DBMS/SQL

Lesson 12: Data Control
Language

Lesson Objectives

- Data Control Language
  - Grant
  - Revoke

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11.1: Data Control Language

User Access Control

- With Oracle server you can maintain database security, by:
  - Controlling database access
  - Giving access to specific objects in the database
  - Confirming given and received privileges with the Oracle data dictionary
  - Creating synonyms for database objects

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In a typical multi-user environment, you need to maintain security of the database access and use. As far as Database Security is concerned it can be at System Level and Data Level. System Security concerns items in the database such as users, usage of disk space etc… Data Security would mean access and usage of database objects.

11.1: Data Control Language
Object Privileges

- Object Privileges are required to manipulate the content of the database objects
- Owner of the object has all the object privileges on that object.
- Owner can give or take out privileges on a particular object
- Object privileges can differ from object to object

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Object Privilege:

The right to execute a particular SQL statement is known as a Privilege. The DBA is a high level user who has access to all the objects in the database.

Object Privilege is a right to manipulate the content of database objects. In other words, object privilege is right to perform a particular action on a specific table, view etc.. Different object privileges are available for different types of objects. The owner of the object automatically has all object privileges on that object.

Object Privileges

Object Privilege	Table	View	Sequence	Procedure
SELECT	☑	☑	☑	
UPDATE	☑	☑		
DELETE	☑	☑		
INSERT	☑	☑		
ALTER	☑		☑	
INDEX	☑			
REFERENCES	☑	☑		
EXECUTE				☑

Each object has a set of privileges which can be granted. The lists of privileges which can be granted on a particular object is shown on the slide.

You can refer to USER_TAB_PRIVS_RECD table to know which object privileges are granted to the user. Similarly you can also refer to USER_TAB_PRIVS_MADE for knowing which object privileges are granted on user's objects.

Data Control Language - Syntax

- Granting Object Privileges

  GRANT object_privileges|ALL [(columnname)] ON object
  TO {user|role|public} WITH GRANT OPTION

- Revoking Object Privileges

  REVOKE {privilege,[privilege…]|ALL} ON object   FROM
  {user,[user,….]|role|public} [CASCADE CONSTRAINTS

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Data Control Language:

The syntax of both the Grant and Revoke statements is given on the slide. A user can give privileges using the GRANT statement

Understanding GRANT Statement:

 Object_privileges : the right/privilege that is to be given

 ALL : specifies/indicates all object privileges

 columnname : specifies the column name on which privilege is to be given

 ON object : the object on which privilege is to be given

 TO user|role|public: The username or rolename to which the privilege is to be given. ALL grants privilege on the object to all users.

 WITH GRANT OPTION : allows the grantee to grant the object privileges to other users and roles

To remove privileges the user can use REVOKE statement. This removes privileges that you mention from users specified and any other users to whom those privileges were granted through the WITH GRANT OPTION clause.

Data Control Language - Example

- Grant Query and Update privileges

  > GRANT SELECT ON student_master TO user1,user2;

  > GRANT UPDATE (subject1,subject2,subject3
  > ON student_marks TO user1,user2;

- Grant privileges and allow to pass it on

  > GRANT SELECT, INSERT ON student_master
  > TO user1
  > WITH GRANT OPTION;

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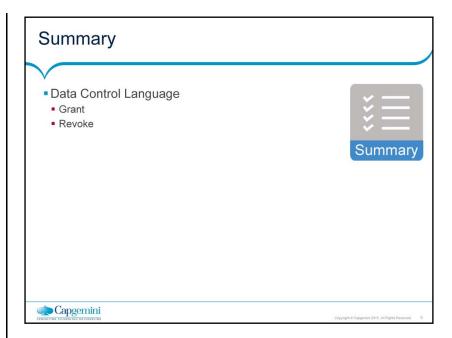Copyright © Capgemini 2015 All Rights Reserved   7

The owner of the object can grant access to all users using the Public keyword

In the following example all the users will be able to query student_master table

> GRANT SELECT ON student_master
> TO public;

Data Control Language -Example

- Revoking UPDATE privileges from user2

```
REVOKE UPDATE on student_marks FROM user2;
```

You can also revoke multiple privileges from multiple users/roles.

Summary

- Data Control Language
  - Grant
  - Revoke

Summary

Add the notes here.

Review Questions

- Question 1: Object Privileges are same on all objects
  - True/False

- Question 2 :REFERENCES privilege can be granted on
  - Option 1 :Table
  - Option 2 : View
  - Option 3 : Sequence

Add the notes here.