



Vidyavardhini's College of Engineering and Technology

Department of Artificial Intelligence & Data Science

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



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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 USER1, 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;



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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 office_management.employees TO 'root'@'localhost';
```

```
10 08:16:12 GRANT SELECT,INSERT,UPDATE,DELETE ON office_management.employees TO 'root'@'localhost'
```

b)Revoke:

```
REVOKE SELECT,INSERT,UPDATE,DELETE ON office_management.employees FROM 'root'@'localhost';
```

```
12 08:20:13 REVOKE SELECT,INSERT,UPDATE,DELETE ON office_management.employees FROM 'root'@'localhost'
```

2)TCL command:



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```
-- Start a transaction
START TRANSACTION;
-- Make some changes (e.g., update salary)
UPDATE employees SET salary = 52000.00 WHERE department = 'HR';
-- Set a savepoint
SAVEPOINT after_salary_update;
-- Commit the transaction
COMMIT;
-- Rollback changes made in the transaction
START TRANSACTION;
-- Set another savepoint
SAVEPOINT before_delete;
DELETE FROM employees WHERE department = 'Marketing';
-- Rollback to the savepoint before the delete operation
ROLLBACK TO SAVEPOINT before_delete;
```

✓	24	08:31:37	START TRANSACTION
✓	25	08:31:37	UPDATE employees SET salary = 52000.00 WHERE department = 'HR'
✓	26	08:31:37	SAVEPOINT after_salary_update
✓	27	08:31:37	COMMIT
✓	28	08:31:37	START TRANSACTION
✓	29	08:31:37	SAVEPOINT before_delete
✓	30	08:31:37	DELETE FROM employees WHERE department = 'Marketing'
✓	31	08:31:37	ROLLBACK TO SAVEPOINT before_delete

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



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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';
```