TITLE:- DDL and DML in SQL

THEORY:-

DDL refers to the Data Definition Language. It is used to define and manage database structure. It includes create, alter, drop etc.

DML refers to Data manipulation Language. It is used to insert, delete or update the data. It includes insert, update, delete, select etc.

In this lab, we are going to explore the way to implement DDL and DML using command line tool.

A.) Login to the database:-

```
> mysql -u root -p ↵
```

B.) DDL commands:-

1.) Create database

```
-> create database college;
```

2.) Show databases

```
-> show databases;
```

3.) Use database

```
-> use college;
```

4.) Delete database

```
-> drop database college;
```

5.) Create table

```
-> create table department (
        dnumber int primary key,
        dname varchar (50),
        mgr_ssn int,
        mgr_start_date date
   );
```

-> create table employee(
eid int primary key,
name varchar(50),
dept_id int,
salary int,
join_date date
);

6.) Describe tables
-> describe employee;

7.) Delete a table
-> drop table employee;

8.) Delete contents of table (truncate table)
-> truncate table employee;

9.) Add / remove a column from table
⇒ Add a column
-> alter table employee
add phone
varchar(10);

⇒ Remove a column
-> alter table employee
drop column phone;

⇒ Alter a column's data type
-> alter table employee
alter column
phone varchar(13);

(.) DML commands:-

1.) Insert tuples into the relation:-

→ insert into employees values
(1, "Suresh", 10, 10000, '2080-10-12');

2.) Update data

→ ~~udt~~ update employees
set salary = 20000
where eid = 1;

3.) Delete data

→ delete from employees where eid = 1;

4.) View all records

→ Select * from employees;

CONCLUSION:-

Hence we have learned to implement different DDL and DML using SQL commands.

```
Suresh Dahal@ACONITIN c:\xampp
# mysql -u root -p
Enter password:
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 10
Server version: 10.4.32-MariaDB mariadb.org binary distribution

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.
```

Figure 1 login to the database server

```
MariaDB [(none)]> create database college;
Query OK, 1 row affected (0.001 sec)

MariaDB [(none)]> show databases;
+--------------------+
| Database           |
+--------------------+
| college            |
| information_schema |
| lab                |
| mysql              |
| performance_schema |
| phpmyadmin         |
| test               |
| wordpress          |
+--------------------+
8 rows in set (0.023 sec)
```

Figure 2 create database

```
MariaDB [(none)]> use college;
Database changed
MariaDB [college]>
```

Figure 3 use database

```
MariaDB [college]> drop database college;
Query OK, 0 rows affected (0.011 sec)

MariaDB [(none)]> show databases;
+--------------------+
| Database           |
+--------------------+
| information_schema |
| lab                |
| mysql              |
| performance_schema |
| phpmyadmin         |
| test               |
| wordpress          |
+--------------------+
7 rows in set (0.001 sec)
```

Figure 4 delete database

```
MariaDB [college]> create table department (dnumber int primary key, dname varchar(
50), mgr_ssn int, mgr_start_date date);
Query OK, 0 rows affected (0.012 sec)

MariaDB [college]> create table employee (eid int primary key, name varchar(50), de
pt_id int, salary int, join_date date);
Query OK, 0 rows affected (0.045 sec)

MariaDB [college]> show tables;
+-------------------+
| Tables_in_college |
+-------------------+
| department        |
| employee          |
+-------------------+
2 rows in set (0.001 sec)
```

Figure 5 create table

```
MariaDB [college]> describe employee;
+-----------+-------------+------+-----+---------+-------+
| Field     | Type        | Null | Key | Default | Extra |
+-----------+-------------+------+-----+---------+-------+
| eid       | int(11)     | NO   | PRI | NULL    |       |
| name      | varchar(50) | YES  |     | NULL    |       |
| dept_id   | int(11)     | YES  |     | NULL    |       |
| salary    | int(11)     | YES  |     | NULL    |       |
| join_date | date        | YES  |     | NULL    |       |
+-----------+-------------+------+-----+---------+-------+
5 rows in set (0.050 sec)
```

Figure 6 describe table

```
MariaDB [college]> drop table employee;
Query OK, 0 rows affected (0.070 sec)

MariaDB [college]> show tables;
+-------------------+
| Tables_in_college |
+-------------------+
| department        |
+-------------------+
1 row in set (0.000 sec)
```

Figure 7 delete table

```
MariaDB [college]> insert into employee values (1, "Suresh", 10, 10000, '2078-10-12
');
Query OK, 1 row affected (0.040 sec)

MariaDB [college]> select * from employee;
+-----+--------+---------+--------+------------+
| eid | name   | dept_id | salary | join_date  |
+-----+--------+---------+--------+------------+
|   1 | Suresh |      10 |  10000 | 2078-10-12 |
+-----+--------+---------+--------+------------+
1 row in set (0.000 sec)
```

Figure 8 insert data into the table

```
MariaDB [college]> select * from employee;
+-----+--------+---------+--------+------------+
| eid | name   | dept_id | salary | join_date  |
+-----+--------+---------+--------+------------+
|   1 | Suresh |      10 |  10000 | 2078-10-12 |
+-----+--------+---------+--------+------------+
1 row in set (0.000 sec)

MariaDB [college]> truncate table employee;
Query OK, 0 rows affected (0.010 sec)

MariaDB [college]> select * from employee;
Empty set (0.000 sec)
```

Figure 9 view all records from a relation

```
MariaDB [college]> alter table employee add phone varchar(10);
Query OK, 0 rows affected (0.042 sec)
Records: 0  Duplicates: 0  Warnings: 0
```

Figure 10 add new column to the table

```
MariaDB [college]> alter table employee modify column phone varchar(13);
Query OK, 0 rows affected (0.042 sec)
Records: 0  Duplicates: 0  Warnings: 0

MariaDB [college]> describe employee;
+-----------+-------------+------+-----+---------+-------+
| Field     | Type        | Null | Key | Default | Extra |
+-----------+-------------+------+-----+---------+-------+
| eid       | int(11)     | NO   | PRI | NULL    |       |
| name      | varchar(50) | YES  |     | NULL    |       |
| dept_id   | int(11)     | YES  |     | NULL    |       |
| salary    | int(11)     | YES  |     | NULL    |       |
| join_date | date        | YES  |     | NULL    |       |
| phone     | varchar(13) | YES  |     | NULL    |       |
+-----------+-------------+------+-----+---------+-------+
6 rows in set (0.050 sec)
```

Figure 11 modify the data type of the column

```
MariaDB [college]> alter table employee drop column phone;
Query OK, 0 rows affected (0.042 sec)
Records: 0  Duplicates: 0  Warnings: 0

MariaDB [college]> describe employee;
+-----------+-------------+------+-----+---------+-------+
| Field     | Type        | Null | Key | Default | Extra |
+-----------+-------------+------+-----+---------+-------+
| eid       | int(11)     | NO   | PRI | NULL    |       |
| name      | varchar(50) | YES  |     | NULL    |       |
| dept_id   | int(11)     | YES  |     | NULL    |       |
| salary    | int(11)     | YES  |     | NULL    |       |
| join_date | date        | YES  |     | NULL    |       |
+-----------+-------------+------+-----+---------+-------+
5 rows in set (0.012 sec)
```

Figure 12 delete a column from a relation

```
MariaDB [college]> update employee set salary=20000 where eid = 1;
Query OK, 1 row affected (0.040 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [college]> select * from employee;
+-----+--------+---------+--------+------------+
| eid | name   | dept_id | salary | join_date  |
+-----+--------+---------+--------+------------+
|   1 | Suresh |      10 |  20000 | 2078-10-12 |
+-----+--------+---------+--------+------------+
1 row in set (0.000 sec)
```

Figure 13 update tuple of a relation

```
MariaDB [college]> delete from employee where eid = 1;
Query OK, 1 row affected (0.002 sec)

MariaDB [college]> select * from employee;
Empty set (0.000 sec)
```

Figure 14 delete a tuple from a relation