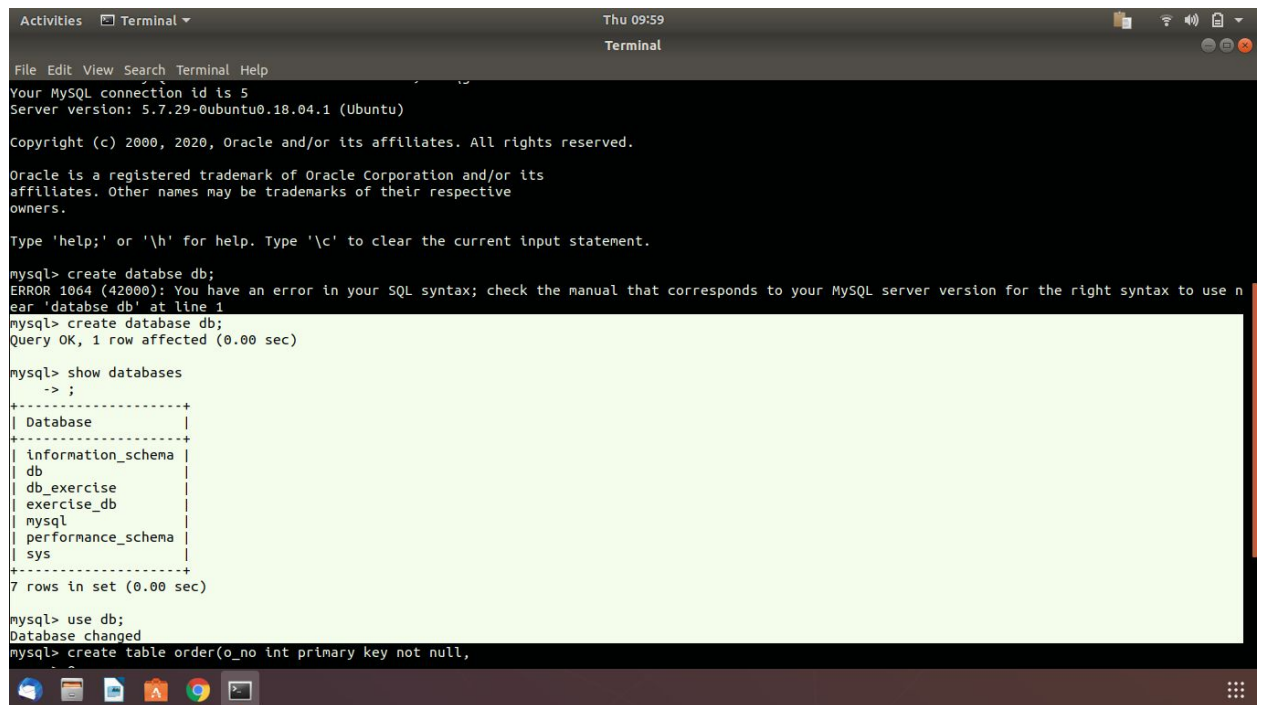**Newer :** Aman Patel

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Exercise : Introduction to Databases

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

2. Design schema


```
mysql> CREATE TABLE sales( o_no INT NOT NULL, salesperson_id INT NOT NULL, salesperson_name VARCHAR(30), FOREIGN KEY o_no REFERENCES orders (o_no) );
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 n
ear 'REFERENCES orders (o_no) )' at line 1
mysql> CREATE TABLE sales( o_no INT NOT NULL, salesperson_id INT NOT NULL, salesperson_name VARCHAR(30), FOREIGN KEY `o_no` REFERENCES `orders` (`o_no
`) );
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 n
ear 'REFERENCES `orders` (`o_no`) )' at line 1
mysql> CREATE TABLE sales( o_no INT NOT NULL, salesperson_id INT NOT NULL, salesperson_name VARCHAR(30), FOREIGN KEY (`o_no`) REFERENCES `orders` (`o_
no`) );
Query OK, 0 rows affected (0.03 sec)

mysql> desc sales
    -> ;
+-----------------+-------------+------+-----+---------+-------+
| Field           | Type        | Null | Key | Default | Extra |
+-----------------+-------------+------+-----+---------+-------+
| o_no            | int(11)     | NO   | MUL | NULL    |       |
| salesperson_id  | int(11)     | NO   |     | NULL    |       |
| salesperson_name| varchar(30) | YES  |     | NULL    |       |
+-----------------+-------------+------+-----+---------+-------+
3 rows in set (0.00 sec)

mysql> desc orders;
+-------------+-------------+------+-----+---------+-------+
| Field       | Type        | Null | Key | Default | Extra |
+-------------+-------------+------+-----+---------+-------+
| o_no        | int(11)     | NO   | PRI | NULL    |       |
| order_price | int(11)     | YES  |     | NULL    |       |
| c_name      | varchar(40) | YES  |     | NULL    |       |
| c_id        | int(11)     | NO   |     | NULL    |       |
+-------------+-------------+------+-----+---------+-------+
4 rows in set (0.00 sec)

mysql>
```

3. Create tables


```
Activities    Terminal                              Thu 12:57
                                   Terminal
File  Edit  View  Search  Terminal  Help
Your MySQL connection id is 7
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 TABLE orders(o_no INT NOT NULL PRIMARY KEY,order_price INT,c_name VARCHAR(40),c_id INT NOT NULL);
ERROR 1046 (3D000): No database selected
mysql> use db;
Database changed
mysql> CREATE TABLE orders(o_no INT NOT NULL PRIMARY KEY,order_price INT,c_name VARCHAR(40),c_id INT NOT NULL);
Query OK, 0 rows affected (0.03 sec)

mysql> CREATE TABLE sales(
    -> o_no INT NOT NULL,
    -> salesperson_id INT NOT NULL,
    -> salesperson_name VARCHAR(30),
    -> FOREIGN KEY o_no REFERENCES orders(o_no)
    -> );
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 n
ear 'REFERENCES orders(o_no)
)' at line 5
mysql> CREATE TABLE sales( o_no INT NOT NULL, salesperson_id INT NOT NULL, salesperson_name VARCHAR(30), FOREIGN KEY o_no REFERENCES orders(o_no)); ER
ROR 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 nea
r 'REFERENCES orders(o_no))' at line 1
mysql> show tables
    -> ;
+---------------+
| Tables_in_db  |
+---------------+
| orders        |
```



```
Activities    Terminal                              Thu 12:57
                                   Terminal
File  Edit  View  Search  Terminal  Help
mysql> desc orders
    -> ;
+-------------+-------------+------+-----+---------+-------+
| Field       | Type        | Null | Key | Default | Extra |
+-------------+-------------+------+-----+---------+-------+
| o_no        | int(11)     | NO   | PRI | NULL    |       |
| order_price | int(11)     | YES  |     | NULL    |       |
| c_name      | varchar(40) | YES  |     | NULL    |       |
| c_id        | int(11)     | NO   |     | NULL    |       |
+-------------+-------------+------+-----+---------+-------+
4 rows in set (0.00 sec)

mysql> CREATE TABLE sales( o_no INT NOT NULL, salesperson_id INT NOT NULL, salesperson_name VARCHAR(30), FOREIGN KEY o_no REFERENCES orders (o_no) );
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 n
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`) );
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mysql> CREATE TABLE sales( o_no INT NOT NULL, salesperson_id INT NOT NULL, salesperson_name VARCHAR(30), FOREIGN KEY (`o_no`) REFERENCES `orders` (`o_
no`) );
Query OK, 0 rows affected (0.03 sec)

mysql> desc sales
    -> ;
+------------------+-------------+------+-----+---------+-------+
| Field            | Type        | Null | Key | Default | Extra |
+------------------+-------------+------+-----+---------+-------+
| o_no             | int(11)     | NO   | MUL | NULL    |       |
| salesperson_id   | int(11)     | NO   |     | NULL    |       |
| salesperson_name | varchar(30) | YES  |     | NULL    |       |
+------------------+-------------+------+-----+---------+-------+
3 rows in set (0.00 sec)

mysql>
```

4. Insert sample data


```
mysql> desc orders;
+-------------+-------------+------+-----+---------+-------+
| Field       | Type        | Null | Key | Default | Extra |
+-------------+-------------+------+-----+---------+-------+
| o_no        | int(11)     | NO   | PRI | NULL    |       |
| order_price | int(11)     | YES  |     | NULL    |       |
| c_name      | varchar(40) | YES  |     | NULL    |       |
| c_id        | int(11)     | NO   |     | NULL    |       |
+-------------+-------------+------+-----+---------+-------+
4 rows in set (0.00 sec)

mysql> INSERT INTO orders VALUES
    -> (1,120,'A',32),(2,400,'B',8),
    -> (3,300,'C',31),(4,542,'D',9),
    -> (5,800,'E',98),(6,3123,'A',32),
    -> (7,670,'B',8);
Query OK, 7 rows affected (0.01 sec)
Records: 7  Duplicates: 0  Warnings: 0

mysql> select * from orders;
+------+-------------+--------+------+
| o_no | order_price | c_name | c_id |
+------+-------------+--------+------+
|    1 |         120 | A      |   32 |
|    2 |         400 | B      |    8 |
|    3 |         300 | C      |   31 |
|    4 |         542 | D      |    9 |
|    5 |         800 | E      |   98 |
|    6 |        3123 | A      |   32 |
|    7 |         670 | B      |    8 |
+------+-------------+--------+------+
7 rows in set (0.00 sec)

mysql>
```



```
| o_no | order_price | c_name | c_id |
+------+-------------+--------+------+
|    1 |         120 | A      |   32 |
|    2 |         400 | B      |    8 |
|    3 |         300 | C      |   31 |
|    4 |         542 | D      |    9 |
|    5 |         800 | E      |   98 |
|    6 |        3123 | A      |   32 |
|    7 |         670 | B      |    8 |
+------+-------------+--------+------+
7 rows in set (0.00 sec)

mysql> INSERT INTO sales VALUES
    -> (1,11,'ram'),(2,19,'shyam'),
    -> (3,11,'ram'),(4,13,'sita'),
    -> (5,14,'arjun'),(6,19,'shyam'),
    -> (7,13,'sita');
Query OK, 7 rows affected (0.02 sec)
Records: 7  Duplicates: 0  Warnings: 0

mysql> select * from sales;
+------+---------------+-----------------+
| o_no | salesperson_id | salesperson_name |
+------+---------------+-----------------+
|    1 |            11 | ram             |
|    2 |            19 | shyam           |
|    3 |            11 | ram             |
|    4 |            13 | sita            |
|    5 |            14 | arjun           |
|    6 |            19 | shyam           |
|    7 |            13 | sita            |
+------+---------------+-----------------+
7 rows in set (0.00 sec)

mysql>
```

5. Find salesperson having multiple orders.

```
Terminal

File  Edit  View  Search  Terminal  Help
7 rows in set (0.00 sec)

mysql> INSERT INTO sales VALUES
    -> (1,11,'ram'),(2,19,'shyam'),
    -> (3,11,'ram'),(4,13,'sita'),
    -> (5,14,'arjun'),(6,19,'shyam'),
    -> (7,13,'sita');
Query OK, 7 rows affected (0.02 sec)
Records: 7  Duplicates: 0  Warnings: 0

mysql> select * from sales;
+------+---------------+-----------------+
| o_no | salesperson_id | salesperson_name |
+------+---------------+-----------------+
|    1 |            11 | ram             |
|    2 |            19 | shyam           |
|    3 |            11 | ram             |
|    4 |            13 | sita            |
|    5 |            14 | arjun           |
|    6 |            19 | shyam           |
|    7 |            13 | sita            |
+------+---------------+-----------------+
7 rows in set (0.00 sec)

mysql> SELECT salesperson_name,COUNT(salesperson_id) as count FROM sales GROUP BY salesperson_name HAVING COUNT(*) > 1;
+------------------+-------+
| salesperson_name | count |
+------------------+-------+
| ram              |     2 |
| shyam            |     2 |
| sita             |     2 |
+------------------+-------+
3 rows in set (0.00 sec)

mysql> []
```

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

Terminal

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```
|    1  |           11  | ram      |
|    2  |           19  | shyam    |
|    3  |           11  | ram      |
|    4  |           13  | sita     |
|    5  |           14  | arjun    |
|    6  |           19  | shyam    |
|    7  |           13  | sita     |
+-------+---------------+----------+
7 rows in set (0.00 sec)

mysql> SELECT salesperson_name,COUNT(salesperson_id) as count FROM sales GROUP BY salesperson_name HAVING COUNT(*) > 1;
+------------------+-------+
| salesperson_name | count |
+------------------+-------+
| ram              |     2 |
| shyam            |     2 |
| sita             |     2 |
+------------------+-------+
3 rows in set (0.00 sec)

mysql> SELECT salesperson_id,salesperson_name,sales.o_no,order_price FROM sales INNER JOIN orders ON sales.o_no=orders.o_no;
+----------------+------------------+------+-------------+
| salesperson_id | salesperson_name | o_no | order_price |
+----------------+------------------+------+-------------+
|             11 | ram              |    1 |         120 |
|             19 | shyam            |    2 |         400 |
|             11 | ram              |    3 |         300 |
|             13 | sita             |    4 |         542 |
|             14 | arjun            |    5 |         800 |
|             19 | shyam            |    6 |        3123 |
|             13 | sita             |    7 |         670 |
+----------------+------------------+------+-------------+
7 rows in set (0.00 sec)

mysql>
```

7. Create index.

8. Show index.

Terminal

File Edit View Search Terminal Help

```
mysql> CREATE INDEX index2_orders ON orders(order_price);
Query OK, 0 rows affected (0.04 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> SHOW INDEX FROM sales;
```

Table	Non_unique	Key_name	Seq_in_index	Column_name	Collation	Cardinality	Sub_part	Packed	Null	Index_type	Comment	Index_comment
sales	1	o_no	1	o_no	A	7	NULL	NULL		BTREE		
sales	1	index1_sales	1	salesperson_id	A	4	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	o_no	A	7	NULL	NULL		BTREE		
orders	1	index2_orders	1	order_price	A	7	NULL	NULL	YES	BTREE		

```
2 rows in set (0.00 sec)

mysql>
```

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

```
Terminal
File  Edit  View  Search  Terminal  Help
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 | o_no        | A         |           7 |     NULL |   NULL |      | BTREE      |         |               |
| orders |          1 | index2_orders |            1 | order_price | A         |           7 |     NULL |   NULL | YES  | BTREE      |         |               |
+--------+------------+---------------+--------------+-------------+-----------+-------------+----------+--------+------+------------+---------+---------------+
2 rows in set (0.00 sec)

mysql> SELECT sales.order_no, salesperson_name, c_name FROM sales
    -> INNER JOIN orders
    -> ON sales.o_no=orders.o_no;
ERROR 1054 (42S22): Unknown column 'sales.order_no' in 'field list'
mysql> SELECT sales.o_no, salesperson_name, c_name FROM sales INNER JOIN orders ON sales.o_no=orders.o_no;
+------+-----------------+--------+
| o_no | salesperson_name | c_name |
+------+-----------------+--------+
|    1 | ram             | A      |
|    2 | shyam           | B      |
|    3 | ram             | C      |
|    4 | sita            | D      |
|    5 | arjun           | E      |
|    6 | shyam           | A      |
|    7 | sita            | B      |
+------+-----------------+--------+
7 rows in set (0.00 sec)

mysql>
```