MYSQL

VINOTH D SILVA.I FEB-03-2023

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
                              Null | Key | Default | Extra
               Type
 Emp Id
                              YES
                int(11)
                                            NULL
 Name
                              YES
                varchar(20)
                                            NULL
 City
                varchar(20)
                              YES
 Designation
                varchar(20)
                               YES
 Salary
                int(11)
                               YES
 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
                                  Data_Analyst
      1 | Vinoth
                        Chennai
                                                     NULL
                                                                   25000
      2
          Karthi
                        Madurai
                                  Software Testing
                                                     NULL
                                                                   38000
                       | Chennai | Java Developer
      3 | Santhosh
                                                     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
                                 Designation
                       City
                                                    Salary
                                  Data Analyst
      1 | Vinoth
                        Chennai |
                                                      25000
                                  Software Testing
      2
          Karthi
                        Madurai
                                                      38000
                        Chennai | Java Developer
         Santhosh
                                                      58000
      3
          Satishwaran
                        Madurai
      4
                                  Mis Executive
                                                      24000
       5 Johnson
                       | Chennai | HR
                                                      36000
 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 2 3 4 5	Vinoth Karthi Santhosh Satishwaran Johnson	Chennai Madurai Chennai Madurai Chennai	Data_Analyst Software_Testing Java_Developer Mis_Executive HR	25000 38000 58000 24000 36000
TT				

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;

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	Emp_Id	Name	City	Designation	+ Salary
L	2	Karthi	Madurai	Software_Testing	38000
	3	Santhosh	Chennai	Java_Developer	58000
	4	Satishwaran	Madurai	Mis_Executive	24000

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
                                 Designation
                                                      Salary
                        City
                        Chennai | Python Developer
      3 | Santhosh
                                                       58000
                                  Mis Executive
          Satishwaran
                        Madurai
      4
                                                       24000
         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)
                                           NULL
                              YES
               varchar(20)
 Name
                              YES
                                           NULL
               varchar(20)
 City
                              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
                                Designation
                      City
                                                    Salary
                      | Chennai | Python developer |
      3 | Santhosh
                                                      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 (42502): 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

- o 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;
                                 Designation
 Emp Id | Name
                        City
                                                     Salary
      1 | Vinoth
                        Chennai | Data Analyst
                                                      25000
                       Madurai | Software_Testing
      2 | Karthi
                                                      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
                       | Madurai | Software_Testing
      2 Karthi
                                                      38000
                      | Chennai | Python Developer
      3 | Santhosh
                                                      58000
      4 | Satishwaran | Madurai | Mis Executive
                                                      24000
      5 Johnson
                       Salem
                                HR
                                                      36000
 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
                                 Software_Testing
                       Madurai
      2
          Karthi
                                                     38000
                       Chennai | Python Developer
      3 | Santhosh
                                                     58000
        | Satishwaran | Madurai | Mis Executive
      4
                                                     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;
                      City
                                Designation
 Emp Id | Name
                                                  Salary
      3 Santhosh
                       Chennai | Python Developer
                                                     58000
          Satishwaran | Madurai |
                                 Mis Executive
      4
                                                     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:

- o 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.

Emp_Id Name	City	Designation	Salary
1 Vinoth 2 Karthi 3 Santhosh 4 Satishwaran 5 Johnson	Chennai Madurai Chennai Madurai Chennai	Data_Analyst Software_Testing Java_Developer Mis_Executive HR	25000 38000 58000 24000 36000