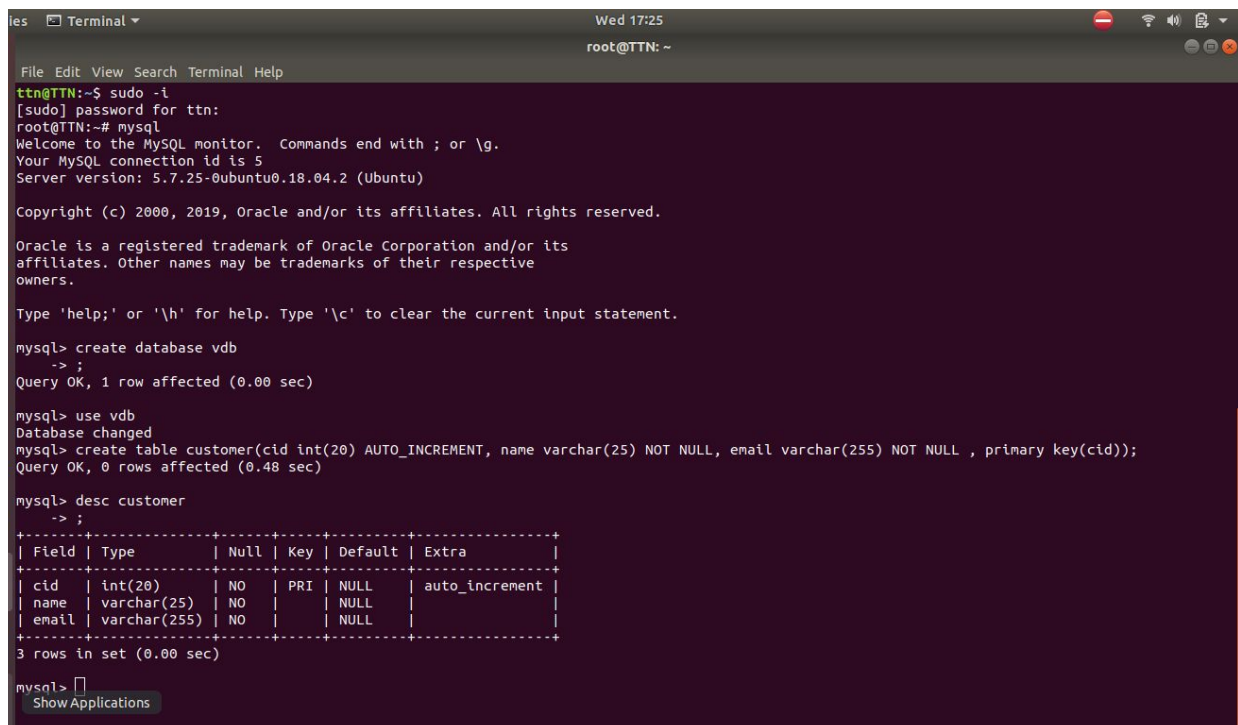
```
mysql> create table customer(cid int(20) AUTO_INCREMENT, name varchar(25) NOT
NULL, email varchar(255) NOT NULL , primary key(cid));
```

Query OK, 0 rows affected (0.48 sec)

```
mysql> desc customer;
```

Field	Type	Null	Key	Default	Extra
cid	int(20)	NO	PRI	NULL	auto_increment
name	varchar(25)	NO		NULL	
email	varchar(255)	NO		NULL	

3 rows in set (0.00 sec)



```
les  Terminal  Wed 17:25
root@TTN: ~

ttn@TTN:~$ sudo -i
[sudo] password for ttn:
root@TTN:~# mysql
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 5
Server version: 5.7.25-0ubuntu0.18.04.2 (Ubuntu)

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affiliates. Other names may be trademarks of their respective
owners.

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

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

mysql> use vdb
Database changed
mysql> create table customer(cid int(20) AUTO_INCREMENT, name varchar(25) NOT NULL, email varchar(255) NOT NULL , primary key(cid));
Query OK, 0 rows affected (0.48 sec)

mysql> desc customer
-> ;
+-----+-----+-----+-----+-----+-----+
| Field | Type          | Null | Key | Default | Extra          |
+-----+-----+-----+-----+-----+-----+
| cid   | int(20)       | NO   | PRI | NULL    | auto_increment |
| name  | varchar(25)   | NO   |     | NULL    |                |
| email | varchar(255)  | NO   |     | NULL    |                |
+-----+-----+-----+-----+-----+-----+
3 rows in set (0.00 sec)

mysql>
```

```
mysql> create table salesdep(sid int(20) AUTO_INCREMENT, sname varchar(25) NOT NULL, semail varchar(255) NOT NULL , primary key(sid));
Query OK, 0 rows affected (0.51 sec)
```

```
mysql> desc salesdep;
```

Field	Type	Null	Key	Default	Extra
sid	int(20)	NO	PRI	NULL	auto_increment
sname	varchar(25)	NO		NULL	
semail	varchar(255)	NO		NULL	

```
3 rows in set (0.00 sec)
```

```
mysql>
mysql> create table orders(oid int(20) AUTO_INCREMENT, custid int(20) NOT NULL, saleid int(20) NOT NULL, primary key(oid));
Query OK, 0 rows affected (0.34 sec)
```

```
mysql> desc orders;
```

Field	Type	Null	Key	Default	Extra
oid	int(20)	NO	PRI	NULL	auto_increment
custid	int(20)	NO		NULL	
saleid	int(20)	NO		NULL	

```
3 rows in set (0.00 sec)
```

```
mysql> alter table orders add foreign key(custid) references customer(cid);
```

```
Query OK, 0 rows affected (0.86 sec)
```

```
Records: 0 Duplicates: 0 Warnings: 0
```

```
mysql> alter table orders add foreign key(saleid) references salesdep(saleid);
```

```
ERROR 1215 (HY000): Cannot add foreign key constraint
```

```
mysql> alter table orders add foreign key(saleid) references salesdep(saleid);
```

```
ERROR 1215 (HY000): Cannot add foreign key constraint
```

```
mysql> alter table orders add foreign key(saleid) references salesdep(sid);
```

```
Query OK, 0 rows affected (1.05 sec)
```

```
Records: 0 Duplicates: 0 Warnings: 0
```

```
mysql> desc orders;
```

Field	Type	Null	Key	Default	Extra
oid	int(20)	NO	PRI	NULL	auto_increment
custid	int(20)	NO	MUL	NULL	
saleid	int(20)	NO	MUL	NULL	

```
3 rows in set (0.01 sec)
```

```
mysql> 
```

4. Insert sample data

Command:

```
mysql> insert into customer values(1,"Vidhi","vidhi@ttn.com");
```

Query OK, 1 row affected (0.06 sec)

```
mysql> insert into customer values(2,"ABC","abc@ttn.com");
```

Query OK, 1 row affected (0.08 sec)

```
mysql> insert into customer values(3,"XYZ","xyz@ttn.com");
```

Query OK, 1 row affected (0.06 sec)

```
mysql> select * from customer;
```

```
+----+-----+-----+
| cid | name  | email      |
+----+-----+-----+
|  1  | Vidhi | vidhi@ttn.com |
|  2  | ABC   | abc@ttn.com  |
|  3  | XYZ   | xyz@ttn.com  |
+----+-----+-----+
```

3 rows in set (0.00 sec)

```
mysql> insert into salesdep values(100,"Sales person 1","sp1@ttn.com");
```

Query OK, 1 row affected (0.31 sec)

```
mysql> insert into salesdep values(200,"Sales person 2","sp2@ttn.com");
```

Query OK, 1 row affected (0.16 sec)

```
mysql> insert into salesdep values(300,"Sales person 3","sp3@ttn.com");
```

Query OK, 1 row affected (0.07 sec)

```
mysql> select * from salesdep;
```

```
+----+-----+-----+
| sid | sname      | semail      |
+----+-----+-----+
| 100 | Sales person 1 | sp1@ttn.com |
| 200 | Sales person 2 | sp2@ttn.com |
| 300 | Sales person 3 | sp3@ttn.com |
+----+-----+-----+
```

3 rows in set (0.00 sec)

```
mysql> insert into orders values(10,1,100);
Query OK, 1 row affected (0.07 sec)
```

```
mysql> insert into orders values(20,2,200);
Query OK, 1 row affected (0.06 sec)
```

```
mysql> insert into orders values(30,3,300);
Query OK, 1 row affected (0.06 sec)
```

```
mysql> insert into orders values(60,3,300);
Query OK, 1 row affected (0.08 sec)
```

```
mysql> insert into orders values(40,2,200);
Query OK, 1 row affected (0.08 sec)
```

```
mysql> insert into orders values(90,3,300);
Query OK, 1 row affected (0.09 sec)
```

```
mysql> select * from orders;
```

```
+----+-----+-----+
| oid | custid | saleid |
+----+-----+-----+
| 10 | 1 | 100 |
| 20 | 2 | 200 |
| 30 | 3 | 300 |
| 40 | 2 | 200 |
| 60 | 3 | 300 |
| 90 | 3 | 300 |
+----+-----+-----+
```

```
6 rows in set (0.01 sec)
```

```
mysql>
mysql> insert into customer values(1,"Vidhi","vidhi@ttn.com");
Query OK, 1 row affected (0.06 sec)

mysql> insert into customer values(2,"ABC","abc@ttn.com");
Query OK, 1 row affected (0.08 sec)

mysql> insert into customer values(3,"XYZ","xyz@ttn.com");
Query OK, 1 row affected (0.06 sec)

mysql> select * from customer;
+-----+-----+-----+
| cid | name  | email          |
+-----+-----+-----+
| 1   | Vidhi | vidhi@ttn.com  |
| 2   | ABC   | abc@ttn.com    |
| 3   | XYZ   | xyz@ttn.com    |
+-----+-----+-----+
3 rows in set (0.00 sec)
```

```
mysql> insert into salesdep values(100,"Sales person 1","sp1@ttn.com");
Query OK, 1 row affected (0.31 sec)

mysql> insert into salesdep values(200,"Sales person 2","sp2@ttn.com");
Query OK, 1 row affected (0.16 sec)

mysql> insert into salesdep values(300,"Sales person 3","sp3@ttn.com");
Query OK, 1 row affected (0.07 sec)

mysql> select * from salesdep;
+-----+-----+-----+
| sid | sname          | semail          |
+-----+-----+-----+
| 100 | Sales person 1 | sp1@ttn.com     |
| 200 | Sales person 2 | sp2@ttn.com     |
| 300 | Sales person 3 | sp3@ttn.com     |
+-----+-----+-----+
3 rows in set (0.00 sec)
```

```
mysql> insert into orders values(10,1,100);
Query OK, 1 row affected (0.07 sec)

mysql> insert into orders values(20,2,200);
Query OK, 1 row affected (0.06 sec)

mysql> insert into orders values(30,3,300);
Query OK, 1 row affected (0.06 sec)

mysql> select * from orders;
+-----+-----+-----+
| oid | custid | saleid |
+-----+-----+-----+
| 10  | 1      | 100    |
| 20  | 2      | 200    |
| 30  | 3      | 300    |
+-----+-----+-----+
3 rows in set (0.00 sec)

mysql> 
```

5. Find the sales person have multiple orders.

Command:

```
mysql> select s.*,o.* from salesdep s join orders o ON s.sid = o.saleid group by o.saleid
having count(o.saleid)>1;
```

```
mysql>
mysql> select * from orders;
+-----+-----+-----+
| oid | custid | saleid |
+-----+-----+-----+
| 10 | 1 | 100 |
| 20 | 2 | 200 |
| 30 | 3 | 300 |
| 40 | 2 | 200 |
| 60 | 3 | 300 |
| 90 | 3 | 300 |
+-----+-----+-----+
6 rows in set (0.00 sec)

mysql> select * from salesdep;
+-----+-----+-----+
| sid | sname | semail |
+-----+-----+-----+
| 100 | Sales person 1 | sp1@ttn.com |
| 200 | Sales person 2 | sp2@ttn.com |
| 300 | Sales person 3 | sp3@ttn.com |
+-----+-----+-----+
3 rows in set (0.01 sec)

mysql> select s.*,o.* from salesdep s join orders o ON s.sid = o.saleid group by o.saleid having count(o.saleid)>1;
+-----+-----+-----+-----+-----+-----+
| sid | sname | semail | oid | custid | saleid |
+-----+-----+-----+-----+-----+-----+
| 200 | Sales person 2 | sp2@ttn.com | 20 | 2 | 200 |
| 300 | Sales person 3 | sp3@ttn.com | 30 | 3 | 300 |
+-----+-----+-----+-----+-----+-----+
2 rows in set (0.00 sec)
```


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

Command:

mysql> select s.*,o.* from salesdep s join orders o ON s.sid = o.saleid;

```
mysql>
mysql> select s.*,o.* from salesdep s join orders o ON s.sid = o.saleid;
+-----+-----+-----+-----+-----+-----+
| sid | sname          | semail          | oid | custid | saleid |
+-----+-----+-----+-----+-----+-----+
| 100 | Sales person 1 | sp1@ttn.com    | 10  | 1      | 100    |
| 200 | Sales person 2 | sp2@ttn.com    | 20  | 2      | 200    |
| 200 | Sales person 2 | sp2@ttn.com    | 40  | 2      | 200    |
| 300 | Sales person 3 | sp3@ttn.com    | 30  | 3      | 300    |
| 300 | Sales person 3 | sp3@ttn.com    | 60  | 3      | 300    |
| 300 | Sales person 3 | sp3@ttn.com    | 90  | 3      | 300    |
+-----+-----+-----+-----+-----+-----+
6 rows in set (0.00 sec)

mysql> 
```

7. Create index

Command:

mysql> alter table customer add index cemail (email);

mysql> alter table salesdep add index semail (semail);

mysql> alter table orders add index custid (custid);

```
mysql> alter table customer drop index cemail;
Query OK, 0 rows affected (0.21 sec)
Records: 0 Duplicates: 0 Warnings: 0

mysql> alter table customer add index cemail (email);
Query OK, 0 rows affected (0.42 sec)
Records: 0 Duplicates: 0 Warnings: 0

mysql> alter table salesdep add index semail (semail);
Query OK, 0 rows affected (0.40 sec)
Records: 0 Duplicates: 0 Warnings: 0

mysql> alter table order add index custid (custid);
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version for the right syntax
to use near 'order add index custid (custid)' at line 1
mysql> alter table orders add index custid (custid);
Query OK, 0 rows affected (0.53 sec)
Records: 0 Duplicates: 0 Warnings: 0

mysql> 
```

8. How to show index on a table

Command:

mysql> show index from customer;

mysql> show index from orders;

mysql> show index from salesdep;

```
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 | 2 | NULL | NULL | | BTREE | | |
| customer | 1 | cemail | 1 | email | A | 3 | NULL | NULL | | BTREE | | |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
2 rows in set (0.00 sec)

mysql> show index from orders;
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| Table | Non_unique | Key_name | Seq_in_index | Column_name | Collation | Cardinality | Sub_part | Packed | Null | Index_type | Comment | Index_comment |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| orders | 0 | PRIMARY | 1 | oid | A | 6 | NULL | NULL | | BTREE | | |
| orders | 1 | saleid | 1 | saleid | A | 3 | NULL | NULL | | BTREE | | |
| orders | 1 | custid | 1 | custid | A | 3 | NULL | NULL | | BTREE | | |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
3 rows in set (0.00 sec)

mysql> show index from salesdep;
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| Table | Non_unique | Key_name | Seq_in_index | Column_name | Collation | Cardinality | Sub_part | Packed | Null | Index_type | Comment | Index_comment |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
```

