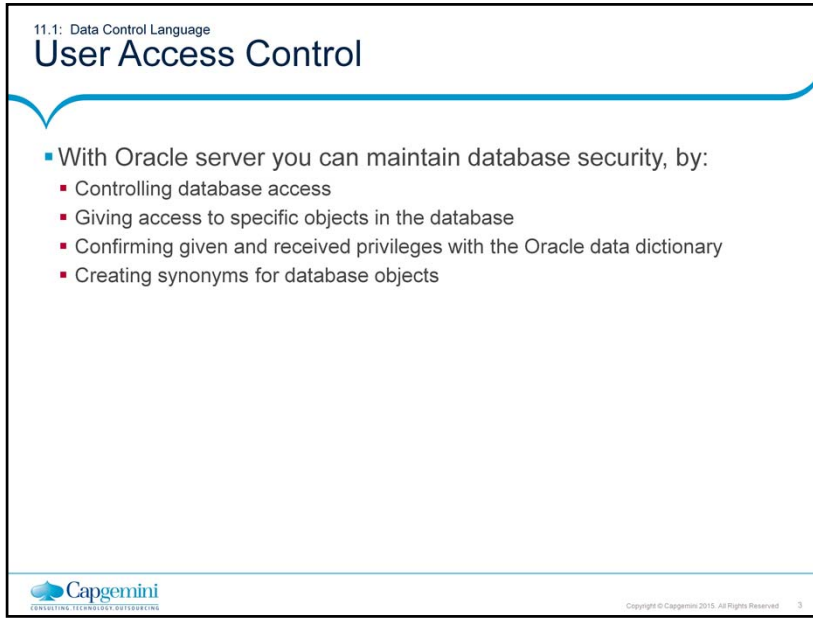
DBMS/SQL

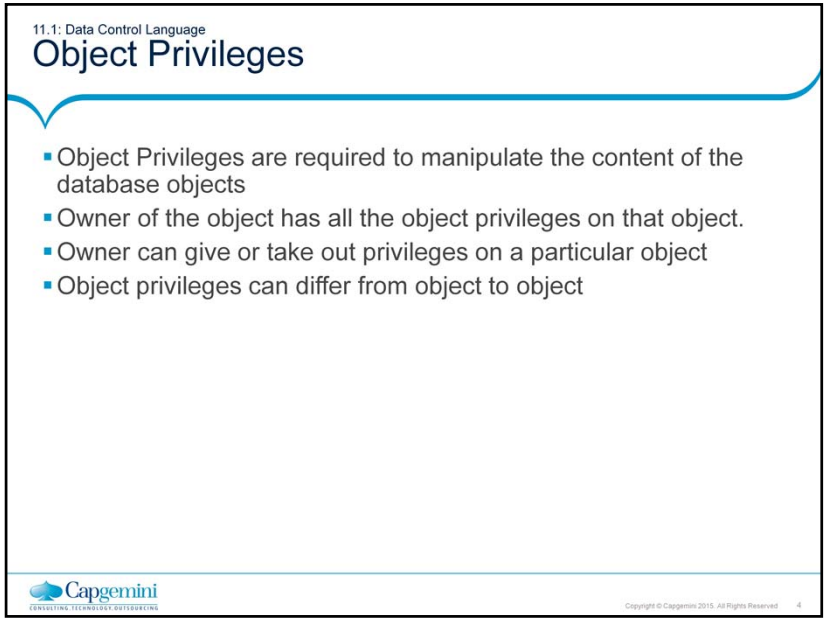
Lesson 12: Data Control Language

Lesson Objectives

- Data Control Language
  - Grant
  - Revoke



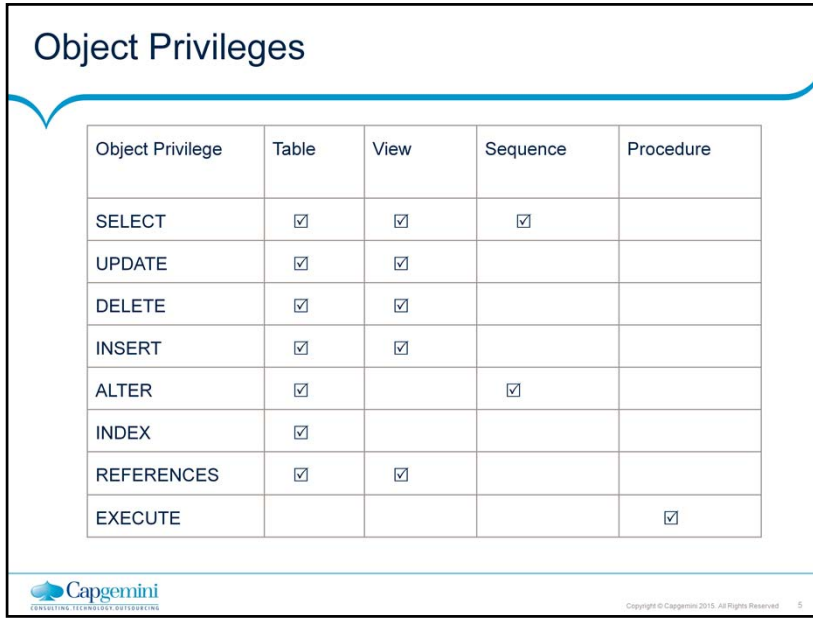
In a typical multi-user environment, you need to maintain security of the database access and use. As far as Database Security is concerned it can be at System Level and Data Level. System Security concerns items in the database such as users, usage of disk space etc… Data Security would mean access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



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.

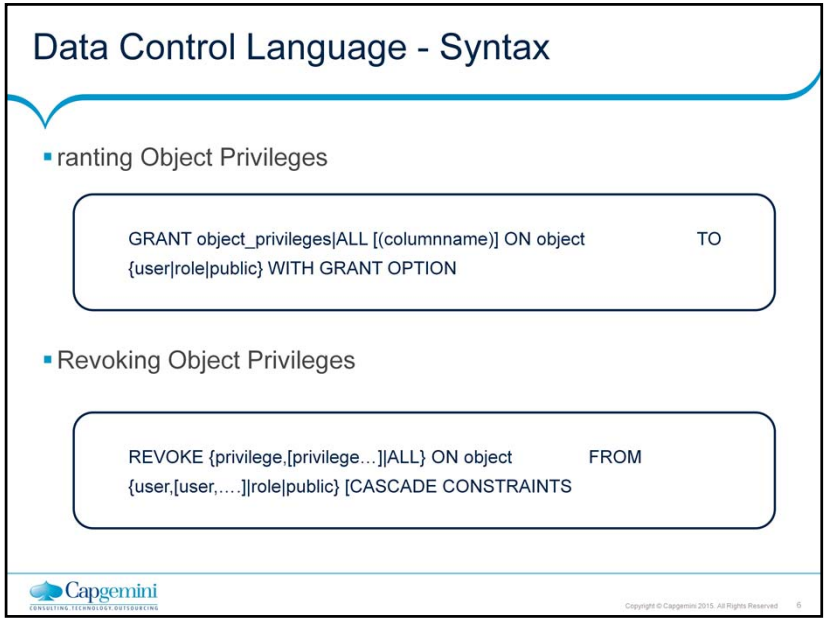
Object Privilege is a right to manipulate the content of database objects. In other words, object privilege is right to perform a particular action on a specific table, view etc.. Different object privileges are available for different types of objects. The owner of the object automatically has all object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



Object 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:

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

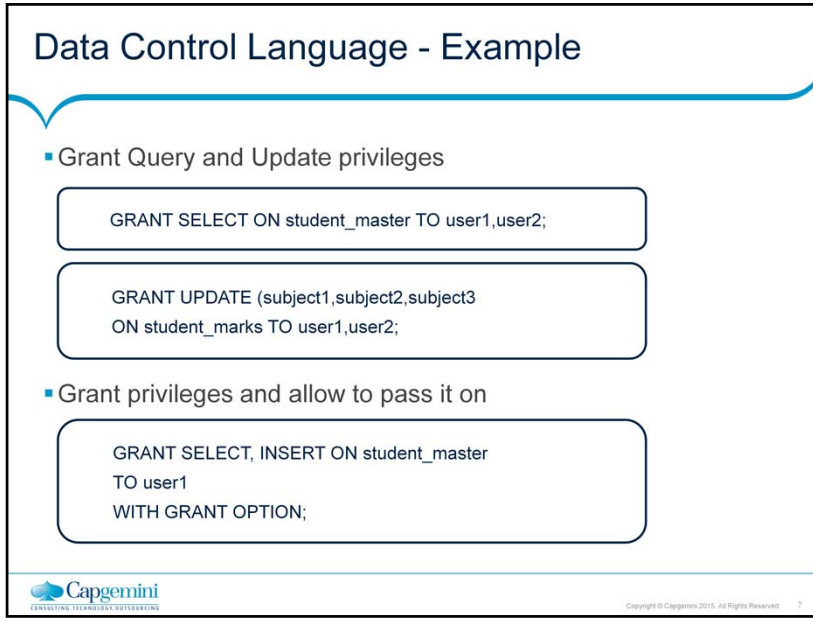
columnname : specifies the column name on which privilege is to be given

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

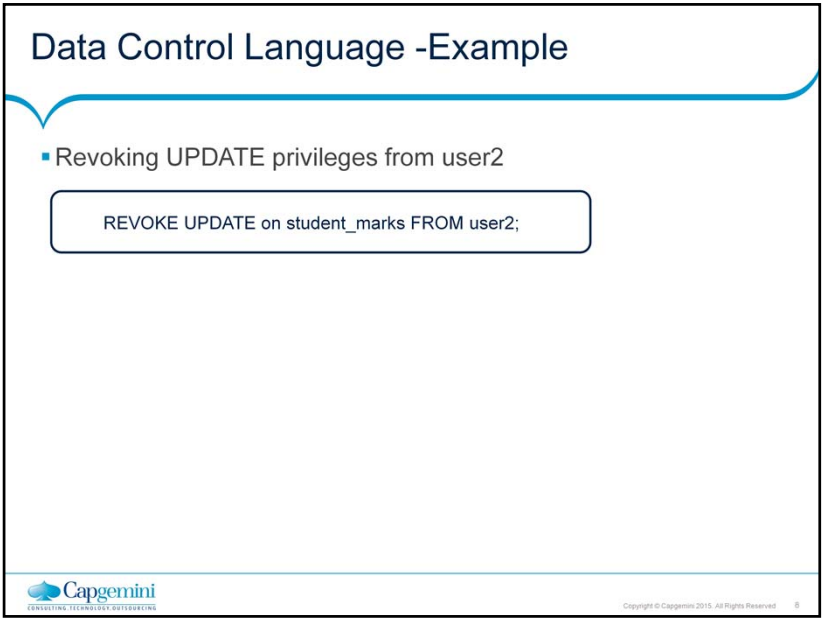
To remove privileges the user can use REVOKE statement. This removes privileges that you mention from users specified and any other users to whom those privileges were granted through the WITH GRANT OPTION clause.



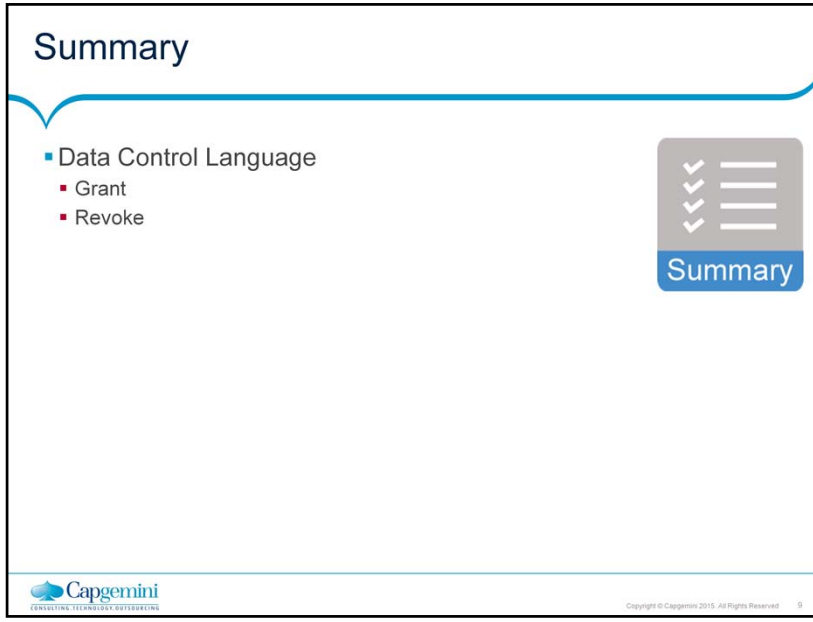
The owner of the object can grant access to all users using the Public keyword

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

```
GRANT SELECT ON student_master
TO public;
```



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



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

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