LAB ASSIGNMENT 1 (SUBJECT: DBMS)

(Please use this format for doing assignments)

SUBMISSION DATE: 17/01/2021

NAME OF STUDENT: Ravi Maurya

BRANCH: Information Technology

ID: 191080080

AIM: Study of DDL and DML operations on database Tables using SQL.

TOOL: MariaDB (If any other tool, please mention the name)

PROGRAMMING LANGUAGE: Structured Query language (SQL)

THEORY:

1. SQL: SQL stands for Structured Query Language. It is designed for managing data in a relational database management system (RDBMS). SQL is a database language, It is used of creation, deletion, modifying rows and columns, etc. SQL are like English Statements. It allows the user to interact with the database system.

2. DDL and DML Commands:

DDL stands for Data Definition Language. It actually contains the SQL Commands that can be used to define the database schema. It simply deals with the description of the database which would be used to create and modify.

E.g., of DDL Commands: CREATE, DROP, ALTER, etc.

DML stands for Data Manipulation Language. It deals with the manipulation of data present in the database.

E.g., of DML Commands: SELECT, INSERT, UPDATE, DELETE, etc.

OPERATIONS EXECUTED: (MENTION THE LIST AS IT)

- 1. Create Database: create database database name;
- 2. Use Database: use database name;
- 3. Show Databases: show databases;
- 4. Drop database: create database database name;
- 5. Create Table
- 6. Describe Table
- 7. Show create table table_name
- 8. Insert into Table (2 formats)

- 9. Insert Null values in table
- 10. Select queries (with and without *)
- 11. Select Null values from table
- 12. Alter table (Add Column): alter table table name add column name datatype;
- 13. Alter table (Drop Column): alter table table name drop column name
- 14. Alter table (Change Column's data type): alter table table_name modify column_name new datatype;
- 15. Alter table (Change Column's name): alter table table_name change old_column_name new_column_name datatype_to_be_assigned;
- 16. Update: update table name set column name = value where column name = value
- 17. Delete: delete from table name where column name = value
- 18. Truncate: truncate table table_name / truncate table_name
- 19. Drop: drop table table_name (Use of upward arrow key)
- 20. Rename table name: alter table old table_name rename new_table_name OR rename table old table name to new table name

OUTPUT:

MariaDB [(none)]> create database BookStore;
Query OK, 1 row affected (0.151 sec)
MariaDB [(none)]> show databases;
++
Database
++
bookstore
information_schema
mysql
performance_schema
taperback
test
++
6 rows in set (0.038 sec)

MariaDB [(none)]> use bookstore;
Database changed
MariaDB [bookstore]> drop database bookstore;
Query OK, 0 rows affected (1.164 sec)
MariaDB [(none)] > show databases;
++ Database
++
information_schema
mysql
performance_schema
taperback
test
++
5 rows in set (0.001 sec)
MariaDB [(none)]> create database BookStore;
Query OK, 1 row affected (0.002 sec)
MariaDB [(none)]> use bookstore;
Database changed
MariaDB [bookstore]> create table books(id int, name varchar(20), author varchar(15) rating real);
Query OK, 0 rows affected (0.616 sec)
MariaDB [bookstore] > show tables;

Tables_in_bookstore ++		
books ++		
1 row in set (0.001 sec)		
MariaDB [bookstore]> describe books;		
++ Field Type Null Key Default Extra ++		
id int(11) YES NULL		
rating double YES NULL ++		
4 rows in set (0.136 sec)		
MariaDB [bookstore]> show create table books;		
Table	Create	Table
++		
books CREATE TABLE `books` (
'name' varchar(20) DEFAULT NULL,		
'author' varchar(15) DEFAULT NULL,		
'rating' double DEFAULT NULL		

```
) ENGINE=InnoDB DEFAULT CHARSET=latin1 |
1 row in set (0.035 sec)
MariaDB [bookstore] insert into books values(1, "Harry Potter", "JK Rowling", 4.5);
Query OK, 1 row affected (0.297 sec)
MariaDB [bookstore] > insert into books values(2, "Percy Jackson", "Rick Riordan", 4.4);
Query OK, 1 row affected (0.057 sec)
MariaDB [bookstore] > select * from books;
+----+
          | author | rating |
| id | name
+----+
1 | Harry Potter | JK Rowling | 4.5 |
  2 | Percy Jackson | Rick Riordan | 4.4 |
+----+
2 rows in set (0.033 sec)
MariaDB [bookstore]> select name from books;
+----+
name
+----+
| Harry Potter |
| Percy Jackson |
+----+
2 rows in set (0.000 sec)
```

```
Query OK, 1 row affected (0.041 sec)
MariaDB [bookstore] > select * from books;
+----+
               | author | rating |
| id | name
+-----+
| 1 | Harry Potter | JK Rowling | 4.5 |
| 2 | Percy Jackson | Rick Riordan | 4.4 |
 3 | Song of Ice and Fire | Martin | NULL |
+----+
3 rows in set (0.000 \text{ sec})
MariaDB [bookstore] > select rating from books;
+----+
| rating |
+----+
| 4.5 |
| 4.4 |
| NULL |
+----+
3 rows in set (0.000 sec)
MariaDB [bookstore]> insert into books set id=4, name="Lord of Rings", author="Tolkein",
rating=4.2;
Query OK, 1 row affected (0.058 sec)
MariaDB [bookstore] > insert into books(id,name) values(5, "Hobbit");
Query OK, 1 row affected (0.095 sec)
```

MariaDB [bookstore]> insert into books values(3, "Song of Ice and Fire", "Martin", NULL);

MariaDB [bookstore] > select * from books; +----+ | id | name | author | rating | +----+ | 1 | Harry Potter | JK Rowling | 4.5 | 2 | Percy Jackson | Rick Riordan | 4.4 | 3 | Song of Ice and Fire | Martin | NULL | 4 | Lord of Rings | Tolkein | 4.2 | |NULL | NULL| 5 | Hobbit +----+ 5 rows in set (0.000 sec)MariaDB [bookstore] > select * from books where id=4; +----+ | id | name | author | rating | +----+ 4 | Lord of Rings | Tolkein | 4.2 | +----+ 1 row in set (0.065 sec) MariaDB [bookstore] > select * from books where rating is NULL; +----+ | author | rating | | id | name +----+ 3 | Song of Ice and Fire | Martin | NULL | | 5 | Hobbit |NULL | NULL|

+----+

2 rows in set (0.033 sec)

MariaDB [bookstore]> alter table books add year int;

Query OK, 0 rows affected (0.409 sec)

Records: 0 Duplicates: 0 Warnings: 0

MariaDB [bookstore] > describe books;

MariaDB [bookstore]> select * from books;

5 rows in set (0.028 sec)

MariaDB [bookstore]> alter table books drop year;

Query OK, 0 rows affected (0.212 sec)

Records: 0 Duplicates: 0 Warnings: 0

MariaDB [bookstore]> select * from books;

++	+
id name	author rating
++	+
1 Harry Potter	JK Rowling 4.5
2 Percy Jackson	Rick Riordan 4.4
3 Song of Ice an	d Fire Martin NULL
4 Lord of Rings	Tolkein 4.2
5 Hobbit	NULL NULL
++	+

MariaDB [bookstore] > alter table books modify id varchar(10);

Query OK, 5 rows affected (1.078 sec)

5 rows in set (0.011 sec)

Records: 5 Duplicates: 0 Warnings: 0

MariaDB [bookstore]> select * from books;

+	+	+	+
id	name	author	rating
+	+	+	+
1	Harry Potter	JK Rov	vling 4.5
12	Percy Jackson	Rick I	Riordan 4.4

```
| 3 | Song of Ice and Fire | Martin | NULL |
| 4 | Lord of Rings | Tolkein | 4.2 |
| 5 | Hobbit
          |NULL | NULL|
+----+
5 rows in set (0.010 sec)
MariaDB [bookstore] > describe books;
+-----+
| Field | Type | Null | Key | Default | Extra |
+----+
| id | varchar(10) | YES | NULL | |
name | varchar(20) | YES | NULL |
author | varchar(15) | YES | NULL |
| rating | double | YES | NULL | |
+----+
4 rows in set (0.051 \text{ sec})
MariaDB [bookstore] > alter table books change name bookname varchar(30);
Query OK, 0 rows affected (0.148 sec)
Records: 0 Duplicates: 0 Warnings: 0
MariaDB [bookstore] > describe books;
+----+
| Field | Type | Null | Key | Default | Extra |
+-----+
    | varchar(10) | YES | NULL |
| id
| bookname | varchar(30) | YES | NULL |
author | varchar(15) | YES | NULL |
```

rating double YES NULL
++ 4 rows in set (0.040 sec)
MariaDB [bookstore]> select * from books ;
id bookname author rating
++
1 Harry Potter JK Rowling 4.5
2 Percy Jackson Rick Riordan 4.4
3 Song of Ice and Fire Martin NULL
4 Lord of Rings Tolkein 4.2
5 Hobbit NULL NULL
++
5 rows in set (0.000 sec)
MariaDB [bookstore]> alter table books change id bookid int;
Query OK, 5 rows affected (1.568 sec)
Records: 5 Duplicates: 0 Warnings: 0
MariaDB [bookstore]> update books set author="Tolkein" where bookid=5;
Query OK, 1 row affected (0.097 sec)
Rows matched: 1 Changed: 1 Warnings: 0
MariaDB [bookstore]> select * from books;
++
bookid bookname author rating

```
1 | Harry Potter | JK Rowling | 4.5 |
   2 | Percy Jackson | Rick Riordan | 4.4 |
   3 | Song of Ice and Fire | Martin | NULL |
   4 | Lord of Rings | Tolkein | 4.2 |
            |Tolkein | NULL |
   5 | Hobbit
+-----+
5 rows in set (0.000 \text{ sec})
MariaDB [bookstore]> delete from books where bookname="Hobbit";
Query OK, 1 row affected (0.101 sec)
MariaDB [bookstore] > select * from books;
+-----+
| bookid | bookname | author | rating |
+-----+
   1 | Harry Potter | JK Rowling | 4.5 |
   2 | Percy Jackson | Rick Riordan | 4.4 |
   3 | Song of Ice and Fire | Martin | NULL |
   4 | Lord of Rings | Tolkein | 4.2 |
+-----+
4 rows in set (0.000 sec)
MariaDB [bookstore] > create table movies(id int, name varchar(30), director varchar(30));
Query OK, 0 rows affected (0.185 sec)
MariaDB [bookstore] > show tables;
+----+
| Tables in bookstore |
```

```
+----+
books
movies
+----+
2 rows in set (0.023 sec)
MariaDB [bookstore] > insert into movies values(1, "Soul", "Chris");
Query OK, 1 row affected (0.054 sec)
MariaDB [bookstore] > insert into movies values(2, "Inside out", "Daniel");
Query OK, 1 row affected (0.035 sec)
MariaDB [bookstore] > select * from movies;
+----+
| id | name | director |
+----+
| 1 | Soul | Chris |
| 2 | Inside out | Daniel |
+----+
2 rows in set (0.000 \text{ sec})
MariaDB [bookstore]> truncate table movies;
Query OK, 0 rows affected (0.374 sec)
MariaDB [bookstore] > select * from movies;
Empty set (0.001 sec)
```

MariaDB [bookstore]> drop table movies;

Query OK, 0 rows affected (0.297 sec)

MariaDB [bookstore]> show tables;
++
Tables_in_bookstore
++
books
++
1 row in set (0.001 sec)
MariaDB [bookstore]> alter table books rename novels;
Query OK, 0 rows affected (0.156 sec)
MariaDB [bookstore]> show tables;
++
Tables_in_bookstore
++
novels
++
1 row in set (0.001 sec)
MariaDB [bookstore]> rename table novels to books;
Query OK, 0 rows affected (0.188 sec)
MariaDB [bookstore]> show tables;
++
Tables_in_bookstore
++

SNAPSHOTS OF YOUR CODE:

```
C:\Windows\System32>mysql -u root -p
Enter password: ****
Welcome to the MariaDB monitor. Commands end with ; or \g.
Your MariaDB connection id is 5
Server version: 10.5.8-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.

MariaDB [(none)]>
```

```
MariaDB [(none)]> create database BookStore;
Query OK, 1 row affected (0.002 sec)
MariaDB [(none)]> use bookstore;
Database changed
```

```
MariaDB [bookstore]> show tables;
 Tables_in_bookstore |
 row in set (0.001 sec)
MariaDB [bookstore]> describe books;
 Field | Type | Null | Key | Default | Extra |
 id | int(11) | YES |
name | varchar(20) | YES |
author | varchar(15) | YES |
                                             NULL
                                             NULL
  rating | double
                            YES
                                            NULL
 rows in set (0.136 sec)
MariaDB [bookstore]> show create table books;
 Table | Create Table
  books | CREATE TABLE `books` (
   id` int(11) DEFAULT NULL,

name` varchar(20) DEFAULT NULL,

author` varchar(15) DEFAULT NULL,

rating` double DEFAULT NULL
  ENGINE=InnoDB DEFAULT CHARSET=latin1 |
  row in set (0.035 sec)
```

```
MariaDB [bookstore]> insert into books values(1, "Harry Potter", "JK Rowling", 4.5);
Query OK, 1 row affected (0.297 sec)
MariaDB [bookstore]> insert into books values(2, "Percy Jackson", "Rick Riordan", 4.4);
Query OK, 1 row affected (0.057 sec)
MariaDB [bookstore]> select * from books;
                        | author | rating |
 id | name
    1 | Harry Potter | JK Rowling |
2 | Percy Jackson | Rick Riordan |
                                             4.5
                                             4.4
2 rows in set (0.033 sec)
MariaDB [bookstore]> select name from books;
 name
  Harry Potter
  Percy Jackson
2 rows in set (0.000 sec)
MariaDB [bookstore]> insert into books values(3, "Song of Ice and Fire", "Martin", NULL);
Query OK, 1 row affected (0.041 sec)
MariaDB [bookstore]> select * from books;
                                                 | rating |
 id | name
                                 author
                                  JK Rowling
                                                      4.5
     1 | Harry Potter
                                 Rick Riordan
     2 | Percy Jackson
                                                      4.4
     3 | Song of Ice and Fire | Martin
                                                     NULL
3 rows in set (0.000 sec)
MariaDB [bookstore]> select rating from books;
 rating
    4.5
    4.4
    NULL
 rows in set (0.000 sec)
```

```
MariaDB [bookstore]> insert into books set id=4, name="Lord of Rings", author="Tolkein", rating=4.2;
Query OK, 1 row affected (0.058 sec)
MariaDB [bookstore]> select * from books;
  id | name
                                                           | rating |
                                         author
     1 | Harry Potter | JK Rowling |
2 | Percy Jackson | Rick Riordan |
3 | Song of Ice and Fire | Martin |
4 | Lord of Rings | Tolkein |
                                                                 4.5
4.4
                                                                  NULL
                                                                   4.2
  rows in set (0.000 sec)
MariaDB [bookstore]> insert into books(id,name) values(5, "Hobbit");
Query OK, 1 row affected (0.095 sec)
MariaDB [bookstore]> select * from books;
  id | name | author | rating |
    1 | Harry Potter | JK Rowling | 4.5 |
2 | Percy Jackson | Rick Riordan | 4.4 |
3 | Song of Ice and Fire | Martin | NULL |
4 | Lord of Rings | Tolkein | 4.2 |
5 | Hobbit | NULL | NULL |
  rows in set (0.000 sec)
MariaDB [bookstore]> select * from books where id=4;
 id | name | author | rating |
   4 | Lord of Rings | Tolkein | 4.2 |
1 row in set (0.065 sec)
```

```
MariaDB [bookstore]> alter table books add year int;
Query OK, 0 rows affected (0.409 sec)
Records: 0 Duplicates: 0 Warnings: 0
```

```
MariaDB [bookstore]> truncate table movies;
Query OK, 0 rows affected (0.374 sec)
MariaDB [bookstore]> select * from movies;
Empty set (0.001 sec)
```

(Please Note: A viva will be taken in October based on your individual assignments. Please do not copy paste the contents from others writeups.)

******End of the Assignment*****