EXPERIMENT 1

Aim: To study and perform DDL and DML operations using SQL.

Software Used: MySQL

Theory:

Data Definition Language:

DDL or Data Definition Language consists of SQL commands that can be used to define the database schema. It simply deals with descriptions of the database schema and is used to create and modify the structure of database objects in the database. DDL commands are used to structure databases, not data. Following DDL commands were used and performed using SQL.

1) **CREATE**: This command is used to create the database or its objects.

```
mysql> create database Amity;
Query OK, 1 row affected (0.00 sec)
```

```
mysql> use Amity;
Database changed
mysql> create table Customer(CustomerID int primary key,Name varchar(20),Age int(3),Contact int(12));
Query OK, 0 rows affected, 2 warnings (0.04 sec)
```

Figure: SQL Query

```
mysql> desc Customer;
+------------+-------------+------+-----+---------+-------+
| Field      | Type        | Null | Key | Default | Extra |
+------------+-------------+------+-----+---------+-------+
| CustomerID | int         | NO   | PRI | NULL    |       |
| Name       | varchar(20) | YES  |     | NULL    |       |
| Age        | int         | YES  |     | NULL    |       |
| Contact    | int         | YES  |     | NULL    |       |
+------------+-------------+------+-----+---------+-------+
4 rows in set (0.03 sec)
```

Figure: Table

2) **DROP**: This command is used to delete objects from the database.

```
mysql> drop database Amity;
Query OK, 1 row affected (0.02 sec)
```

Figure: SQL Query

```
mysql> use Amity;
ERROR 1049 (42000): Unknown database 'amity'
```

Figure: Before and after query

3) **ALTER**: This is used to alter the structure of the database.

```
mysql> alter table Customer add Marks int;
Query OK, 0 rows affected (0.05 sec)
Records: 0  Duplicates: 0  Warnings: 0
```

Figure: SQL Query

```
mysql> desc Customer;
+------------+-------------+------+-----+---------+-------+
| Field      | Type        | Null | Key | Default | Extra |
+------------+-------------+------+-----+---------+-------+
| CustomerID | int         | NO   | PRI | NULL    |       |
| Name       | varchar(20) | YES  |     | NULL    |       |
| Age        | int         | YES  |     | NULL    |       |
| Contact    | int         | YES  |     | NULL    |       |
| Marks      | int         | YES  |     | NULL    |       |
+------------+-------------+------+-----+---------+-------+
5 rows in set (0.00 sec)
```

Figure: Altered Table

4) **TRUNCATE**: This is used to remove all records from a table, including all spaces allocated for the records are removed.

```
mysql> truncate table Student;
Query OK, 0 rows affected (0.02 sec)

mysql> desc Student;
+------------+-------------+------+-----+---------+-------+
| Field      | Type        | Null | Key | Default | Extra |
+------------+-------------+------+-----+---------+-------+
| CustomerID | int         | NO   | PRI | NULL    |       |
| Name       | varchar(20) | YES  |     | NULL    |       |
| Age        | int         | YES  |     | NULL    |       |
| Contact    | int         | YES  |     | NULL    |       |
+------------+-------------+------+-----+---------+-------+
4 rows in set (0.00 sec)
```

Figure: Database

5) **RENAME**: It is used to rename an object existing in the database, or to rename the table

```
mysql> alter table Customer rename to Student;
Query OK, 0 rows affected (0.01 sec)

mysql> desc Student;
+------------+-------------+------+-----+---------+-------+
| Field      | Type        | Null | Key | Default | Extra |
+------------+-------------+------+-----+---------+-------+
| CustomerID | int         | NO   | PRI | NULL    |       |
| Name       | varchar(20) | YES  |     | NULL    |       |
| Age        | int         | YES  |     | NULL    |       |
| Contact    | int         | YES  |     | NULL    |       |
+------------+-------------+------+-----+---------+-------+
4 rows in set (0.00 sec)
```

Figure: SQL Query and before and after query

Data Manipulation Language:

DML or Data Manipulation Language is used to deal with the manipulation of data present in a database. They allow an administrator to control access to data and to the database.

1) **INSERT**: It is used to insert data into a table.

```
mysql> insert into Customer values(1,'Ashish',40,985674589);
Query OK, 1 row affected (0.01 sec)

mysql> insert into Customer values(2,'Gupta',43,985674556);
Query OK, 1 row affected (0.00 sec)
```

Figure: SQL Query and before and after query

2) **UPDATE**: It is used to update existing data within a table.

```
mysql> update Student set Name="Ram",Age=20,Contact=987654321 where CustomerID=2;
Query OK, 1 row affected (0.01 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> select * from Student;
+------------+--------+------+-----------+
| CustomerID | Name   | Age  | Contact   |
+------------+--------+------+-----------+
|          1 | Ashish |   40 | 985674589 |
|          2 | Ram    |   20 | 987654321 |
+------------+--------+------+-----------+
2 rows in set (0.00 sec)
```

Figure: Query and Database before and after query

3) **DELETE**: It is used to delete records from a database table.

```
mysql> delete from Student where CustomerID=2;
Query OK, 1 row affected (0.01 sec)

mysql> select * from Student;
+------------+--------+------+-----------+
| CustomerID | Name   | Age  | Contact   |
+------------+--------+------+-----------+
|          1 | Ashish |   40 | 985674589 |
+------------+--------+------+-----------+
1 row in set (0.00 sec)
```

Figure: Delete record

4) **LOCK**: It is used to take control of concurrency in an SQL server.

Conclusion: DDL (Data Definition Language) and DML (Data Manipulation Language) commands were performed using MySQL.