MYSQL

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1. Data Definition Language(DDL)

- DDL changes the structure of the table like creating a table, deleting a table, altering a table, etc.
- All the command of DDL are auto-committed that means it permanently save all the changes in the database.

Here are some commands that come under DDL:

- CREATE
- ALTER
- TRUNCATE
- DROP

a. **CREATE** - It is used to create a new table in the database.

```
MariaDB [company]> create table Employee_details(Emp_Id int,Name varchar(20),City v
varchar(20),Salary int);
Query OK, 0 rows affected (0.361 sec)

MariaDB [company]> describe Employee_details;
+-------------+-------------+------+-----+---------+-------+
| Field       | Type        | Null | Key | Default | Extra |
+-------------+-------------+------+-----+---------+-------+
| Emp_Id      | int(11)     | YES  |     | NULL    |       |
| Name        | varchar(20) | YES  |     | NULL    |       |
| City        | varchar(20) | YES  |     | NULL    |       |
| Designation | varchar(20) | YES  |     | NULL    |       |
| Salary      | int(11)     | YES  |     | NULL    |       |
+-------------+-------------+------+-----+---------+-------+
5 rows in set (0.133 sec)
```

b. ALTER: It is used to alter the structure of the database. This change could be either to modify the characteristics of an existing attribute or probably to add a new attribute.

```
MariaDB [company]> Alter table Employee_details add Experience int after Designation;
Query OK, 0 rows affected (0.137 sec)
Records: 0  Duplicates: 0  Warnings: 0

MariaDB [company]> Alter table Employee_details change Experience Experience varchar(20)
Query OK, 5 rows affected (0.609 sec)
Records: 5  Duplicates: 0  Warnings: 0

MariaDB [company]> select * from Employee_details;
+--------+-------------+---------+------------------+------------+--------+
| Emp_Id | Name        | City    | Designation      | Experience | Salary |
+--------+-------------+---------+------------------+------------+--------+
|      1 | Vinoth      | Chennai | Data_Analyst     | NULL       |  25000 |
|      2 | Karthi      | Madurai | Software_Testing | NULL       |  38000 |
|      3 | Santhosh    | Chennai | Java_Developer   | NULL       |  58000 |
|      4 | Satishwaran | Madurai | Mis_Executive    | NULL       |  24000 |
|      5 | Johnson     | Chennai | HR               | NULL       |  36000 |
+--------+-------------+---------+------------------+------------+--------+
5 rows in set (0.014 sec)

MariaDB [company]> Alter table Employee_details drop Experience;
Query OK, 0 rows affected (0.083 sec)
Records: 0  Duplicates: 0  Warnings: 0

MariaDB [company]> select * from Employee_details;
+--------+-------------+---------+------------------+--------+
| Emp_Id | Name        | City    | Designation      | Salary |
+--------+-------------+---------+------------------+--------+
|      1 | Vinoth      | Chennai | Data_Analyst     |  25000 |
|      2 | Karthi      | Madurai | Software_Testing |  38000 |
|      3 | Santhosh    | Chennai | Java_Developer   |  58000 |
|      4 | Satishwaran | Madurai | Mis_Executive    |  24000 |
|      5 | Johnson     | Chennai | HR               |  36000 |
+--------+-------------+---------+------------------+--------+
5 rows in set (0.008 sec)
```

```
MariaDB [company]> alter table Employee_details rename Emp_details;
Query OK, 0 rows affected (0.142 sec)

MariaDB [company]> select * from Emp_details;
+--------+-------------+---------+-------------------+--------+
| Emp_Id | Name        | City    | Designation       | Salary |
+--------+-------------+---------+-------------------+--------+
|      1 | Vinoth      | Chennai | Data_Analyst      |  25000 |
|      2 | Karthi      | Madurai | Software_Testing  |  38000 |
|      3 | Santhosh    | Chennai | Java_Developer    |  58000 |
|      4 | Satishwaran | Madurai | Mis_Executive     |  24000 |
|      5 | Johnson     | Chennai | HR                |  36000 |
+--------+-------------+---------+-------------------+--------+
5 rows in set (0.007 sec)

MariaDB [company]> alter table Emp_details rename Employee_details;
Query OK, 0 rows affected (0.090 sec)

MariaDB [company]> select * from Employee_details;
+--------+-------------+---------+-------------------+--------+
| Emp_Id | Name        | City    | Designation       | Salary |
+--------+-------------+---------+-------------------+--------+
|      1 | Vinoth      | Chennai | Data_Analyst      |  25000 |
|      2 | Karthi      | Madurai | Software_Testing  |  38000 |
|      3 | Santhosh    | Chennai | Java_Developer    |  58000 |
|      4 | Satishwaran | Madurai | Mis_Executive     |  24000 |
|      5 | Johnson     | Chennai | HR                |  36000 |
+--------+-------------+---------+-------------------+--------+
5 rows in set (0.036 sec)
```

C.TRUNCATE: It is used to delete all the rows from the table and free the space containing the table.

```
MariaDB [company]> Select * from Employee_details;
+--------+-------------+---------+-------------------+--------+
| Emp_Id | Name        | City    | Designation       | Salary |
+--------+-------------+---------+-------------------+--------+
|      3 | Santhosh    | Chennai | Python Developer  |  58000 |
|      4 | Satishwaran | Madurai | Mis_Executive     |  24000 |
|      5 | Johnson     | Salem   | HR                |  36000 |
+--------+-------------+---------+-------------------+--------+
3 rows in set (0.003 sec)

MariaDB [company]> Truncate table Employee_details;
Query OK, 0 rows affected (0.175 sec)

MariaDB [company]> select * from Employee_details;
Empty set (0.005 sec)

MariaDB [company]> Describe Employee_details;
+-------------+-------------+------+-----+---------+-------+
| Field       | Type        | Null | Key | Default | Extra |
+-------------+-------------+------+-----+---------+-------+
| Emp_Id      | int(11)     | YES  |     | NULL    |       |
| Name        | varchar(20) | YES  |     | NULL    |       |
| City        | varchar(20) | YES  |     | NULL    |       |
| Designation | varchar(20) | YES  |     | NULL    |       |
| Salary      | int(11)     | YES  |     | NULL    |       |
+-------------+-------------+------+-----+---------+-------+
5 rows in set (0.018 sec)
```

d. DROP: It is used to delete both the structure and record stored in the table.

```
MariaDB [company]> select * from Employee_details;
+--------+-------------+---------+-------------------+--------+
| Emp_Id | Name        | City    | Designation       | Salary |
+--------+-------------+---------+-------------------+--------+
|      3 | Santhosh    | Chennai | Python_developer  |  58000 |
|      4 | Satishwaran | Madurai | Mis_Executive     |  24000 |
|      5 | Johnson     | Salem   | HR                |  36000 |
+--------+-------------+---------+-------------------+--------+
3 rows in set (0.006 sec)

MariaDB [company]> drop table employee_details;
Query OK, 0 rows affected (0.244 sec)

MariaDB [company]> select * from Employee_details;
ERROR 1146 (42S02): Table 'company.employee_details' doesn't exist
MariaDB [company]> describe Employee_details;
ERROR 1146 (42S02): Table 'company.employee_details' doesn't exist
MariaDB [company]>
```

2. Data Manipulation Language

- DML commands are used to modify the database. It is responsible for all form of changes in the database.
- The command of DML is not auto-committed that means it can't permanently save all the changes in the database. They can be rollback.

Here are some commands that come under DML:

- INSERT
- UPDATE
- DELETE

a. **INSERT:** The INSERT statement is a SQL query. It is used to insert data into the row of a table.

```
MariaDB [company]> insert into Employee_details values(1,'Vinoth','Chennai','Data_Analyst',25000),
(2,'Karthi','Madurai','Software_Testing',38000),(3,'Santhosh','Chennai','Java_Developer',58000),(4
,'Satishwaran','Madurai','Mis_Executive',24000),(5,'Johnson','Chennai','HR',36000);
Query OK, 5 rows affected (0.102 sec)
Records: 5  Duplicates: 0  Warnings: 0
```

b. UPDATE: This command is used to update or modify the value of a column in the table.

```
MariaDB [company]> select * from Employee_details;
+--------+-------------+---------+------------------+--------+
| Emp_Id | Name        | City    | Designation      | Salary |
+--------+-------------+---------+------------------+--------+
|      1 | Vinoth      | Chennai | Data_Analyst     |  25000 |
|      2 | Karthi      | Madurai | Software_Testing |  38000 |
|      3 | Santhosh    | Chennai | Java_Developer   |  58000 |
|      4 | Satishwaran | Madurai | Mis_Executive    |  24000 |
|      5 | Johnson     | Chennai | HR               |  36000 |
+--------+-------------+---------+------------------+--------+
5 rows in set (0.002 sec)

MariaDB [company]> update Employee_details set Designation = 'Python Developer' where
Query OK, 1 row affected (0.121 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [company]> update Employee_details set City = 'Salem' where Name = 'Johnson';
Query OK, 1 row affected (0.051 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [company]> select * from Employee_details;
+--------+-------------+---------+------------------+--------+
| Emp_Id | Name        | City    | Designation      | Salary |
+--------+-------------+---------+------------------+--------+
|      1 | Vinoth      | Chennai | Data_Analyst     |  25000 |
|      2 | Karthi      | Madurai | Software_Testing |  38000 |
|      3 | Santhosh    | Chennai | Python Developer |  58000 |
|      4 | Satishwaran | Madurai | Mis_Executive    |  24000 |
|      5 | Johnson     | Salem   | HR               |  36000 |
+--------+-------------+---------+------------------+--------+
5 rows in set (0.010 sec)
```

c. DELETE: It is used to remove one or more row from a table.

```
MariaDB [company]> select * from Employee_details;
+--------+-------------+---------+------------------+--------+
| Emp_Id | Name        | City    | Designation      | Salary |
+--------+-------------+---------+------------------+--------+
|      1 | Vinoth      | Chennai | Data_Analyst     |  25000 |
|      2 | Karthi      | Madurai | Software_Testing |  38000 |
|      3 | Santhosh    | Chennai | Python Developer |  58000 |
|      4 | Satishwaran | Madurai | Mis_Executive    |  24000 |
|      5 | Johnson     | Salem   | HR               |  36000 |
+--------+-------------+---------+------------------+--------+
5 rows in set (0.016 sec)

MariaDB [company]> delete from Employee_details where Name = 'Karthi';
Query OK, 1 row affected (0.052 sec)

MariaDB [company]> delete from Employee_details where City = 'Chennai' and Designation = '
Query OK, 1 row affected (0.058 sec)

MariaDB [company]> select * from Employee_details;
+--------+-------------+---------+------------------+--------+
| Emp_Id | Name        | City    | Designation      | Salary |
+--------+-------------+---------+------------------+--------+
|      3 | Santhosh    | Chennai | Python Developer |  58000 |
|      4 | Satishwaran | Madurai | Mis_Executive    |  24000 |
|      5 | Johnson     | Salem   | HR               |  36000 |
+--------+-------------+---------+------------------+--------+
3 rows in set (0.003 sec)
```

3.Data Query Language

DQL is used to fetch the data from the database.

It uses only one command:

- SELECT

a. SELECT: This is the same as the projection operation of relational algebra. It is used to select the attribute based on the condition described by WHERE clause.

```
MariaDB [company]> select * from Employee_details;
+--------+-------------+---------+------------------+--------+
| Emp_Id | Name        | City    | Designation      | Salary |
+--------+-------------+---------+------------------+--------+
|      1 | Vinoth      | Chennai | Data_Analyst     |  25000 |
|      2 | Karthi      | Madurai | Software_Testing |  38000 |
|      3 | Santhosh    | Chennai | Java_Developer   |  58000 |
|      4 | Satishwaran | Madurai | Mis_Executive    |  24000 |
|      5 | Johnson     | Chennai | HR               |  36000 |
+--------+-------------+---------+------------------+--------+
5 rows in set (0.009 sec)
```