



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:

The screenshot shows a SQL IDE with a toolbar and a list of files. The main editor displays the following SQL commands:

```
1 • use studentdb;  
2  
3 • GRANT SELECT,INSERT,UPDATE,DELETE ON studentdb.student TO 'root'@'localhost';
```

Below the editor is an "Output" window with a tab labeled "Action Output". It contains a table with the following data:

#	Time	Action	Message
✓ 48	11:31:51	use studentdb	0 row(s) affected
✓ 49	11:33:31	GRANT SELECT,INSERT,UPDATE,DELETE ON studentdb.student TO 'root'@'localhost'	0 row(s) affected

b)Revoke:



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Output

Action Output

#	Time	Action	Message
49	11:33:31	GRANT SELECT,INSERT,UPDATE,DELETE ON studentdb.student TO 'root'@'localhost'	0 row(s) affected
50	11:35:45	REVOKE SELECT,INSERT,UPDATE,DELETE ON studentdb.student FROM 'root'@'localhost'	0 row(s) affected

file 3* SQL File 4* SQL File 5* SQL File 6* SQL File 7* SQL File 12* SQL File 16* SQL File 17* x

Limit to 2000 rows

```
1 • use studentdb;
2
3 • REVOKE SELECT,INSERT,UPDATE,DELETE ON studentdb.student FROM 'root'@'localhost';
```

2)TCL command:

```
5 -- Start a Transaction
6 • START TRANSACTION;
7 -- Make some changes (eg. Update salary)
8 • UPDATE faculty set Salary = 60000 where Faculty_id = '22';
9 -- Set a Savepoint
10 • SAVEPOINT After_Salary_update;
11 -- Commit the transaction
12 • COMMIT;
13 -- Rollback changes made in the transaction
14 • START TRANSACTION;
15 -- Set another savepoint
16 • SAVEPOINT before_delete;
17 • DELETE FROM FACULTY WHERE Faculty_Id = '1234';
18 -- ROLLBACK to the savepoint before deletion
19 • ROLLBACK TO SAVEPOINT before_delete;
20
21
```

Context Help Snippets

Output

Action Output

#	Time	Action	Message
52	11:44:05	START TRANSACTION	0 row(s) affected
53	11:44:05	UPDATE faculty set Salary = 60000 where Faculty_id = '22'	1 row(s) affected Rows matched: 1 Changed: 1 Warnings: 0
54	11:44:05	SAVEPOINT After_Salary_update	0 row(s) affected
55	11:44:05	COMMIT	0 row(s) affected
56	11:44:05	START TRANSACTION	0 row(s) affected
57	11:44:05	SAVEPOINT before_delete	0 row(s) affected
58	11:44:05	DELETE FROM FACULTY WHERE Faculty_Id = '1234'	1 row(s) affected
59	11:44:05	ROLLBACK TO SAVEPOINT before_delete	0 row(s) affected

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';
```