SQL

Structured Query Language

- Punith B

SQL Statements

DDL [Data Definition Language]

- CREATE
- ALTER
- DROP
- TRUNCATE

DML [Data Manipulation Language]

- INSERT
- UPDATE
- DELETE

TCL [Transaction Control Language]

- COMMIT
- ROLLBACK
- SAVEPOINT

DCL [Data Control Language]

- GRANT
- REVOKE

DQL [Data Query Language]

- SELECT
- JOINS

Database

Database is a place where we store the data in the systematic and organized manner.

To create the database,

```
CREATE DATABASE database_name;
```

To access or use a particular database,

```
USE database_name;
```

To display the databases present in mysql,

```
SHOW TABLES;
```

To display the tables present in a particular database,

```
SHOW TABLES;
```

DDL Commands

CREATE : This command is used to create the database and its objects such as tables, views, users, indexes etc.,

Syntax to CREATE a table

```
CREATE TABLE table_name
(
      Column_name_1 DATATYPE CONSTRAINT NULL/NOT NULL,
      Column_name_2 DATATYPE CONSTRAINT NULL/NOT NULL,
      :
      Column_name_n DATATYPE CONSTRAINT NULL/NOT NULL,
);
```

```
mysql> CREATE TABLE ACCOUNTS
    -> (
    ->  ACC_NO BIGINT PRIMARY KEY,
    ->  ACC_HOLDER_NAME VARCHAR(20) NOT NULL,
    ->  PHONE BIGINT UNIQUE NOT NULL CHECK(LENGTH(PHONE)=10),
    ->  MAIL VARCHAR(30) UNIQUE,
    ->  GENDER ENUM('Male','Female','Others'),
    ->  NATIONALITY VARCHAR(30) DEFAULT 'Indian'
    -> );
Query OK, 0 rows affected (0.10 sec)
```

Note: To display the structure of the table,

```
DESC table_name;
```

```
mysql> DESC ACCOUNTS;
+-----------------+---------------------------------+------+-----+---------+-------+
| Field           | Type                            | Null | Key | Default | Extra |
+-----------------+---------------------------------+------+-----+---------+-------+
| ACC_NO          | bigint                          | NO   | PRI | NULL    |       |
| ACC_HOLDER_NAME | varchar(20)                     | NO   |     | NULL    |       |
| PHONE           | bigint                          | NO   | UNI | NULL    |       |
| MAIL            | varchar(30)                     | YES  | UNI | NULL    |       |
| GENDER          | enum('Male','Female','Others') | YES  |     | NULL    |       |
| NATIONALITY     | varchar(30)                     | YES  |     | Indian  |       |
+-----------------+---------------------------------+------+-----+---------+-------+
6 rows in set (0.01 sec)
```

ALTER : This command is used to modify the structure of the table.

- **To add a column to the table,**
  ```
  ALTER TABLE table_name
  ADD column_name DATATYPE CONSTRAINT NULL/NOT NULL;
  ```

```
mysql> ALTER TABLE ACCOUNTS
    -> ADD BID INT NULL;
Query OK, 0 rows affected (0.49 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> DESC ACCOUNTS;
+-----------------+---------------------------------+------+-----+---------+-------+
| Field           | Type                            | Null | Key | Default | Extra |
+-----------------+---------------------------------+------+-----+---------+-------+
| ACC_NO          | bigint                          | NO   | PRI | NULL    |       |
| ACC_HOLDER_NAME | varchar(20)                     | NO   |     | NULL    |       |
| PHONE           | bigint                          | NO   | UNI | NULL    |       |
| MAIL            | varchar(30)                     | YES  | UNI | NULL    |       |
| GENDER          | enum('Male','Female','Others')  | YES  |     | NULL    |       |
| NATIONALITY     | varchar(30)                     | YES  |     | Indian  |       |
| BID             | int                             | YES  |     | NULL    |       |
+-----------------+---------------------------------+------+-----+---------+-------+
7 rows in set (0.01 sec)
```

- **To drop a column from the table,**
  ```
  ALTER TABLE table_name
  DROP column_name;
  ```

```
mysql> ALTER TABLE ACCOUNTS
    -> DROP NATIONALITY;
Query OK, 0 rows affected (0.03 sec)
Records: 0  Duplicates: 0  Warnings: 0
```

```
mysql> DESC ACCOUNTS;
+-----------------+---------------------------------+------+-----+---------+-------+
| Field           | Type                            | Null | Key | Default | Extra |
+-----------------+---------------------------------+------+-----+---------+-------+
| ACC_NO          | bigint                          | NO   | PRI | NULL    |       |
| ACC_HOLDER_NAME | varchar(20)                     | NO   |     | NULL    |       |
| PHONE           | bigint                          | NO   | UNI | NULL    |       |
| MAIL            | varchar(30)                     | YES  | UNI | NULL    |       |
| GENDER          | enum('Male','Female','Others')  | YES  |     | NULL    |       |
| BID             | int                             | YES  |     | NULL    |       |
+-----------------+---------------------------------+------+-----+---------+-------+
6 rows in set (0.00 sec)
```

- **To modify the datatype of a column,**
  ```
  ALTER TABLE table_name
  MODIFY column_name NEW_DATATYPE NULL/NOT NULL;
  ```

```
mysql> ALTER TABLE ACCOUNTS
    -> MODIFY ACC_HOLDER_NAME CHAR(10) NOT NULL;
Query OK, 0 rows affected (0.07 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> DESC ACCOUNTS;
+----------------+-------------------------------+------+-----+---------+-------+
| Field          | Type                          | Null | Key | Default | Extra |
+----------------+-------------------------------+------+-----+---------+-------+
| ACC_NO         | bigint                        | NO   | PRI | NULL    |       |
| ACC_HOLDER_NAME | char(10)                      | NO   |     | NULL    |       |
| PHONE          | bigint                        | NO   | UNI | NULL    |       |
| MAIL           | varchar(30)                   | YES  | UNI | NULL    |       |
| GENDER         | enum('Male','Female','Others') | YES  |     | NULL    |       |
| BID            | int                           | YES  |     | NULL    |       |
+----------------+-------------------------------+------+-----+---------+-------+
6 rows in set (0.00 sec)
```

- **To modify the column to NULL/NOT NULL,**
  ```
  ALTER TABLE table_name
  MODIFY column_name EXISTING_DATATYPE NULL/NOT NULL;
  ```

```
mysql> ALTER TABLE ACCOUNTS
    -> MODIFY MAIL VARCHAR(30) NOT NULL;
Query OK, 0 rows affected (0.05 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> DESC ACCOUNTS;
+----------------+-------------------------------+------+-----+---------+-------+
| Field          | Type                          | Null | Key | Default | Extra |
+----------------+-------------------------------+------+-----+---------+-------+
| ACC_NO         | bigint                        | NO   | PRI | NULL    |       |
| ACC_HOLDER_NAME | char(10)                      | NO   |     | NULL    |       |
| PHONE          | bigint                        | NO   | UNI | NULL    |       |
| MAIL           | varchar(30)                   | NO   | UNI | NULL    |       |
| GENDER         | enum('Male','Female','Others') | YES  |     | NULL    |       |
| BID            | int                           | YES  |     | NULL    |       |
+----------------+-------------------------------+------+-----+---------+-------+
6 rows in set (0.00 sec)
```

- **To change the column_name from the table,**
  ```
  ALTER TABLE table_name
  CHANGE old_name new_name EXISTING_DATATYPE NULL/NOT NULL;
  ```

```
mysql> ALTER TABLE ACCOUNTS
    -> CHANGE acc_holder_name NAME CHAR(10) NOT NULL;
Query OK, 0 rows affected (0.01 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> DESC ACCOUNTS;
+--------+---------------------------------+------+-----+---------+-------+
| Field  | Type                            | Null | Key | Default | Extra |
+--------+---------------------------------+------+-----+---------+-------+
| ACC_NO | bigint                          | NO   | PRI | NULL    |       |
| NAME   | char(10)                        | NO   |     | NULL    |       |
| PHONE  | bigint                          | NO   | UNI | NULL    |       |
| MAIL   | varchar(30)                     | NO   | UNI | NULL    |       |
| GENDER | enum('Male','Female','Others') | YES  |     | NULL    |       |
| BID    | int                             | YES  |     | NULL    |       |
+--------+---------------------------------+------+-----+---------+-------+
6 rows in set (0.00 sec)
```

- **To change the table_name,**
  ALTER TABLE table_name
  RENAME new_table_name;

```
mysql> ALTER TABLE ACCOUNTS
    -> RENAME ACC;
Query OK, 0 rows affected (0.01 sec)

mysql> DESC ACCOUNTS;
ERROR 1146 (42S02): Table 'demo.accounts' doesn't exist
mysql> DESC ACC;
+--------+---------------------------------+------+-----+---------+-------+
| Field  | Type                            | Null | Key | Default | Extra |
+--------+---------------------------------+------+-----+---------+-------+
| ACC_NO | bigint                          | NO   | PRI | NULL    |       |
| NAME   | char(10)                        | NO   |     | NULL    |       |
| PHONE  | bigint                          | NO   | UNI | NULL    |       |
| MAIL   | varchar(30)                     | NO   | UNI | NULL    |       |
| GENDER | enum('Male','Female','Others') | YES  |     | NULL    |       |
| BID    | int                             | YES  |     | NULL    |       |
+--------+---------------------------------+------+-----+---------+-------+
6 rows in set (0.00 sec)
```

- **To add the constraint,**
  ALTER TABLE table_name
  ADD CONSTRAINT PRIMARY KEY(column_name);
  ADD CONSTRAINT UNIQUE(column_name);
  ADD CONSTRAINT CHECK(condition);
  ADD CONSTRAINT FOREIGN KEY(column_name) REFERENCES parent_table_name(column_name);

```
mysql> ALTER TABLE ACC
    -> ADD CONSTRAINT FOREIGN KEY(BID) REFERENCES EXT(BID);
Query OK, 0 rows affected (0.10 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> DESC ACCOUNTS;
ERROR 1146 (42S02): Table 'demo.accounts' doesn't exist
mysql> DESC ACC;
+--------+---------------------------------+------+-----+---------+-------+
| Field  | Type                            | Null | Key | Default | Extra |
+--------+---------------------------------+------+-----+---------+-------+
| ACC_NO | bigint                          | NO   | PRI | NULL    |       |
| NAME   | char(10)                        | NO   |     | NULL    |       |
| PHONE  | bigint                          | NO   | UNI | NULL    |       |
| MAIL   | varchar(30)                     | NO   | UNI | NULL    |       |
| GENDER | enum('Male','Female','Others') | YES  |     | NULL    |       |
| BID    | int                             | YES  | MUL | NULL    |       |
+--------+---------------------------------+------+-----+---------+-------+
6 rows in set (0.00 sec)
```

```
mysql> DROP TABLE EXT;
ERROR 3730 (HY000): Cannot drop table 'ext' referenced by a foreign key constraint 'a
cc_ibfk_1' on table 'acc'.
```

```
mysql> DESC EXT;
+-----------+-------------+------+-----+---------+----------------+
| Field     | Type        | Null | Key | Default | Extra          |
+-----------+-------------+------+-----+---------+----------------+
| BID       | int         | NO   | PRI | NULL    | auto_increment |
| BNAME     | varchar(30) | YES  |     | NULL    |                |
| IFSC_CODE | varchar(15) | YES  | UNI | NULL    |                |
| AREA      | varchar(30) | NO   |     | NULL    |                |
+-----------+-------------+------+-----+---------+----------------+
4 rows in set (0.00 sec)
```

- **To drop Primary Key from the table,**
  `ALTER TABLE table_name`
  `DROP PRIMARY KEY;`

```
mysql> ALTER TABLE ACC
    -> DROP PRIMARY KEY;
Query OK, 0 rows affected (0.09 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> DESC ACC;
+--------+---------------------------------+------+-----+---------+-------+
| Field  | Type                            | Null | Key | Default | Extra |
+--------+---------------------------------+------+-----+---------+-------+
| ACC_NO | bigint                          | NO   |     | NULL    |       |
| NAME   | char(10)                        | NO   |     | NULL    |       |
| PHONE  | bigint                          | NO   | PRI | NULL    |       |
| MAIL   | varchar(30)                     | NO   | UNI | NULL    |       |
| GENDER | enum('Male','Female','Others') | YES  |     | NULL    |       |
| BID    | int                             | YES  | MUL | NULL    |       |
+--------+---------------------------------+------+-----+---------+-------+
6 rows in set (0.01 sec)
```

- **To drop UNIQUE from the table,**
  ```
  ALTER TABLE table_name
  DROP INDEX column_name;
  ```

```
mysql> ALTER TABLE ACC
    -> DROP INDEX PHONE;
Query OK, 0 rows affected (0.22 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> DESC ACC;
+--------+---------------------------------+------+-----+---------+-------+
| Field  | Type                            | Null | Key | Default | Extra |
+--------+---------------------------------+------+-----+---------+-------+
| ACC_NO | bigint                          | NO   |     | NULL    |       |
| NAME   | char(10)                        | NO   |     | NULL    |       |
| PHONE  | bigint                          | NO   |     | NULL    |       |
| MAIL   | varchar(30)                     | NO   | PRI | NULL    |       |
| GENDER | enum('Male','Female','Others') | YES  |     | NULL    |       |
| BID    | int                             | YES  | MUL | NULL    |       |
+--------+---------------------------------+------+-----+---------+-------+
6 rows in set (0.00 sec)
```

- **To drop CHECK and FOREIGN KEY constraints,**
  ```
  ALTER TABLE table_name
  DROP CONSTRAINT constraint_name;
  ```

```
mysql> ALTER TABLE ACC
    -> DROP CONSTRAINT acc_chk_1;
Query OK, 0 rows affected (0.02 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> DESC ACC;
+--------+---------------------------------+------+-----+---------+-------+
| Field  | Type                            | Null | Key | Default | Extra |
+--------+---------------------------------+------+-----+---------+-------+
| ACC_NO | bigint                          | NO   |     | NULL    |       |
| NAME   | char(10)                        | NO   |     | NULL    |       |
| PHONE  | bigint                          | NO   |     | NULL    |       |
| MAIL   | varchar(30)                     | NO   |     | NULL    |       |
| GENDER | enum('Male','Female','Others') | YES  |     | NULL    |       |
| BID    | int                             | YES  | MUL | NULL    |       |
+--------+---------------------------------+------+-----+---------+-------+
6 rows in set (0.01 sec)

mysql> DESC EXT;
ERROR 1146 (42S02): Table 'demo.ext' doesn't exist
mysql> DROP TABLE ACC;
Query OK, 0 rows affected (0.01 sec)
```

DROP : This command is used to delete the database and its objects.

To delete a table,

```
DROP TABLE table_name;
```

```
mysql> DROP TABLE ACC;
Query OK, 0 rows affected (0.01 sec)
```

TRUNCATE : This command is used to erase all the records permanently from the table except the table structure.

To truncate the table,

```
TRUNCATE TABLE table_name;
```

```
mysql> TRUNCATE TABLE PRODUCT;
Query OK, 0 rows affected (0.08 sec)

mysql> SELECT * FROM PRODUCT;
Empty set (0.00 sec)
```

DML Commands

INSERT : This command is used to add the records inside the table.

- **Syntax-1:**

```
INSERT INTO table_name VALUES (v1,v2,..,vn),(v1,v2,..,vn),..;
```

```
mysql> INSERT INTO PRODUCT VALUES (1,'Watch',6000,'UK'),(4,'Bag',2500,'India');
Query OK, 2 rows affected (0.01 sec)
Records: 2  Duplicates: 0  Warnings: 0

mysql> select * from product;
+----+-------+---------+---------+
| ID | PNAME | PRICE   | COUNTRY |
+----+-------+---------+---------+
|  1 | Watch | 6000.00 | UK      |
|  4 | Bag   | 2500.00 | India   |
+----+-------+---------+---------+
2 rows in set (0.00 sec)
```

- **Syntax-2:**

```
INSERT INTO table_name(col1,col2,..,coln)
VALUES(v1,v2,..,vn),(v1,v2,..,vn),…;
```

```
mysql> INSERT INTO PRODUCT(PNAME,PRICE) VALUES ('Ball',120),('Phone',50000);
Query OK, 2 rows affected (0.01 sec)
Records: 2  Duplicates: 0  Warnings: 0

mysql> select * from product;
+----+-------+----------+---------+
| ID | PNAME | PRICE    | COUNTRY |
+----+-------+----------+---------+
|  1 | Ball  |   120.00 | India   |
|  2 | Phone | 50000.00 | India   |
+----+-------+----------+---------+
2 rows in set (0.00 sec)
```

- **Syntax-3:**
  ```
  INSERT INTO table_name(SELECT statement);
  ```

UPDATE : This command is used to modify the given records present in the table.

Syntax:

```
UPDATE table_name
SET col1=v1 [,col2=v2,..,coln=vn]
[WHERE condition];
```

```
mysql> UPDATE PRODUCT
    -> SET COUNTRY='USA'
    -> WHERE ID=3;
Query OK, 1 row affected (0.03 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> SELECT * FROM PRODUCT;
+----+--------+---------+---------+
| ID | PNAME  | PRICE   | COUNTRY |
+----+--------+---------+---------+
|  1 | Shoe   | 1200.00 | INDIA   |
|  2 | Shades | 2000.00 | INDIA   |
|  3 | Shirt  | 1000.00 | USA     |
|  4 | Pant   | 1200.00 | INDIA   |
+----+--------+---------+---------+
4 rows in set (0.00 sec)
```

```
mysql> UPDATE PRODUCT
    -> SET PNAME='JACKET',PRICE=5000
    -> WHERE ID=2;
Query OK, 1 row affected (0.01 sec)
Rows matched: 1  Changed: 1  Warnings: 0
```

```
mysql> SELECT * FROM PRODUCT;
+----+--------+---------+---------+
| ID | PNAME  | PRICE   | COUNTRY |
+----+--------+---------+---------+
|  1 | Shoe   | 1200.00 | INDIA   |
|  2 | JACKET | 5000.00 | INDIA   |
|  3 | Shirt  | 1000.00 | USA     |
|  4 | Pant   | 1200.00 | INDIA   |
+----+--------+---------+---------+
4 rows in set (0.00 sec)
```

```
mysql> UPDATE PRODUCT
    -> SET COUNTRY='UK'
    -> WHERE COUNTRY='INDIA';
Query OK, 3 rows affected (0.01 sec)
Rows matched: 3  Changed: 3  Warnings: 0
```

```
mysql> SELECT * FROM PRODUCT;
+----+--------+---------+---------+
| ID | PNAME  | PRICE   | COUNTRY |
+----+--------+---------+---------+
|  1 | Shoe   | 1200.00 | UK      |
|  2 | JACKET | 5000.00 | UK      |
|  3 | Shirt  | 1000.00 | USA     |
|  4 | Pant   | 1200.00 | UK      |
+----+--------+---------+---------+
4 rows in set (0.00 sec)

mysql> UPDATE PRODUCT
    -> SET PNAME='WATCH';
Query OK, 4 rows affected (0.01 sec)
Rows matched: 4  Changed: 4  Warnings: 0
```

```
mysql> SELECT * FROM PRODUCT;
+----+-------+---------+---------+
| ID | PNAME | PRICE   | COUNTRY |
+----+-------+---------+---------+
|  1 | WATCH | 1200.00 | UK      |
|  2 | WATCH | 5000.00 | UK      |
|  3 | WATCH | 1000.00 | USA     |
|  4 | WATCH | 1200.00 | UK      |
+----+-------+---------+---------+
4 rows in set (0.00 sec)
```

DELETE : This command is used to delete a particular record from the table.

Syntax:

```
DELETE FROM table_name
WHERE condition;
```

```
mysql> SELECT * FROM PRODUCT;
+----+-------+---------+---------+
| ID | PNAME | PRICE   | COUNTRY |
+----+-------+---------+---------+
|  1 | WATCH | 1200.00 | UK      |
|  2 | WATCH | 5000.00 | UK      |
|  3 | WATCH | 1000.00 | USA     |
|  4 | WATCH | 1200.00 | UK      |
+----+-------+---------+---------+
4 rows in set (0.00 sec)

mysql> DELETE FROM PRODUCT
    -> WHERE ID=3;
Query OK, 1 row affected (0.01 sec)

mysql> DELETE FROM PRODUCT;
Query OK, 3 rows affected (0.01 sec)

mysql> SELECT * FROM PRODUCT;
Empty set (0.00 sec)
```

Differences between TRUNCATE, DROP and DELETE.

- **TRUNCATE :** This command is used to erase all the records from the table but the table structure remains same.
  Syntax:
  ```
  TRUNCATE TABLE table_name;
  ```

- **DROP :** This command is used to delete the entire table from the database.
  Syntax:
  ```
  DROP TABLE table_name;
  ```

- **DELETE :** This command is used to delete a particular records from the table.
  Syntax:
  ```
  DELETE FROM table_name
  WHERE condition;
  ```

DQL Query

PROJECTIONS

The process of retrieving the data from the table by using the column name is known as Projections.

Syntax:

```
SELECT column_name
FROM table_name;
```

```
SELECT FNAME
FROM EMP;
```

```
mysql> SELECT FNAME
    -> FROM EMP;
+----------+
| FNAME    |
+----------+
| Abhijit  |
| Aman     |
| Dharani  |
| Fariya   |
| Hema     |
| Jahnavi  |
| Karan    |
| Kiran    |
| Murali   |
| Priya    |
| Rahul    |
| Rashmi   |
| Sameer   |
| Shivani  |
| Siddarth |
+----------+
15 rows in set (0.00 sec)
```

Note: We use asterisk to retrieve all the columns from the table.

```
SELECT *
FROM EMP;
```

```
mysql> SELECT * FROM EMP;
+------+---------+-----------+------------+--------+------------+------+------------+-----------+---------+------+------+
| EID  | FNAME   | LNAME     | DOB        | GENDER | JOB        | MGR  | DOJ        | SAL       | COMM    | DNO  | CID  |
+------+---------+-----------+------------+--------+------------+------+------------+-----------+---------+------+------+
| 1601 | Siddarth | Patil    | 1985-11-24 | M      | Ceo        | NULL | 2016-01-16 | 500000.00 |    NULL |  113 | NULL |
| 1602 | Hema    | Shetty    | 1996-03-20 | F      | Hr         | 1601 | 2016-10-20 | 150000.00 |    NULL |  114 |  507 |
| 1701 | Rahul   | Mukharjee | 1991-02-19 | M      | Manager    | 1602 | 2017-04-17 | 100000.00 |    NULL |  111 | NULL |
| 1702 | Sameer  | Khan      | 1995-04-20 | M      | Manager    | 1602 | 2017-07-07 | 120000.00 |    NULL |  110 | NULL |
| 1801 | Jahnavi | Naik      | 1996-04-11 | F      | Dispatcher | 1702 | 2020-03-15 |  45000.00 | 1000.00 |  110 | NULL |
| 1901 | Shivani | Rai       | 1998-11-07 | F      | Tester     | 1601 | 2019-12-12 |  45000.00 |    NULL |  113 |  502 |
| 1902 | Abhijit | Gowda     | 1997-12-25 | M      | Dispatcher | 1702 | 2019-12-28 |  50000.00 |    NULL |  110 |  505 |
| 1903 | Karan   | Bhat      | 1997-12-26 | M      | Salesman   | 1701 | 2019-12-26 |  45000.00 |    NULL |  111 | NULL |
| 2001 | Murali  | Krishnan  | 1998-06-08 | M      | Dispatcher | 1702 | 2020-03-15 |  45000.00 | 1000.00 |  110 | NULL |
| 2002 | Dharani | Patil     | 1998-11-10 | F      | Developer  | 1601 | 2021-06-20 |  30000.00 | 3000.00 |  113 | NULL |
| 2101 | Rashmi  | Gowda     | 1995-10-03 | F      | Salesman   | 1701 | 2021-01-02 |  45000.00 | 3000.00 |  111 | NULL |
| 2102 | Fariya  | Taj       | 1999-01-03 | F      | Developer  | 1601 | 2021-03-01 |  32000.00 | 3600.00 |  113 | NULL |
| 2103 | Priya   | Shetty    | 1998-03-20 | F      | Accountant | 1602 | 2021-05-01 |  32000.00 | 3600.00 |  112 | NULL |
| 2104 | Aman    | Rai       | 1998-08-15 | M      | Salesman   | 1701 | 2021-12-26 |  40000.00 |    NULL |  111 | NULL |
| 2201 | Kiran   | Raj       | 1999-09-21 | M      | Accountant | 1602 | 2022-08-28 |  30000.00 | 3600.00 |  112 |  503 |
+------+---------+-----------+------------+--------+------------+------+------------+-----------+---------+------+------+
15 rows in set (0.00 sec)
```

ALIAS

- Alias is an alternative names given to the columns or the tables in DQL.
- We can pass alias name either by using AS keyword or “double quotes”.
- With or without using AS keyword, we can pass alias name.
- We can use “double quotes” to pass spaces and special characters.

Syntax:

```
SELECT column_name_1 AS alias_1,
               column_name_2 alias_2,
               column_name_3 “alias 3”
FROM table_name;
```

```
SELECT FNAME AS FIRST_NAME,
       LNAME LAST_NAME,
       DNO “DEPARTMENT NUMBER”
FROM EMP;
```

```
mysql> SELECT FNAME AS FIRST_NAME,LNAME LAST_NAME,DNO "DEPT NUMBER!"
    -> FROM EMP;
+------------+-----------+--------------+
| FIRST_NAME | LAST_NAME | DEPT NUMBER! |
+------------+-----------+--------------+
| Siddarth   | Patil     |          113 |
| Hema       | Shetty    |          114 |
| Rahul      | Mukharjee |          111 |
| Sameer     | Khan      |          110 |
| Jahnavi    | Naik      |          110 |
| Shivani    | Rai       |          113 |
| Abhijit    | Gowda     |          110 |
| Karan      | Bhat      |          111 |
| Murali     | Krishnan  |          110 |
| Dharani    | Patil     |          113 |
| Rashmi     | Gowda     |          111 |
| Fariya     | Taj       |          113 |
| Priya      | Shetty    |          112 |
| Aman       | Rai       |          111 |
| Kiran      | Raj       |          112 |
+------------+-----------+--------------+
15 rows in set (0.00 sec)
```

DISTINCT

- Distinct is used to avoid the duplicates from the resultant table.
- Either * or DISTINCT must be the very first executable clause.
- We can pass multiple columns inside DISTINCT clause.
- Whenever we pass multiple columns it works on the combination.

Syntax:

```
SELECT DISTINCT column_name
FROM table_name;
```

```
SELECT DISTINCT SAL
FROM EMP;
```

```
mysql> SELECT DISTINCT SAL
    -> FROM EMP;
+-----------+
| SAL       |
+-----------+
| 500000.00 |
| 150000.00 |
| 100000.00 |
| 120000.00 |
|  45000.00 |
|  50000.00 |
|  30000.00 |
|  32000.00 |
|  40000.00 |
+-----------+
9 rows in set (0.00 sec)
```

SELECTIONS

The process of retrieving the data from the table by using column name and row data is known as SELECTIONS.

Syntax:

```
SELECT column_name
FROM table_name
WHERE filter_condition;
```

WHERE Clause

- WHERE clause is used to filter the records from the table.
- WHERE clause executes row by row.
- It executes after the WHERE clause.
- WHERE clause follows true of false condition.
- We can pass multiple conditions inside the WHERE clause.
- We cannot pass alias name inside WHERE clause.

REQ-1 : WAQTD THE DETAILS OF EMP WHOSE FIRST NAME IS AMAN.

```
SELECT *
FROM EMP
WHERE FNAME=’AMAN’;
```

```
mysql> SELECT *
    -> FROM EMP
    -> WHERE FNAME='AMAN';
+------+-------+-------+------------+--------+----------+------+------------+----------+------+------+------+
| EID  | FNAME | LNAME | DOB        | GENDER | JOB      | MGR  | DOJ        | SAL      | COMM | DNO  | CID  |
+------+-------+-------+------------+--------+----------+------+------------+----------+------+------+------+
| 2104 | Aman  | Rai   | 1998-08-15 | M      | Salesman | 1701 | 2021-12-26 | 40000.00 | NULL |  111 | NULL |
+------+-------+-------+------------+--------+----------+------+------------+----------+------+------+------+
1 row in set (0.01 sec)
```

REQ-2 : WAQTD THE DETAILS OF EMP WHOSE JOB IS SALESMAN AND SAL IS MORE THAN AMAN.

```
SELECT *
FROM EMP
WHERE JOB=’SALESMAN’ AND SAL>30000;
```

```
mysql> SELECT *
    -> FROM EMP
    -> WHERE JOB='SALESMAN' AND SAL>30000;
+------+--------+-------+------------+--------+----------+------+------------+----------+---------+------+------+
| EID  | FNAME  | LNAME | DOB        | GENDER | JOB      | MGR  | DOJ        | SAL      | COMM    | DNO  | CID  |
+------+--------+-------+------------+--------+----------+------+------------+----------+---------+------+------+
| 1903 | Karan  | Bhat  | 1997-12-26 | M      | Salesman | 1701 | 2019-12-26 | 45000.00 |    NULL |  111 | NULL |
| 2101 | Rashmi | Gowda | 1995-10-03 | F      | Salesman | 1701 | 2021-01-02 | 45000.00 | 3000.00 |  111 | NULL |
| 2104 | Aman   | Rai   | 1998-08-15 | M      | Salesman | 1701 | 2021-12-26 | 40000.00 |    NULL |  111 | NULL |
+------+--------+-------+------------+--------+----------+------+------------+----------+---------+------+------+
3 rows in set (0.00 sec)
```

REQ-3 : WAQTD THE DETAILS OF EMP WHOSE ANNUAL SALARY IS 6 LAKH.

```
SELECT *,SAL*12
FROM EMP
WHERE SAL*12=600000;
```

```
mysql> SELECT *,SAL*12 Annual_Salary
    -> FROM EMP
    -> WHERE JOB='SALESMAN';
+------+--------+-------+------------+--------+----------+------+------------+----------+---------+------+------+---------------+
| EID  | FNAME  | LNAME | DOB        | GENDER | JOB      | MGR  | DOJ        | SAL      | COMM    | DNO  | CID  | Annual_Salary |
+------+--------+-------+------------+--------+----------+------+------------+----------+---------+------+------+---------------+
| 1903 | Karan  | Bhat  | 1997-12-26 | M      | Salesman | 1701 | 2019-12-26 | 45000.00 |    NULL |  111 | NULL |     540000.00 |
| 2101 | Rashmi | Gowda | 1995-10-03 | F      | Salesman | 1701 | 2021-01-02 | 45000.00 | 3000.00 |  111 | NULL |     540000.00 |
| 2104 | Aman   | Rai   | 1998-08-15 | M      | Salesman | 1701 | 2021-12-26 | 40000.00 |    NULL |  111 | NULL |     480000.00 |
+------+--------+-------+------------+--------+----------+------+------------+----------+---------+------+------+---------------+
3 rows in set (0.00 sec)
```