EXPERIMENT NO. 8

AIM:- Perform DCL and TCL Commands

OBJECTIVES :-Implementation DCL and TCL Commands

THEORY:-

DCL is abbreviation of **Data Control Language**.

It is used to create roles, permissions, and referential integrity as well it is used to control access to database by securing it.

- GRANT – Gives user's access privileges to database
- REVOKE – Withdraws user's access privileges to database given with the GRANT command

1) GRANT Command:-

Create a user by root and provide password to user-

create user ' username'@'localhost'identified by'password';

```
mysql> create user 'archana'@'localhost' identified by 'ajk123';
Query OK, 0 rows affected (0.00 sec)
```

To allow a user create privileges for creatingatabase,tables,views -

grant create on *.* to 'username'@'localhost';

```
mysql> grant create on *.* to 'archana'@'localhost';
Query OK, 0 rows affected (0.00 sec)
```

To allow the user all the privileges-

grant all on *.* to 'username'@'localhost';

```
mysql> grant all on *.* to 'archana'@'localhost';
Query OK, 0 rows affected (0.00 sec)
```

2) REVOKE Command:-

Remove create privileges fromuser-

revoke create on *.* from'username'@'localhost';

Remove all privileges fromuser-

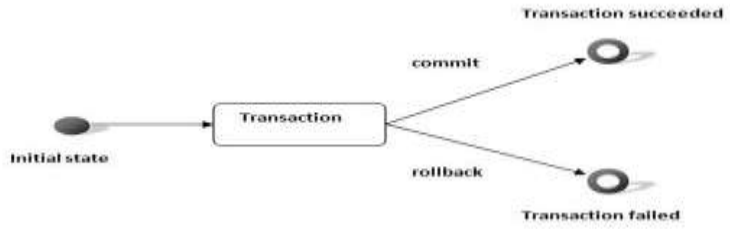
Revoke all on *.* from'username'@'localhost';

```
mysql> revoke all on *.* from 'archana'@'localhost' ;
Query OK, 0 rows affected (0.00 sec)
```

TCL is abbreviation of **Transactional Control Language**. It is used to manage different transactions occurring within a database.

- COMMIT – Saves work done in transactions
- ROLLBACK – Restores database to original state since the last COMMIT command in transactions
- SAVE TRANSACTION – Sets a savepoint within a transaction

The following is diagram for transaction Control System



- **BEGIN:** To initiate a transaction.
- **COMMIT:** To save changes. After the commit command, the transaction can't rollback.
- **SAVEPOINT:** Provides points where the transaction can rollback to.
- **ROLLBACK**: To rollback to a previous saved state.

```
mysql> set autocommit=0;
Query OK, 0 rows affected (0.00 sec)

mysql> create table student(rollno int, name varchar(90),address varchar(90),mobile_no bigint);
Query OK, 0 rows affected (0.04 sec)

mysql> insert into student values(1,'archana kotangale','thane',9898989898);
Query OK, 1 row affected (0.00 sec)

mysql> insert into student values(2,'atharva bhaisare','mumbai',9090909090);
Query OK, 1 row affected (0.00 sec)

mysql> select * from student;
+--------+-------------------+---------+------------+
| rollno | name              | address | mobile_no  |
+--------+-------------------+---------+------------+
|      1 | archana kotangale | thane   | 9898989898 |
|      2 | atharva bhaisare  | mumbai  | 9090909090 |
+--------+-------------------+---------+------------+
2 rows in set (0.00 sec)

mysql> rollback;
Query OK, 0 rows affected (0.01 sec)

mysql> select * from student;
Empty set (0.00 sec)
```

```
mysql> set autocommit=0;
Query OK, 0 rows affected (0.00 sec)

mysql> create table student(rollno int, name varchar(90),address varchar(90),mobile_no bigint);
Query OK, 0 rows affected (0.04 sec)

mysql> insert into student values(1,'archana kotangale','thane',9898989898);
Query OK, 1 row affected (0.01 sec)

mysql> insert into student values(2,'atharva bhaisare','mumbai',9090909090);
Query OK, 1 row affected (0.00 sec)

mysql> select * from student;
+--------+-------------------+---------+------------+
| rollno | name              | address | mobile_no  |
+--------+-------------------+---------+------------+
|      1 | archana kotangale | thane   | 9898989898 |
|      2 | atharva bhaisare  | mumbai  | 9090909090 |
+--------+-------------------+---------+------------+
2 rows in set (0.00 sec)

mysql> commit;
Query OK, 0 rows affected (0.01 sec)

mysql> rollback;
Query OK, 0 rows affected (0.00 sec)

mysql> select * from student;
+--------+-------------------+---------+------------+
| rollno | name              | address | mobile_no  |
+--------+-------------------+---------+------------+
|      1 | archana kotangale | thane   | 9898989898 |
|      2 | atharva bhaisare  | mumbai  | 9090909090 |
+--------+-------------------+---------+------------+
2 rows in set (0.00 sec)
```

```
mysql> insert into student values(1,'archana kotangale','thane',9898989898);
Query OK, 1 row affected (0.01 sec)

mysql> insert into student values(2,'atharva bhaisare','mumbai',9090909090);
Query OK, 1 row affected (0.00 sec)

mysql> select * from student;
+--------+-------------------+---------+------------+
| rollno | name              | address | mobile_no  |
+--------+-------------------+---------+------------+
|      1 | archana kotangale | thane   | 9898989898 |
|      2 | atharva bhaisare  | mumbai  | 9090909090 |
+--------+-------------------+---------+------------+
2 rows in set (0.00 sec)

mysql> savepoint A;
Query OK, 0 rows affected (0.00 sec)

mysql> insert into student values(3,'avnish patil','thane',9191919191);
Query OK, 1 row affected (0.00 sec)

mysql> insert into student values(4,'karan rathod','pune',9393929393);
Query OK, 1 row affected (0.00 sec)

mysql> rollback to savepoint A;
Query OK, 0 rows affected (0.00 sec)

mysql> select * from student;
+--------+-------------------+---------+------------+
| rollno | name              | address | mobile_no  |
+--------+-------------------+---------+------------+
|      1 | archana kotangale | thane   | 9898989898 |
|      2 | atharva bhaisare  | mumbai  | 9090909090 |
+--------+-------------------+---------+------------+
2 rows in set (0.00 sec)
```

CONCLUSION :- hence studied DCL and TCL commands.