



CHANDIGARH
UNIVERSITY

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INSTITUTE : UIE
Department : Apex Institute Of
Technology(CSE) -AIML

Bachelor of Engineering (Computer Science & Engineering)

Advanced Database Management System

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Transaction Control

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Course Objectives

CO Number	Course Objective	Level
CO1	Develop understanding the advancement in SQL	Apply

Course Outcome

CO Number	Course Outcome	Level
CO1	Describe and execute advanced level SQL queries	Apply

Lecture Outcomes

❖ Student will learn about the Data Control Language

1. Data control language
2. Data control command : Grant
3. Summary

Data Control Language

- Data control language (DCL) is used to access the stored data. It is mainly used for revoke and to grant the user the required access to a database.
- It helps in controlling access to information stored in a database. It complements the data manipulation language (DML) and the data definition language (DDL).
- 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.

Why do we Need Data Control Language?

- It is used to control the privileges given to the users in a Database.
- It prevents the other users from making changes or updates to the database by providing access or removing them to the users.
- It is to be noted that not all the users of a database have all the privileges to carry out all the operations concerning a database,
- DCL provides the necessary means to maintain the database effectively so that no other users can make any changes that do not concern their role or might impact the security of the database.

How Data Control Language Works?

- Privileges are the permissions provided to the various users for accessing the different database objects.
- There are two types of privileges and they are :
 - Object privileges
 - System privileges
- The System privileges provide permission or access to create tables, sessions, etc.
- The Object privilege provides access or permission for a query to execute any operation on the tables in a Database.

How Data Control Language Works?...

- The system privileges allow users to perform ALTER, DROP or CREATE database objects
- The object privileges allow the users to SELECT, INSERT, DELETE, UPDATE, or EXECUTE the data on the database objects on which the privileges are applied.
- It becomes difficult to grant or revoke the privileges if there are many users in a particular database environment. In order to overcome such difficulties, we need to define roles so that the grant or revoke privileges can be executed automatically.

GRANT Command

- This command provides the users the access or privileges to the database objects.

*GRANT privilege_name ON object_name TO user_name|PUBLIC|role_name
[WITH GRANT OPTION];*

- **privilege_name** denotes the privileges those are granted to the user such as EXECUTE or ALL etc.
- **object_name** refers to the name of the database objects such as views, tables, etc.

GRANT Command ...

- **user_name** denotes the name of the users to whom the privileges will be granted, the PUBLIC is used to grant privileges to all the users.
- WITH GRANT OPTION provides the rights to one user to grant the privileges to the other users.

Example

- Let us take the example of the 'STUDENTS' table to provide select privileges to the user – user123 as below.

```
GRANT SELECT ON STUDENTS TO user123;
```

- In the above command, if we use WITH GRANT OPTION, the user123 gets the privilege to grant the select privilege to other users.

Summary

Explained the Data control language.

Explained the Data control language command `GRANT`.

Home Work

- What is role of data control language in Database?
- How can the privileges be granted to users?

References

- **Reference book:** Database Systems concepts, Korth
- **Web References:**
- <https://www.educba.com/data-control-language/>
- <https://www.geeksforgeeks.org/sql-ddl-dml-tcl-dcl/>



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