BS-Information Technology
4th Semester

FOOD DELIVERY SYSTEM

CC-215 DATABASE SYSTEMS

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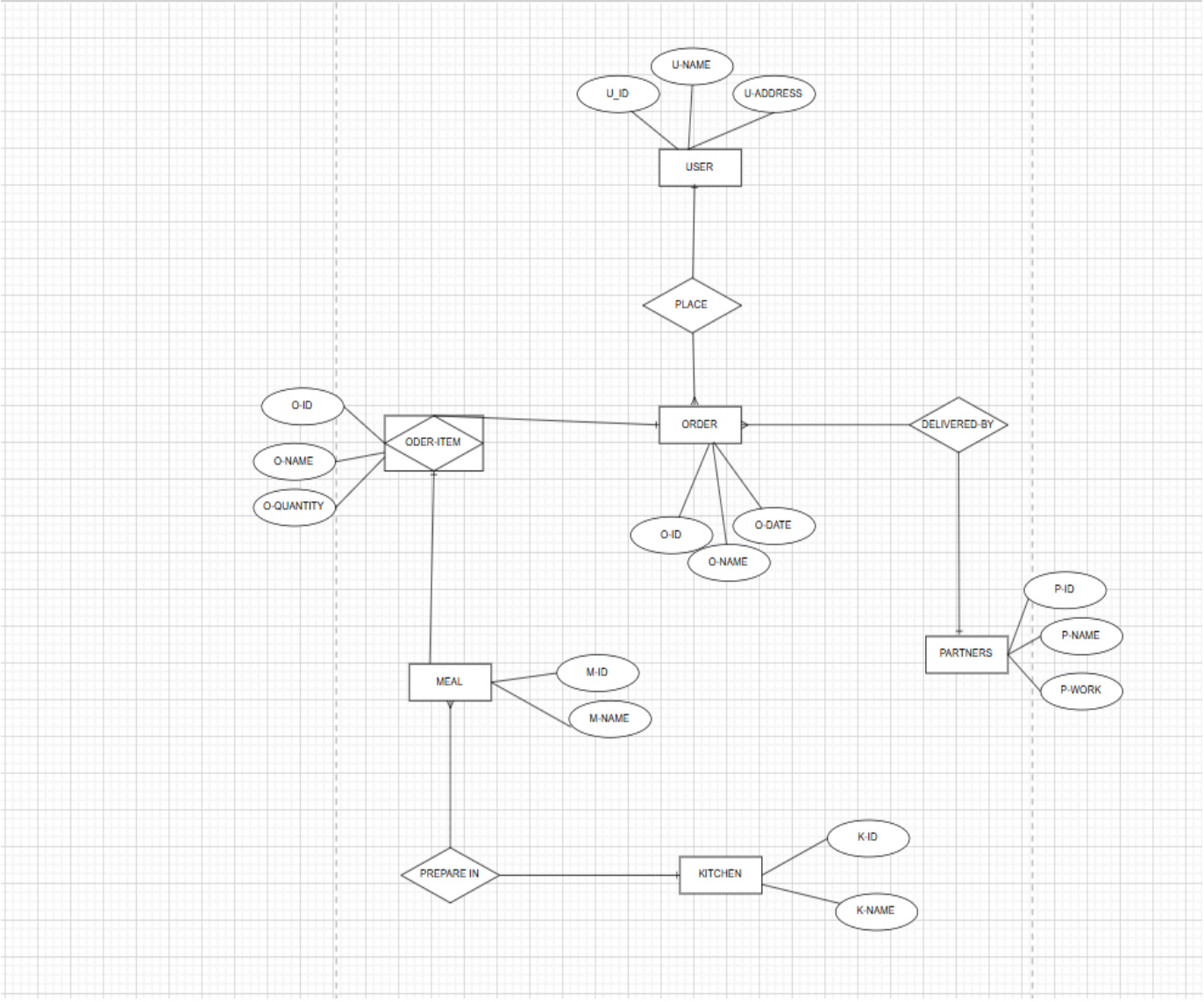
Entity Relationship Diagrams:

Chen Model:



Relational Schema / Table Schema:

→ **User** (User ID, Name, Address)
→ **Partners** (Partner_ID, Name, Work, penalties)
→ **Order** (Order ID, Date, u-id(F.K) ,p-id(F.K))
→ **OrderItem (**item_id , item_name**,** Order ID (F.K) , Quantity)
→ **Meal** (Meal ID, Name , Rating_score, complain_description , or_ID (F.K) , kit_ID (F.K))
→ **Kitchen** (Kitchen ID, Name)

Normalization:

All tables normalized except the Oder items.

Dependency: (Partial dependency)

Item-id----->Item-name

Item-id+Oder-id------>Quantity

→ *To resolve, create two tables from orderitem*

Item (Item-id, name)

orderItem (Item-id (F.K) , ord-id (F.K) , quantity)

Normalized Relational Schemas

→ **User** (User ID, Name, Address)
→ **Partners** (Partner_ID, Name, Work, penalties)
→ **Order** (Order ID, Date, u-id(F.K) ,p-id(F.K))
→ **Items** (item_id, name)
→ **OrderItem (**Order ID (F.K) , Item ID (F.K) , Quantity)
→ **Meal** (Meal ID, Name , Rating_score, complain_description , or_ID (F.K) , kit_ID (F.K))
→ **Kitchen** (Kitchen ID, Name)

USEFUL COMMANDS

→ Show databases

→ Create database

→ Use database

→ Show tables

→ Create tables

→ Describe table

→ Insert into

→ Update

→ Alter

→ Select

→ Arithmetic

→ Aggregrate

→ Logical

→ Relational

→ Distinct

→ Group by

→ Group by having

→ In

→ Like

→ Order by ASC and DESC

→ Join queries

→ Joining tables using where clause

→ Sub queries

→ IN, ALL, ANY

→ Create view

→ Select from view

→ Delete

→ Drop

→ Truncate

→ Show priveleges

→ User and roll

→ Show grants

Commands for database

- ## Show databases

```
Enter password: **********
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 16
Server version: 8.0.42 MySQL Community Server - GPL

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

- ## Create and Use database

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

mysql> use FOOD_DELIVERY;
Database changed
```

Commands for tables

1.User

→ Create and describe

```
mysql> create table user(user_id INT(5) PRIMARY KEY, user_name Varchar(25) NOT NULL, user_address Varchar(25) NOT NULL);
Query OK, 0 rows affected, 1 warning (0.03 sec)

mysql> DESCRIBE user;
+--------------+------------+------+-----+---------+-------+
| Field        | Type       | Null | Key | Default | Extra |
+--------------+------------+------+-----+---------+-------+
| user_id      | int        | NO   | PRI | NULL    |       |
| user_name    | varchar(25) | NO   |     | NULL    |       |
| user_address | varchar(25) | NO   |     | NULL    |       |
+--------------+------------+------+-----+---------+-------+
3 rows in set (0.00 sec)
```

→ INSERT INTO

```
mysql> INSERT INTO user Values('1','khadija','sheikhupura'),('2','amna','sheikhupura'),('3','zainab','');
Query OK, 3 rows affected (0.01 sec)
Records: 3  Duplicates: 0  Warnings: 0
```

→ Update

```
mysql> update user set user_address='sheikhupura' where user_id='3';
Query OK, 1 row affected (0.01 sec)
Rows matched: 1  Changed: 1  Warnings: 0
```

→ Select *

```
mysql> select * from user;
+---------+-----------+---------------+
| user_id | user_name | user_address  |
+---------+-----------+---------------+
|       1 | khadija   | sheikhupura   |
|       2 | amna      | sheikhupura   |
|       3 | zainab    | sheikhupura   |
+---------+-----------+---------------+
3 rows in set (0.00 sec)
```

→ Select 1 column

```
mysql> select user_id from user;
+----------+
| user_id  |
+----------+
|        1 |
|        2 |
|        3 |
+----------+
```

→ Select 1 column (target-value)

```
mysql> select user_name from user where user_id='2';
+------------+
| user_name  |
+------------+
| amna       |
+------------+
1 row in set (0.00 sec)
```

→ Select 2 columns (target-value)

```
mysql> select user_name, user_address from user where user_id='1';
+-----------+--------------+
| user_name | user_address |
+-----------+--------------+
| khadija   | sheikhupura  |
+-----------+--------------+
1 row in set (0.00 sec)
```

2.Partners

→ Create and describe

```
mysql> create table partners(partner_id INT(5) PRIMARY KEY, partner_name Varchar(25) NOT NULL, work Varchar(25), no_of_penalties INT(5));
Query OK, 0 rows affected, 2 warnings (0.03 sec)

mysql> DESCRIBE partners;
+----------------+-------------+------+-----+---------+-------+
| Field          | Type        | Null | Key | Default | Extra |
+----------------+-------------+------+-----+---------+-------+
| partner_id     | int         | NO   | PRI | NULL    |       |
| partner_name   | varchar(25) | NO   |     | NULL    |       |
| work           | varchar(25) | YES  |     | NULL    |       |
| no_of_penalties | int        | YES  |     | NULL    |       |
+----------------+-------------+------+-----+---------+-------+
4 rows in set (0.00 sec)
```

→ INSERT INTO

```
mysql> INSERT INTO partners Values(201,'sarab','packaging',1),(202,'abdul rehman','holding to rider',1),(203,'hamza','riding to destination',NULL);
Query OK, 3 rows affected (0.01 sec)
Records: 3  Duplicates: 0  Warnings: 0
```

→ Update

```
mysql> update partners set no_of_penalties='1' where partner_id='203';
Query OK, 1 row affected (0.01 sec)
Rows matched: 1  Changed: 1  Warnings: 0
```

→ Select *

```
mysql> select * from partners;
+------------+--------------+----------------------+-----------------+
| partner_id | partner_name | work                 | no_of_penalties |
+------------+--------------+----------------------+-----------------+
|        201 | sarab        | packaging            |               1 |
|        202 | abdul rehman | holding to rider     |               1 |
|        203 | hamza        | riding to destination |               1 |
+------------+--------------+----------------------+-----------------+
3 rows in set (0.00 sec)
```

→ Select 1 column

```
mysql> select partner_id from partners;
+--------------+
| partner_id   |
+--------------+
|          201 |
|          202 |
|          203 |
+--------------+
3 rows in set (0.00 sec)
```

→ Select 1 column (target-value)

```
mysql> select partner_name from partners where partner_id='202';
+--------------+
| partner_name |
+--------------+
| abdul rehman |
+--------------+
1 row in set (0.00 sec)
```

→ Select 2 columns (target-value)

```
mysql> select partner_name, work from partners where partner_id='201';
+--------------+-----------+
| partner_name | work      |
+--------------+-----------+
| sarab        | packaging |
+--------------+-----------+
1 row in set (0.00 sec)
```

3.Orders

→ Create and describe

```
mysql> create table orders(order_id INT(5) PRIMARY KEY, order_date Varchar(25) NOT NULL);
Query OK, 0 rows affected, 1 warning (0.03 sec)

mysql> describe orders;
+------------+-------------+------+-----+---------+-------+
| Field      | Type        | Null | Key | Default | Extra |
+------------+-------------+------+-----+---------+-------+
| order_id   | int         | NO   | PRI | NULL    |       |
| order_date | varchar(25) | NO   |     | NULL    |       |
+------------+-------------+------+-----+---------+-------+
2 rows in set (0.00 sec)
```

→ Adding new columns

```
mysql> alter table orders Add p_id INT(5);
Query OK, 0 rows affected, 1 warning (0.08 sec)
Records: 0  Duplicates: 0  Warnings: 1

mysql> describe orders;
+-------------+-------------+------+-----+---------+-------+
| Field       | Type        | Null | Key | Default | Extra |
+-------------+-------------+------+-----+---------+-------+
| order_id    | int         | NO   | PRI | NULL    |       |
| order_date  | varchar(25) | NO   |     | NULL    |       |
| u_id        | int         | YES  | MUL | NULL    |       |
| p_id        | int         | YES  |     | NULL    |       |
+-------------+-------------+------+-----+---------+-------+
4 rows in set (0.00 sec)
```

```
mysql> alter table orders Add u_id INT(5);
Query OK, 0 rows affected, 1 warning (0.05 sec)
Records: 0  Duplicates: 0  Warnings: 1

mysql> describe orders;
+------------+-------------+------+-----+---------+-------+
| Field      | Type        | Null | Key | Default | Extra |
+------------+-------------+------+-----+---------+-------+
| order_id   | int         | NO   | PRI | NULL    |       |
| order_date | varchar(25) | NO   |     | NULL    |       |
| u_id       | int         | YES  |     | NULL    |       |
+------------+-------------+------+-----+---------+-------+
3 rows in set (0.00 sec)
```

→ making foreign keys

```
mysql> alter table orders Add constraint fk_const_name FOREIGN KEY (p_id) REFERENCES partners(partner_id);
Query OK, 0 rows affected (0.09 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> describe orders;
+------------+-------------+------+-----+---------+-------+
| Field      | Type        | Null | Key | Default | Extra |
+------------+-------------+------+-----+---------+-------+
| order_id   | int         | NO   | PRI | NULL    |       |
| order_date | varchar(25) | NO   |     | NULL    |       |
| u_id       | int         | YES  | MUL | NULL    |       |
| p_id       | int         | YES  | MUL | NULL    |       |
+------------+-------------+------+-----+---------+-------+
4 rows in set (0.00 sec)
```

```
mysql> alter table orders Add constraint fk_constraint_name FOREIGN KEY (u_id) REFERENCES user(user_id);
Query OK, 0 rows affected (0.15 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> describe orders;
+------------+-------------+------+-----+---------+-------+
| Field      | Type        | Null | Key | Default | Extra |
+------------+-------------+------+-----+---------+-------+
| order_id   | int         | NO   | PRI | NULL    |       |
| order_date | varchar(25) | NO   |     | NULL    |       |
| u_id       | int         | YES  | MUL | NULL    |       |
+------------+-------------+------+-----+---------+-------+
3 rows in set (0.00 sec)
```

→ INSERT INTO

```
mysql> INSERT INTO orders Values(101,'5th May','1',201),(102,'6th May','2',202),(103,'7th May','3',NULL);
Query OK, 3 rows affected (0.01 sec)
Records: 3  Duplicates: 0  Warnings: 0
```

→ Update

```
mysql> update orders set p_id='203' where order_id='103';
Query OK, 1 row affected (0.01 sec)
Rows matched: 1  Changed: 1  Warnings: 0
```

→ Select *

```
mysql> select * from orders;
+----------+-------------+------+------+
| order_id | order_date  | u_id | p_id |
+----------+-------------+------+------+
|      101 | 5th May     |    1 |  201 |
|      102 | 6th May     |    2 |  202 |
|      103 | 7th May     |    3 |  203 |
+----------+-------------+------+------+
3 rows in set (0.00 sec)
```

→ Select 1 column

```
mysql> select order_id from orders;
+----------+
| order_id |
+----------+
|      101 |
|      102 |
|      103 |
+----------+
3 rows in set (0.00 sec)
```

→ Select 1 column (target-value)

```
mysql> select order_date from orders where order_id='103';
+------------+
| order_date |
+------------+
| 7th May    |
+------------+
1 row in set (0.00 sec)
```

→ Select 2 columns (target-value)

```
mysql> select order_date, u_id from orders where order_id='101';
+------------+------+
| order_date | u_id |
+------------+------+
| 5th May    |    1 |
+------------+------+
1 row in set (0.00 sec)
```

4.Items

→ Create and describe

```
mysql> create table items(item_id INT(5) PRIMARY KEY, item_name Varchar(25) NOT NULL);
Query OK, 0 rows affected, 1 warning (0.03 sec)

mysql> describe items;
+-----------+------------+------+-----+---------+-------+
| Field     | Type       | Null | Key | Default | Extra |
+-----------+------------+------+-----+---------+-------+
| item_id   | int        | NO   | PRI | NULL    |       |
| item_name | varchar(25) | NO   |     | NULL    |       |
+-----------+------------+------+-----+---------+-------+
2 rows in set (0.00 sec)
```

→ INSERT INTO

```
mysql> INSERT INTO items Values(301,'burger'),(302,'biryani'),(303,'');
Query OK, 3 rows affected (0.01 sec)
Records: 3  Duplicates: 0  Warnings: 0
```

→ Update

```
mysql> update items set item_name='nuggets' where item_id='303';
Query OK, 1 row affected (0.01 sec)
Rows matched: 1  Changed: 1  Warnings: 0
```

→ Select *

```
mysql> select * from items;
+-----------+-------------+
| item_id   | item_name   |
+-----------+-------------+
|       301 | burger      |
|       302 | biryani     |
|       303 | nuggets     |
+-----------+-------------+
3 rows in set (0.00 sec)
```

→ Select 1 column

```
mysql> select item_id from items;
+----------+
| item_id  |
+----------+
|      301 |
|      302 |
|      303 |
+----------+
3 rows in set (0.00 sec)
```

→ Select 1 column (target-value)

```
mysql> select item_name from items where item_id='303';
+-----------+
| item_name |
+-----------+
| nuggets   |
+-----------+
1 row in set (0.00 sec)
```

→ Select 2 columns (target-value)

```
mysql> select item_id,item_name from items where item_id='301';
+---------+-----------+
| item_id | item_name |
+---------+-----------+
|     301 | burger    |
+---------+-----------+
```

5.OrderItem

→ Create and describe

```
mysql> create table orderItem(quantity INT(10) NOT NULL);
Query OK, 0 rows affected, 1 warning (0.03 sec)

mysql> describe orderItem;
+----------+------+------+-----+---------+-------+
| Field    | Type | Null | Key | Default | Extra |
+----------+------+------+-----+---------+-------+
| quantity | int  | NO   |     | NULL    |       |
+----------+------+------+-----+---------+-------+
1 row in set (0.00 sec)
```

→ Adding new columns and making foreign keys

```
mysql> alter table orderItem Add it_id INT(5);
Query OK, 0 rows affected, 1 warning (0.06 sec)
Records: 0  Duplicates: 0  Warnings: 1

mysql> alter table orderItem Add constraint fk_constr_name FOREIGN KEY (it_id) REFERENCES item(item_id);
ERROR 1824 (HY000): Failed to open the referenced table 'item'
mysql> alter table orderItem Add constraint fk_constr_name FOREIGN KEY (it_id) REFERENCES items(item_id);
Query OK, 0 rows affected (0.09 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> describe orderItem;
+----------+------+------+-----+---------+-------+
| Field    | Type | Null | Key | Default | Extra |
+----------+------+------+-----+---------+-------+
| quantity | int  | NO   |     | NULL    |       |
| or_id    | int  | YES  | MUL | NULL    |       |
| it_id    | int  | YES  | MUL | NULL    |       |
+----------+------+------+-----+---------+-------+
3 rows in set (0.00 sec)
```

```
mysql> alter table orderItem Add or_id INT(5);
Query OK, 0 rows affected, 1 warning (0.05 sec)
Records: 0  Duplicates: 0  Warnings: 1

mysql> describe orderItem;
+----------+------+------+-----+---------+-------+
| Field    | Type | Null | Key | Default | Extra |
+----------+------+------+-----+---------+-------+
| quantity | int  | NO   |     | NULL    |       |
| or_id    | int  | YES  |     | NULL    |       |
+----------+------+------+-----+---------+-------+
2 rows in set (0.00 sec)

mysql> alter table orderItem Add constraint fk_cons_name FOREIGN KEY (or_id) REFERENCES orders(order_id);
Query OK, 0 rows affected (0.09 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> describe orderItem;
+----------+------+------+-----+---------+-------+
| Field    | Type | Null | Key | Default | Extra |
+----------+------+------+-----+---------+-------+
| quantity | int  | NO   |     | NULL    |       |
| or_id    | int  | YES  | MUL | NULL    |       |
+----------+------+------+-----+---------+-------+
2 rows in set (0.00 sec)
```

→ **INSERT INTO**

```
mysql> INSERT INTO orderItem Values('3','101','301'),('3','102','302'),('3','103',NULL);
Query OK, 3 rows affected (0.01 sec)
Records: 3  Duplicates: 0  Warnings: 0
```

→ **Update**

```
mysql> update orderItem set it_id='303' where or_id='103';
Query OK, 1 row affected (0.01 sec)
Rows matched: 1  Changed: 1  Warnings: 0
```

→ **Select ***

```
mysql> select * from orderItem;
+----------+-------+-------+
| quantity | or_id | it_id |
+----------+-------+-------+
|        3 |   101 |   301 |
|        3 |   102 |   302 |
|        3 |   103 |   303 |
+----------+-------+-------+
3 rows in set (0.00 sec)
```

→ **Select 1 column**

```
mysql> select it_id from orderItem;
+-------+
| it_id |
+-------+
|   301 |
|   302 |
|   303 |
+-------+
3 rows in set (0.00 sec)
```

→ Select 1 column (target-value)

```
mysql> select quantity from orderItem where it_id='302';
+----------+
| quantity |
+----------+
|        3 |
+----------+
1 row in set (0.00 sec)
```

→ Select 2 columns (target-value)

```
mysql> select quantity, or_id from orderItem where it_id='301';
+----------+-------+
| quantity | or_id |
+----------+-------+
|        3 |   101 |
+----------+-------+
1 row in set (0.00 sec)
```

6.Kitchen

→ Create and describe

```
mysql> create table kitchen(kitchen_id INT(5) PRIMARY KEY, kitchen_name Varchar(25) NOT NULL);
Query OK, 0 rows affected, 1 warning (0.04 sec)

mysql> describe kitchen;
+-------------+------------+------+-----+---------+-------+
| Field       | Type       | Null | Key | Default | Extra |
+-------------+------------+------+-----+---------+-------+
| kitchen_id   | int        | NO   | PRI | NULL    |       |
| kitchen_name | varchar(25) | NO   |     | NULL    |       |
+-------------+------------+------+-----+---------+-------+
2 rows in set (0.00 sec)
```

→ INSERT INTO

```
mysql> INSERT INTO kitchen Values(401,'rustam foods'),(402,'mehar baba'),(403,'');
Query OK, 3 rows affected (0.01 sec)
Records: 3  Duplicates: 0  Warnings: 0
```

→ Update

```
mysql> update kitchen set kitchen_name='food master' where kitchen_id='403';
Query OK, 1 row affected (0.01 sec)
Rows matched: 1  Changed: 1  Warnings: 0
```

→ Select *

```
mysql> select * from kitchen;
+--------------+-----------------+
| kitchen_id   | kitchen_name    |
+--------------+-----------------+
|          401 | rustam foods    |
|          402 | mehar baba      |
|          403 | food master     |
+--------------+-----------------+
3 rows in set (0.00 sec)
```

→ Select 1 column

```
mysql> select kitchen_name from kitchen;
+-----------------+
| kitchen_name    |
+-----------------+
| rustam foods    |
| mehar baba      |
| food master     |
+-----------------+
3 rows in set (0.00 sec)
```

→ Select 1 column (target-value)

```
mysql> select kitchen_name from kitchen where kitchen_id='403';
+--------------+
| kitchen_name |
+--------------+
| food master  |
+--------------+
1 row in set (0.00 sec)
```

→ Select 2 columns (target-value)

```
mysql> select kitchen_name, kitchen_id from kitchen where kitchen_id='401';
+--------------+------------+
| kitchen_name | kitchen_id |
+--------------+------------+
| rustam foods |        401 |
+--------------+------------+
1 row in set (0.00 sec)
```

7.Meal

→ Create , adding and describe

```
mysql>  create table meal(meal_id INT(5) PRIMARY KEY, meal_name Varchar(25) NOT NULL, rating_score INT(5), complain_description Varchar(25));
Query OK, 0 rows affected, 2 warnings (0.04 sec)

mysql> alter table meal Add ord_id INT(5);
Query OK, 0 rows affected, 1 warning (0.04 sec)
Records: 0  Duplicates: 0  Warnings: 1

mysql> alter table meal Add kit_id INT(5);
Query OK, 0 rows affected, 1 warning (0.05 sec)
Records: 0  Duplicates: 0  Warnings: 1

mysql> describe meal;
+---------------------+-------------+------+-----+---------+-------+
| Field               | Type        | Null | Key | Default | Extra |
+---------------------+-------------+------+-----+---------+-------+
| meal_id             | int         | NO   | PRI | NULL    |       |
| meal_name           | varchar(25) | NO   |     | NULL    |       |
| rating_score        | int         | YES  |     | NULL    |       |
| complain_description | varchar(25) | YES  |     | NULL    |       |
| ord_id              | int         | YES  |     | NULL    |       |
| kit_id              | int         | YES  |     | NULL    |       |
+---------------------+-------------+------+-----+---------+-------+
6 rows in set (0.00 sec)
```

→ Making foreign keys

```
mysql> alter table meal Add constraint fk_c_name FOREIGN KEY (ord_id) REFERENCES orders(order_id);
Query OK, 0 rows affected (0.09 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> alter table meal Add constraint fk_cn_name FOREIGN KEY (kit_id) REFERENCES kitchen(kitchen_id);
Query OK, 0 rows affected (0.12 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> describe meal;
+---------------------+-------------+------+-----+---------+-------+
| Field               | Type        | Null | Key | Default | Extra |
+---------------------+-------------+------+-----+---------+-------+
| meal_id             | int         | NO   | PRI | NULL    |       |
| meal_name           | varchar(25) | NO   |     | NULL    |       |
| rating_score        | int         | YES  |     | NULL    |       |
| complain_description | varchar(25) | YES  |     | NULL    |       |
| ord_id              | int         | YES  | MUL | NULL    |       |
| kit_id              | int         | YES  | MUL | NULL    |       |
+---------------------+-------------+------+-----+---------+-------+
6 rows in set (0.00 sec)
```

→ INSERT INTO

```
mysql> INSERT INTO meal Values(501, 'super offer', '4', 'no complain', '101', '401'),(502, 'special party', '3', 'late delivery', '102', '402'),(503, 'night craving', '2', 'poor packaging', '103',
NULL);
Query OK, 3 rows affected (0.01 sec)
Records: 3  Duplicates: 0  Warnings: 0
```

→ Update

```
mysql> update meal set kit_id='403' where meal_id='503';
Query OK, 1 row affected (0.01 sec)
Rows matched: 1  Changed: 1  Warnings: 0
```

→ Select *

```
mysql> select * from meal;
+---------+--------------+--------------+----------------------+--------+--------+
| meal_id | meal_name    | rating_score | complain_description | ord_id | kit_id |
+---------+--------------+--------------+----------------------+--------+--------+
|     501 | super offer  |            4 | no complain          |    101 |    401 |
|     502 | special party |            3 | late delivery        |    102 |    402 |
|     503 | night craving |            2 | poor packaging       |    103 |    403 |
+---------+--------------+--------------+----------------------+--------+--------+
3 rows in set (0.00 sec)
```

→ Select 1 column

```
mysql> select meal_name from meal;
+--------------+
| meal_name    |
+--------------+
| super offer  |
| special party |
| night craving |
+--------------+
3 rows in set (0.00 sec)
```

→ Select 1 column (target-value)

```
mysql> select meal_name from meal where meal_id='503';
+---------------+
| meal_name     |
+---------------+
| night craving |
+---------------+
1 row in set (0.00 sec)
```

→ Select 2 columns (target-value)

```
mysql> select meal_name,rating_score from meal where meal_id='501';
+------------+--------------+
| meal_name  | rating_score |
+------------+--------------+
| super offer |            4 |
+------------+--------------+
1 row in set (0.00 sec)
```

→ As command

```
mysql> select meal_name as food_name from meal;
+----------------+
| food_name      |
+----------------+
| super offer    |
| special party  |
| night craving  |
+----------------+
3 rows in set (0.00 sec)
```

OTHER IMPORTANT QUERIES IN SELECT

→ Arithmetic

```
mysql> select no_of_penalties*5 as 5_times_penalties from partners;
+--------------------+
| 5_times_penalties  |
+--------------------+
|                  5 |
|                  5 |
|                 10 |
+--------------------+
3 rows in set (0.00 sec)
```

```
mysql> select no_of_penalties+1 as increment_in_penalties from partners where partner_id='202';
+------------------------+
| increment_in_penalties |
+------------------------+
|                      2 |
+------------------------+
1 row in set (0.00 sec)

mysql> select (no_of_penalties+1)*2 as change_in_penalties from partners;
+---------------------+
| change_in_penalties |
+---------------------+
|                   4 |
|                   4 |
|                   6 |
+---------------------+
3 rows in set (0.00 sec)
```

→ Distinct

```
mysql> select distinct no_of_penalties from partners;
+------------------+
| no_of_penalties |
+------------------+
|                1 |
|                2 |
+------------------+
2 rows in set (0.00 sec)
```

→ Aggregrate

```
mysql> select AVG(no_of_penalties) as average_penalties from partners;
+-------------------+
| average_penalties |
+-------------------+
|            1.3333 |
+-------------------+
1 row in set (0.00 sec)

mysql> select count(*) from partners;
+----------+
| count(*) |
+----------+
|        3 |
+----------+
1 row in set (0.00 sec)

mysql> select count(no_of_penalties) from partners;
+--------------------------+
| count(no_of_penalties) |
+--------------------------+
|                        3 |
+--------------------------+
1 row in set (0.00 sec)

mysql> select MAX(no_of_penalties) as most_penalties from partners;
+----------------+
| most_penalties |
+----------------+
|              2 |
+----------------+
1 row in set (0.00 sec)

mysql> select SUM(no_of_penalties) as total_penalties from partners;
+-----------------+
| total_penalties |
+-----------------+
|               4 |
+-----------------+
1 row in set (0.00 sec)
```

→ Logical

```
mysql> select partner_name from partners where no_of_penalties>=1 AND no_of_penalties<=2;
+--------------+
| partner_name |
+--------------+
| sarab        |
| abdul rehman |
| hamza        |
+--------------+
3 rows in set (0.00 sec)

mysql> select partner_name from partners where work='packaging' AND no_of_penalties between 0 AND 2;
+--------------+
| partner_name |
+--------------+
| sarab        |
+--------------+
1 row in set (0.00 sec)

mysql> select partner_name from partners where work='packaging' AND no_of_penalties between 1 AND 2;
+--------------+
| partner_name |
+--------------+
| sarab        |
+--------------+
1 row in set (0.00 sec)

mysql> select partner_name from partners where work='packaging' OR no_of_penalties between 2 AND 3;
+--------------+
| partner_name |
+--------------+
| sarab        |
| hamza        |
+--------------+
2 rows in set (0.00 sec)
```

→ Relational

```
mysql> select partner_name from partners where no_of_penalties>=1;
+--------------+
| partner_name |
+--------------+
| sarab        |
| abdul rehman |
| hamza        |
+--------------+
3 rows in set (0.00 sec)

mysql> select partner_name from partners where no_of_penalties!=1;
+--------------+
| partner_name |
+--------------+
| hamza        |
+--------------+
1 row in set (0.00 sec)
```

→ In

```
mysql> select partner_name from partners where no_of_penalties IN(2,3,4);
+--------------+
| partner_name |
+--------------+
| hamza        |
+--------------+
1 row in set (0.00 sec)
```

→ Order by ASC and DESC

```
mysql> select partner_name from partners order by no_of_penalties;
+--------------+
| partner_name |
+--------------+
| sarab        |
| abdul rehman |
| hamza        |
+--------------+

mysql> select partner_name from partners order by no_of_penalties DESC;
+--------------+
| partner_name |
+--------------+
| hamza        |
| sarab        |
| abdul rehman |
+--------------+
3 rows in set (0.00 sec)
```

→ Like

```
mysql> select partner_name from partners where partner_name like 'a%';
+--------------+
| partner_name |
+--------------+
| abdul rehman |
+--------------+
1 row in set (0.00 sec)

mysql> select partner_name from partners where partner_name like 'a%a';
Empty set (0.00 sec)

mysql> select partner_name from partners where partner_name like '%a';
+--------------+
| partner_name |
+--------------+
| hamza        |
+--------------+
1 row in set (0.00 sec)

mysql> select partner_name from partners where partner_name like '_a%a';
+--------------+
| partner_name |
+--------------+
| hamza        |
+--------------+
1 row in set (0.00 sec)
```

→ Group by

```
mysql> select AVG(no_of_penalties) as average_penalties from partners group by no_of_penalties;
+-------------------+
| average_penalties |
+-------------------+
|            1.0000 |
|            2.0000 |
+-------------------+
2 rows in set (0.00 sec)
```

→ Group by having

```
mysql> select AVG(no_of_penalties) as average_penalties from partners group by no_of_penalties having count(partner_name)='3';
Empty set (0.00 sec)

mysql> select AVG(no_of_penalties) as average_penalties from partners group by no_of_penalties having count(partner_name)='2';
+-------------------+
| average_penalties |
+-------------------+
|            1.0000 |
+-------------------+
1 row in set (0.00 sec)
```

JOIN QUERIES

→ Inner join

```
mysql> select meal.meal_name, kitchen.kitchen_name from meal INNER JOIN kitchen ON kitchen.kitchen_id>meal.kit_id;
+---------------+--------------+
| meal_name     | kitchen_name |
+---------------+--------------+
| super offer   | mehar baba   |
| super offer   | food master  |
| special party | food master  |
+---------------+--------------+
3 rows in set (0.00 sec)

mysql> select meal.meal_name, kitchen.kitchen_name from meal INNER JOIN kitchen ON kitchen.kitchen_id!=meal.kit_id;
+---------------+--------------+
| meal_name     | kitchen_name |
+---------------+--------------+
| night craving | rustam foods |
| special party | rustam foods |
| night craving | mehar baba   |
| super offer   | mehar baba   |
| special party | food master  |
| super offer   | food master  |
+---------------+--------------+
6 rows in set (0.00 sec)

mysql> select meal.meal_name, kitchen.kitchen_name from meal INNER JOIN kitchen ON kitchen.kitchen_id=meal.kit_id;
+---------------+--------------+
| meal_name     | kitchen_name |
+---------------+--------------+
| super offer   | rustam foods |
| special party | mehar baba   |
| night craving | food master  |
+---------------+--------------+
3 rows in set (0.00 sec)
```

```
mysql> select meal.meal_name, kitchen.kitchen_name from meal INNER JOIN kitchen ON kitchen.kitchen_id<meal.kit_id;
+---------------+--------------+
| meal_name     | kitchen_name |
+---------------+--------------+
| special party | rustam foods |
| night craving | rustam foods |
| night craving | mehar baba   |
+---------------+--------------+
3 rows in set (0.00 sec)

mysql> select meal.meal_name, kitchen.kitchen_name, orders.order_date from meal INNER JOIN kitchen ON kitchen.kitchen_id=meal.kit_id INNER JOIN orders ON orders.order_id=meal.ord_id;
+--------------+--------------+------------+
| meal_name    | kitchen_name | order_date |
+--------------+--------------+------------+
| super offer  | rustam foods | 5th May    |
| special party | mehar baba  | 6th May    |
| night craving | food master | 7th May    |
+--------------+--------------+------------+
3 rows in set (0.00 sec)
```

→ Natural join

```
mysql> select meal.meal_name, kitchen.kitchen_name from meal NATURAL JOIN kitchen;
+---------------+--------------+
| meal_name     | kitchen_name |
+---------------+--------------+
| night craving | rustam foods |
| special party | rustam foods |
| super offer   | rustam foods |
| night craving | mehar baba   |
| special party | mehar baba   |
| super offer   | mehar baba   |
| night craving | food master  |
| special party | food master  |
| super offer   | food master  |
+---------------+--------------+
9 rows in set (0.00 sec)
```

→ Cross join

```
mysql> select meal.meal_name, kitchen.kitchen_name from meal CROSS JOIN kitchen;
+---------------+--------------+
| meal_name     | kitchen_name |
+---------------+--------------+
| night craving | rustam foods |
| special party | rustam foods |
| super offer   | rustam foods |
| night craving | mehar baba   |
| special party | mehar baba   |
| super offer   | mehar baba   |
| night craving | food master  |
| special party | food master  |
| super offer   | food master  |
+---------------+--------------+
9 rows in set (0.00 sec)

mysql> select DISTINCT meal.meal_name, kitchen.kitchen_name from meal CROSS JOIN kitchen;
+---------------+--------------+
| meal_name     | kitchen_name |
+---------------+--------------+
| night craving | rustam foods |
| special party | rustam foods |
| super offer   | rustam foods |
| night craving | mehar baba   |
| special party | mehar baba   |
| super offer   | mehar baba   |
| night craving | food master  |
| special party | food master  |
| super offer   | food master  |
+---------------+--------------+
9 rows in set (0.00 sec)
```

→ Left and Right join

```
mysql> select meal.meal_name, kitchen.kitchen_name from meal RIGHT JOIN kitchen ON kitchen.kitchen_id=meal.kit_id;
+---------------+--------------+
| meal_name     | kitchen_name |
+---------------+--------------+
| super offer   | rustam foods |
| special party | mehar baba   |
| night craving | food master  |
+---------------+--------------+
3 rows in set (0.00 sec)

mysql> select meal.meal_name, kitchen.kitchen_name from meal LEFT JOIN kitchen ON kitchen.kitchen_id=meal.kit_id;
+---------------+--------------+
| meal_name     | kitchen_name |
+---------------+--------------+
| super offer   | rustam foods |
| special party | mehar baba   |
| night craving | food master  |
+---------------+--------------+
3 rows in set (0.00 sec)
```

→ Joining tables using where clause

```
mysql> select employee.emp_name, employee.dept_no,employee.salary,department.dept_name from employee,department where department.dept_no!=employee.dept_no;
+----------+---------+--------+-----------+
| emp_name | dept_no | salary | dept_name |
+----------+---------+--------+-----------+
| Arooba   |     101 |  15000 | mydept    |
| Arooba   |     101 |  15000 | emp_union |
| Arooba   |     101 |  15000 | finance   |
| Arooba   |     101 |  15000 | HR        |
| zainab   |     101 |   2100 | mydept    |
| zainab   |     101 |   2100 | emp_union |
| zainab   |     101 |   2100 | finance   |
| zainab   |     101 |   2100 | HR        |
| Amna     |     102 |  12000 | mydept    |
| Amna     |     102 |  12000 | emp_union |
| Amna     |     102 |  12000 | finance   |
| Amna     |     102 |  12000 | marketing |
| khadija  |     102 |   1500 | mydept    |
| khadija  |     102 |   1500 | emp_union |
| khadija  |     102 |   1500 | finance   |
| khadija  |     102 |   1500 | marketing |
| laila    |     103 |   2200 | mydept    |
| laila    |     103 |   2200 | emp_union |
| laila    |     103 |   2200 | HR        |
| laila    |     103 |   2200 | marketing |
| fatima   |     104 |  13000 | mydept    |
| fatima   |     104 |  13000 | finance   |
| fatima   |     104 |  13000 | HR        |
| fatima   |     104 |  13000 | marketing |
+----------+---------+--------+-----------+
24 rows in set (0.00 sec)
```

```
mysql> select employee. emp_name, employee.salary, employee.grade_no from employee, grade where employee.salary BETWEEN grade.lo_sal AND grade.hi_sal;
+----------+--------+----------+
| emp_name | salary | grade_no |
+----------+--------+----------+
| Arooba   |  15000 |        4 |
| Arooba   |  15000 |        4 |
| Arooba   |  15000 |        4 |
| Amna     |  12000 |        4 |
| Amna     |  12000 |        4 |
| fatima   |  13000 |        2 |
| fatima   |  13000 |        2 |
+----------+--------+----------+
7 rows in set (0.00 sec)

mysql> select distinct employee. emp_name, employee.salary, employee.grade_no from employee, grade where employee.salary BETWEEN grade.lo_sal AND grade.hi_sal;
+----------+--------+----------+
| emp_name | salary | grade_no |
+----------+--------+----------+
| Arooba   |  15000 |        4 |
| Amna     |  12000 |        4 |
| fatima   |  13000 |        2 |
+----------+--------+----------+
3 rows in set (0.00 sec)
```

→ Joining 3 tables using where clause

```
mysql> select employee.emp_name, grade.grade_no, department.dept_no from employee, grade, department where grade.grade_no=employee.grade_no AND department.dept_no=employee.dept_no;
+----------+----------+---------+
| emp_name | grade_no | dept_no |
+----------+----------+---------+
| khadija  |        1 |     102 |
| fatima   |        2 |     104 |
| laila    |        3 |     103 |
| Arooba   |        4 |     101 |
| zainab   |        4 |     101 |
| Amna     |        4 |     102 |
+----------+----------+---------+
6 rows in set (0.00 sec)
```

Sub-queries including IN, ALL, ANY

```
mysql> select meal_name, kit_id from meal where rating_score=(select min(rating_score) from meal);
+---------------+--------+
| meal_name     | kit_id |
+---------------+--------+
| night craving |    403 |
+---------------+--------+
1 row in set (0.00 sec)

mysql> select meal_name, kit_id from meal where rating_score=(select max(rating_score) from meal);
+-------------+--------+
| meal_name   | kit_id |
+-------------+--------+
| super offer |    401 |
+-------------+--------+
1 row in set (0.00 sec)

mysql> select meal_name, kit_id from meal where rating_score=(select avg(rating_score) from meal);
+---------------+--------+
| meal_name     | kit_id |
+---------------+--------+
| special party |    402 |
+---------------+--------+
1 row in set (0.00 sec)

mysql> select meal_name, kit_id from meal where rating_score> ANY(select avg(rating_score) from meal group by kit_id);
+---------------+--------+
| meal_name     | kit_id |
+---------------+--------+
| super offer   |    401 |
| special party |    402 |
+---------------+--------+
2 rows in set (0.00 sec)

mysql> select meal_name, kit_id from meal where rating_score> ANY(select max(rating_score) from meal group by kit_id);
+---------------+--------+
| meal_name     | kit_id |
+---------------+--------+
| super offer   |    401 |
| special party |    402 |
+---------------+--------+
2 rows in set (0.00 sec)

mysql> select meal_name, kit_id from meal where rating_score> ALL(select max(rating_score) from meal group by kit_id);
Empty set (0.00 sec)

mysql> select meal_name, kit_id from meal where rating_score IN(select max(rating_score) from meal group by kit_id);
+---------------+--------+
| meal_name     | kit_id |
+---------------+--------+
| super offer   |    401 |
| special party |    402 |
| night craving |    403 |
+---------------+--------+
3 rows in set (0.00 sec)
```

Create and show View

```
mysql> create view my_view AS select min(rating_score), max(rating score) from meal group by kit_id;
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 'score) from meal group by kit_id' at line 1
mysql> create view my_view AS select min(rating_score), max(rating_score) from meal group by kit_id;
Query OK, 0 rows affected (0.01 sec)

mysql> select * from my_view;
+-------------------+-------------------+
| min(rating_score) | max(rating_score) |
+-------------------+-------------------+
|                 4 |                 4 |
|                 3 |                 3 |
|                 2 |                 2 |
+-------------------+-------------------+
3 rows in set (0.00 sec)
```

practice database

Delete, drop, truncate tables and rows

```
mysql> drop table teacher;
Query OK, 0 rows affected (0.02 sec)
```

```
mysql> delete from course where c_name='Math';
Query OK, 1 row affected (0.01 sec)

mysql> select *from course;
+------+----------+
| c_ID | c_name   |
+------+----------+
|  101 | DSA      |
|  102 | Database |
+------+----------+
2 rows in set (0.00 sec)
```

SHOW PRIVELEGES

```
mysql> show privileges;
+-------------------------------+-----------------------------------------+-----------------------------------------------------------+
| Privilege                     | Context                                 | Comment                                                   |
+-------------------------------+-----------------------------------------+-----------------------------------------------------------+
| Alter                         | Tables                                  | To alter the table                                        |
| Alter routine                 | Functions,Procedures                    | To alter or drop stored functions/procedures              |
| Create                        | Databases,Tables,Indexes                | To create new databases and tables                        |
| Create routine                | Databases                               | To use CREATE FUNCTION/PROCEDURE                          |
| Create role                   | Server Admin                            | To create new roles                                       |
| Create temporary tables       | Databases                               | To use CREATE TEMPORARY TABLE                             |
| Create view                   | Tables                                  | To create new views                                       |
| Create user                   | Server Admin                            | To create new users                                       |
| Delete                        | Tables                                  | To delete existing rows                                   |
| Drop                          | Databases,Tables                        | To drop databases, tables, and views                      |
| Drop role                     | Server Admin                            | To drop roles                                             |
| Event                         | Server Admin                            | To create, alter, drop and execute events                 |
| Execute                       | Functions,Procedures                    | To execute stored routines                                |
| File                          | File access on server                   | To read and write files on the server                     |
| Grant option                  | Databases,Tables,Functions,Procedures   | To give to other users those privileges you possess       |
| Index                         | Tables                                  | To create or drop indexes                                 |
| Insert                        | Tables                                  | To insert data into tables                                |
| Lock tables                   | Databases                               | To use LOCK TABLES (together with SELECT privilege)       |
| Process                       | Server Admin                            | To view the plain text of currently executing queries     |
| Proxy                         | Server Admin                            | To make proxy user possible                               |
| References                    | Databases,Tables                        | To have references on tables                              |
| Reload                        | Server Admin                            | To reload or refresh tables, logs and privileges          |
| Replication client            | Server Admin                            | To ask where the slave or master servers are              |
| Replication slave             | Server Admin                            | To read binary log events from the master                 |
| Select                        | Tables                                  | To retrieve rows from table                               |
| Show databases                | Server Admin                            | To see all databases with SHOW DATABASES                  |
| Show view                     | Tables                                  | To see views with SHOW CREATE VIEW                        |
| Shutdown                      | Server Admin                            | To shut down the server                                   |
| Super                         | Server Admin                            | To use KILL thread, SET GLOBAL, CHANGE MASTER, etc.       |
| Trigger                       | Tables                                  | To use triggers                                           |
| Create tablespace             | Server Admin                            | To create/alter/drop tablespaces                          |
| Update                        | Tables                                  | To update existing rows                                   |
| Usage                         | Server Admin                            | No privileges - allow connect only                        |
| ENCRYPTION_KEY_ADMIN          | Server Admin                            |                                                           |
| INNODB_REDO_LOG_ARCHIVE       | Server Admin                            |                                                           |
| RESOURCE_GROUP_USER           | Server Admin                            |                                                           |
| FIREWALL_EXEMPT               | Server Admin                            |                                                           |
| SET_USER_ID                   | Server Admin                            |                                                           |
| SERVICE_CONNECTION_ADMIN      | Server Admin                            |                                                           |
| GROUP_REPLICATION_ADMIN       | Server Admin                            |                                                           |
| AUDIT_ABORT_EXEMPT            | Server Admin                            |                                                           |
| GROUP_REPLICATION_STREAM      | Server Admin                            |                                                           |
| CLONE_ADMIN                   | Server Admin                            |                                                           |
| SYSTEM_USER                   | Server Admin                            |                                                           |
| AUTHENTICATION_POLICY_ADMIN   | Server Admin                            |                                                           |
| SHOW_ROUTINE                  | Server Admin                            |                                                           |
| BACKUP_ADMIN                  | Server Admin                            |                                                           |
| CONNECTION_ADMIN              | Server Admin                            |                                                           |
```

Create user and role, assign role to user

```
mysql> create user zainab identified by 'abc@123';
Query OK, 0 rows affected (0.05 sec)

mysql> create role manager;
Query OK, 0 rows affected (0.01 sec)

mysql> grant manager to zainab;
Query OK, 0 rows affected (0.01 sec)
```

Show grants