LAB 10: Controlling User Access.

Objectives

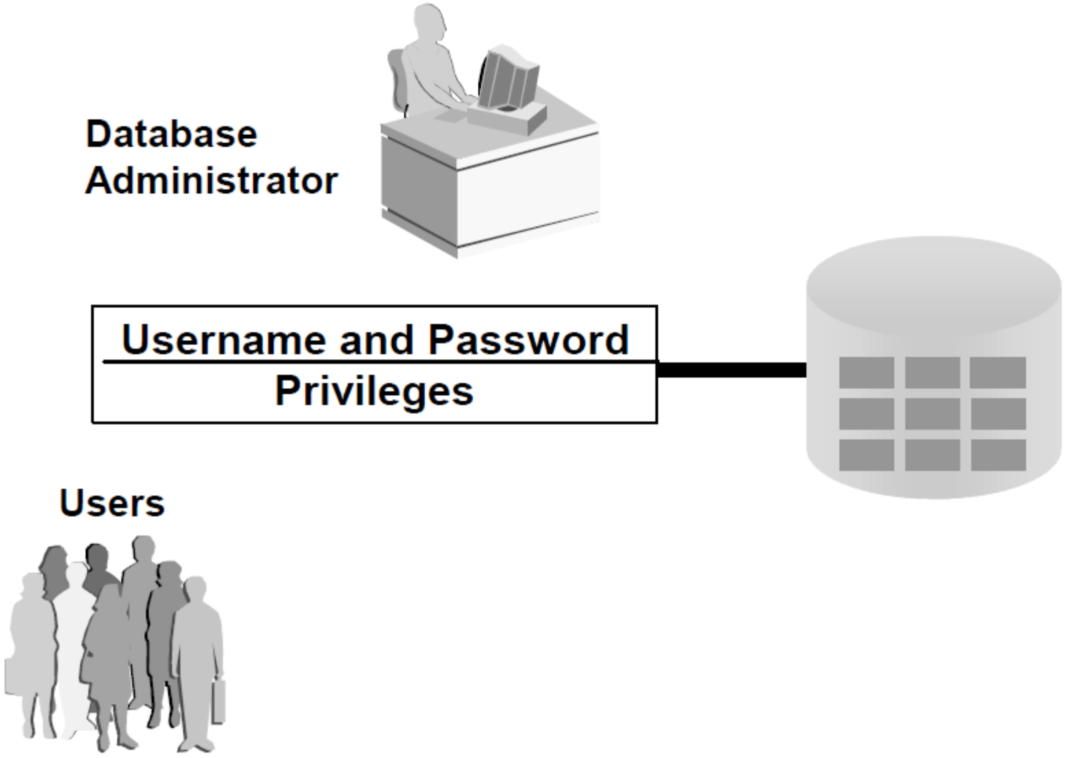
After completing this lesson, you should be able to do the following:

- ✓ Create users
- ✓ Create roles to ease setup and maintenance of the security model
- ✓ Use the GRANT and REVOKE statements to grant and revoke object privileges

Lesson Aim

In this lesson, you learn how to control database access to specific objects and add new users with different levels of access privileges.

Controlling User Access



Database Administrator

Username and Password

Privileges

Users

Controlling User Access

In a multiple-user environment, you want to maintain security of the database access and use. With Oracle server database security, you can do the following:

- Control database access
- Give access to specific objects in the database
- Confirm given and received privileges with the Oracle data dictionary
- Create synonyms for database objects

Database security can be classified into two categories: system security and data security. System security covers access and use of the database at the system level, such as the username and password, the disk space allocated to users, and the system operations that users can perform. Database security covers access and use of the database objects and the actions that those users can have on the objects.

Privileges

- Database security: – System security – Data security
- System privileges: Gaining access to the database
- Object privileges: Manipulating the content of the database objects
- Schemas: Collections of objects, such as tables, views, and sequences

More than 100 privileges are available.

- The database administrator has high-level system privileges for tasks such as:

– Creating new users – Removing users – Removing tables – Backing up tables

Privileges

Privileges are the right to execute particular SQL statements. The database administrator (DBA) is a high level user with the ability to grant users access to the database and its objects. The users require system privileges to gain access to the database and object privileges to manipulate the content of the objects in the database. Users can also be given the privilege to grant additional privileges to other users or to roles, which are named groups of related privileges.

The database administrator has high-level system privileges for tasks such as:
– Creating new users – Removing users
The DBA creates users by using the CREATE USER statement.

```
CREATE USER user
IDENTIFIED BY password;
```

Write code on system. Login into sys then create a user

```
CREATE USER scott
IDENTIFIED BY tiger;
```

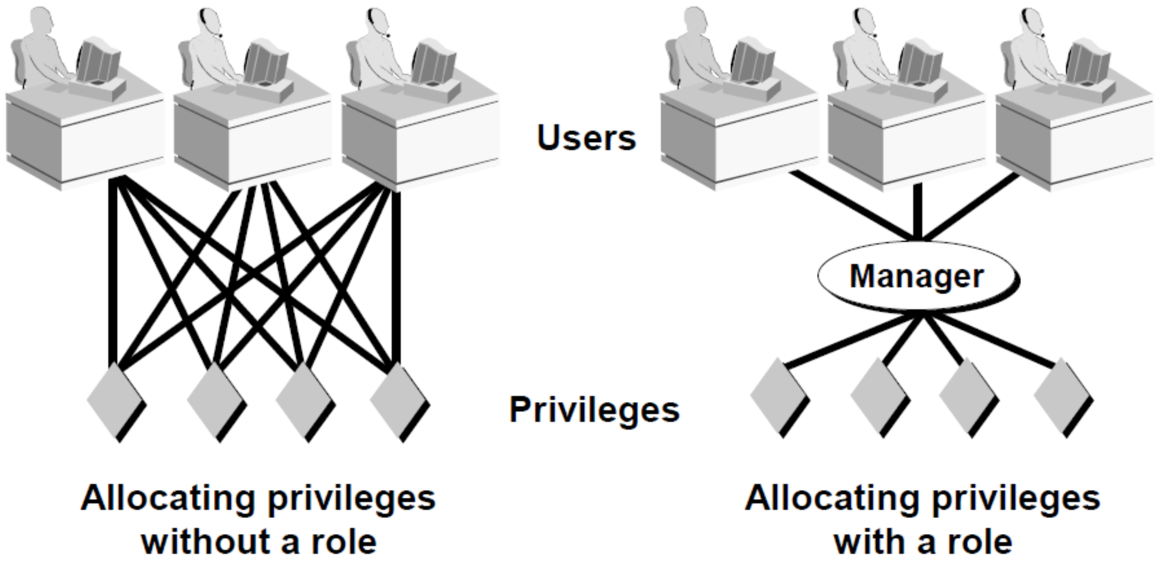
Granting System Privileges

```
GRANT create session, create table,
create sequence, create view
TO scott;
```

What Is a Role?

A role is a named group of related privileges that can be granted to the user. This method makes it easier to revoke and maintain privileges.
A user can have access to several roles, and several users can be assigned the same role. Roles are typically created for a database application.

What Is a Role?


Users
Manager
Privileges
Allocating privileges without a role
Allocating privileges with a role

Creating and Granting Privileges to a Role Create a role

```
CREATE ROLE manager;
```

Grant privileges to a role

```
GRANT create table, create view
TO manager;
```

Grant a role to users

```
GRANT manager TO DEHAAN, KOCHHAR;
```

Grant query privileges on the EMPLOYEES table.

```
✗ GRANT select
  ON employees → hr.emp
  TO sue, rich;
```

Grant privileges to update specific columns to users and roles.

```
✗ GRANT update (department_name, location_id)
  ON departments
  TO scott, manager;
```

Allow all users on the system to query data from Alice's DEPARTMENTS table.

```
GRANT select
ON alice.departments
TO PUBLIC;
```

Revoking Object Privileges

As user Alice, revoke the SELECT and INSERTprivileges given to user Scott on the DEPARTMENTS table.

```
REVOKE select, insert
ON departments
FROM scott;
```

Changing Your Password

The DBA creates your user account and initializes your password.
You can change your password by using the ALTER USER statement.

```
ALTER USER scott
IDENTIFIED BY lion;
```

DROP USER

Purpose

Use the `DROP USER` statement to remove a database user and optionally remove the user's objects. When you drop a user, Oracle Database also purges all of that user's schema objects from the recycle bin.

Caution:

Do not attempt to drop the users `SYS` or `SYSTEM`. Doing so will corrupt your database.

Examples of dropping user

Dropping a Database User: Example If user Sidney's schema contains no objects, then you can drop `sidney` by issuing the statement:

```
DROP USER sidney;
```

If Sidney's schema contains objects, then you must use the `CASCADE` clause to drop `sidney` and the objects:

```
DROP USER sidney CASCADE;
```