Experiment No.7
Perform DCL and TCL commands.
Date of Performance:
Date of Submission:

Aim :- Write a query to implement Data Control Language(DCL) and Transaction Control Language(TCL) commands

Objective :- To learn DCL commands like Grant and Revoke privileges to the user and TCL commands to commit the transactions and recover it using rollback and save points.

Theory:

Data Control Language:

DCL commands are used to grant and take back authority from any database user.

- o Grant
- o Revoke

a. Grant: It is used to give user access privileges to a database.

Example

```
1. GRANT SELECT, UPDATE ON MY TABLE TO SOME USER,
   ANOTHER USER;
```

b. Revoke: It is used to take back permissions from the user.

Example

```
1. REVOKE SELECT, UPDATE ON MY TABLE FROM USERI, USER2;
```

Transaction Control Language:

TCL commands can only use with DML commands like INSERT, DELETE and UPDATE only.

These operations are automatically committed in the database that's why they cannot be used while creating tables or dropping them.

Here are some commands that come under TCL:

- o COMMIT
- o ROLLBACK
- o SAVEPOINT

a. Commit: Commit command is used to save all the transactions to the database.

Syntax:

```
1. COMMIT;
```

Example :

```
1.DELETE FROM CUSTOMERS
2.  WHERE AGE =25•,
3.  COMMIT;
```

b. Rollback: Rollback command is used to undo transactions that have not already been saved to the database.

Syntax:

```
1.  ROLLBACK;
```

Example :

```
1.  DELETE FROM CUSTOMERS
2.  WHERE AGE -25;
3.  ROLLBACK;
```

c. SAVEPOINT: It is used to roll the transaction back to a certain point without rolling back the entire transaction.

Syntax:

```
2. SAVEPOINT SAVEPOINT NAME;
```

Implementation:

1)DCL command:

a)Grant:

```
GRANT SELECT,INSERT,UPDATE,DELETE ON ONLINE_MOVIE_TICKET_BOOKING.BOOKING TO 'root'@'localhost'
```

#	Time	Action	Message	Duration / Fetch
1	17:21:02	GRANT SELECT,INSERT,UPDATE,DELETE ON O...	0 row(s) affected	0.016 sec

b)Revoke:

```
REVOKE SELECT,INSERT,UPDATE,DELETE ON ONLINE_MOVIE_TICKET_BOOKING.BOOKING from 'root'@'localhost';
```

2	17:22:32	REVOKE SELECT,INSERT,UPDATE,DELETE ON ONLINE_...	0 row(s) affected	0.031 sec

2)TCL command:

```
-- Start a transaction
START TRANSACTION;
-- MAKE SOME CHNAGES (UPDATE PRICE)
UPDATE MOVIE SET MOVIE_PRICE= 1200 WHERE MOVIE_ID=1;
-- Set a savepoint
SAVEPOINT AFTER_PRICE_UPDATE;
-- COMMIT THE TRANSACTION
COMMIT;
-- ROLLBACK CHANGES MADE
START TRANSACTION;
-- SET ANOTTHER SAVEPOINT
SAVEPOINT BEFORE_DELETE;
DELETE FROM MOVIE WHERE MOVIE_ID= 1;
-- ROLLBACK TO THE SAVEPOINT BEFORE DELETE
ROLLBACK TO SAVEPOINT BEFORE_DELETE
```

#	Time	Action	Message	Duration / Fetch
1	17:33:36	START TRANSACTION	0 row(s) affected	0.000 sec
2	17:33:36	UPDATE MOVIE SET MOVIE_PRICE= 1200 WHERE M...	0 row(s) affected Rows matched: 1 Changed: 0 Warning...	0.000 sec
3	17:33:36	SAVEPOINT AFTER_PRICE_UPDATE	0 row(s) affected	0.000 sec
4	17:33:36	COMMIT	0 row(s) affected	0.000 sec
5	17:33:36	START TRANSACTION	0 row(s) affected	0.000 sec
6	17:33:36	SAVEPOINT BEFORE_DELETE	0 row(s) affected	0.000 sec
7	17:33:36	DELETE FROM MOVIE WHERE MOVIE_ID= 1	1 row(s) affected	0.016 sec
8	17:33:36	ROLLBACK TO SAVEPOINT BEFORE_DELETE	0 row(s) affected	0.000 sec

Conclusion:

1. Explain about issues faced during rollback in mysql and how it got resolved.

Ans.: During rollback in MySQL, issues can arise if there are concurrent transactions or if the rollback process encounters errors such as deadlocks. These issues are resolved by ensuring proper transaction management, handling deadlock situations, and using appropriate isolation levels to minimize conflicts between transactions

2. Explain how to create a user in sql.

Ans.: To create a user in SQL, you typically use the CREATE USER statement followed by the username and password. Optionally, you can specify additional parameters such as permissions and privileges. For example:

CREATE USER 'username'@'hostname' IDENTIFIED BY 'password';