

DEPARTMENT OF COMPUTER ENGINEERING

EXPERIMENT NO 5

Title: Study and implement different data control and transaction control languages and different clauses in database system.

Aim: Perform DCL and TCL commands

Theory:

Data Control Language

DCL is used to access the stored data. It is used to revoke and grant the user the required access to a database. In the database, this language does not have the feature of rollback. It is a part of the structured query language (SQL).

It helps in controlling access to information stored in a database. It complements the data manipulation language and the data definition language. It is the simplest of three commands.

It provides the administrators, to remove and set database permissions to desired users as needed. These commands are employed to grant, remove and deny permissions to users for retrieving and manipulating a database. There are two relevant commands under this category: grant and revoke.

1. GRANT

GRANT is a command used to provide access or privileges on the database objects to the users.

Syntax

GRANT PRIVILEGES

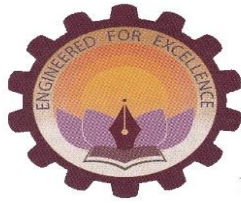
ON OBJECT

TO USER;

To grant Select Privilege to a table named "tableName", the user name is "userName", and the following GRANT statement should be executed.

2. SELECT:

Syntax:



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GRANT SELECT

ON tableName

TO 'userName'@'localhost';

Granting multiple privileges to a user:

To grant multiple Privileges to a user named “username” in table “tableName”, the following GRANT statement should be executed:

GRANT SELECT, INSERT, DELETE, UPDATE

ON tableName

TO 'userName'@'localhost';

To Grant all the privileges to a user named “userName” in a table “tableName”, the following Grant statement should be executed.

GRANT ALL

ON tableName

TO 'userName'@'localhost';

REVOKE

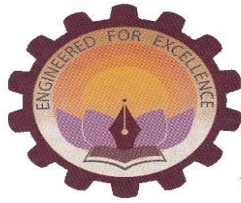
To revoke some or all of these privileges. We have a revoke command. You can revoke any combination of SELECT, INSERT, UPDATE, DELETE, REFERENCES, ALTER, or ALL.

Syntax:

REVOKE privileges

ON object

FROM user;



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Suppose we need to revoke delete permission for the 'tableName' table' from a user named 'userNamed', the following would be the query.

REVOKE DELETE

ON tableName

FROM userName;

Transaction Control Language

TCL includes statements that are used to manage the changes that are made from DML statements. It enhances the transactional nature of SQL. The TCL commands in SQL are:

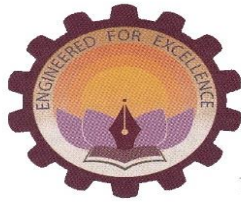
COMMIT: It's a SQL command used in the transaction tables or database to make the current transaction or database statement permanent. It shows the successful completion of a transaction. If we have successfully executed the transaction statement or a simple database query, we want to make the changes permanent. We need to perform the commit command to save the changes, and these changes become permanent for all users. Furthermore, once the commit command is executed in the database, we cannot regain its previous states in which it was earlier before the execution of the first statement.

Syntax: Commit;

ROLLBACK: Undoes any changes made to the database. ROLLBACK is the SQL command that is used for reverting changes performed by a transaction. When a ROLLBACK command is issued it reverts all the changes since the last COMMIT or ROLLBACK.

SYNTAX

SAVEPOINT: This command creates a point in your transaction to which you can roll back. It is a command in SQL that is used with the rollback command. It is a command in Transaction Control Language that is used to mark the transaction in a table.



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ROLLBACK;

SAVEPOINT: This command creates a point in your transaction to which you can roll back. It is a command in SQL that is used with the rollback command. It is a command in Transaction Control Language that is used to mark the transaction in a table.

SYNTAX

SAVEPOINT some_name;

table class,

id	name
1	Abhi
2	Adam
4	Alex

INSERT INTO class **VALUES**(5, 'Rahul');

COMMIT;

UPDATE class **SET** name = 'Abhijit' **WHERE** id = '5';

SAVEPOINT A;

INSERT INTO class **VALUES** (6, 'Chris');

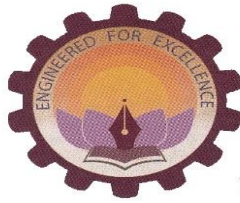
SAVEPOINT B;

INSERT INTO class **VALUES** (7, 'Bravo');

SAVEPOINT C;

SELECT * **FROM** class;

id	name
1	Abhi
2	Adam



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4	Alex
5	Abhijit
6	Chris
7	Bravo

ROLLBACK command to roll back the state of data to the save point

Syntax: ROLLBACK TO B;

SELECT * FROM class;

id	name
1	Abhi
2	Adam
4	Alex
5	Abhijit
6	Chris

again, use the ROLLBACK command to roll back the state of data to the save point A

Syntax: ROLLBACK TO A;

SELECT * FROM class;

id	name
1	Abhi
2	Adam
4	Alex
5	Abhijit

Conclusion: Hence in this way a DCL and TCL command will be implemented successfully.