Advanced Databases - Lab No. 6

Third Year of the "Computer Engineering" Program

Oracle - Users, Roles, Privileges, and Profiles

Instructions for SQL Developer

To perform these exercises, you should follow these guidelines:

1. **Choose the Correct Connection**

   - **SYSTEM**: Use for creating users, roles, granting/revoking privileges, and managing profiles.
   - **HR**: Use for testing queries on sample data (EMPLOYEES, DEPARTMENTS).

2. **Opening a SQL Worksheet**

   - Connect to the desired user/schema (e.g., SYSTEM or HR).
   - Right-click the connection → **Open SQL Worksheet**.

3. **Switching Users to Test Access**

   - Open multiple worksheets connected to different users.
   - Test what a user can/cannot do based on granted privileges, roles, and profile restrictions.

Exercise 1: Create Users

4. Create a user named user_test1 with password Test@123.
5. Grant the user CONNECT and RESOURCE roles.
6. Test the login as user_test1.

Exercise 2: Create and Assign Roles

1. Create a role named HR_ROLE.
2. Grant SELECT and INSERT privileges on the EMPLOYEES table to HR_ROLE.
3. Grant HR_ROLE to user_test1.
4. Verify that user_test1 can select and insert into the table.

Exercise 3: Privileges with ADMIN OPTION and REVOKE

1. Grant the HR_ROLE to a new user user_test2 with ADMIN OPTION.
2. From user_test2, try to grant HR_ROLE to another user user_test3.
3. Revoke HR_ROLE from user_test2 and observe the effect on user_test3.

Exercise 4: System vs Object Privileges

1. Grant CREATE TABLE system privilege to user_test1.
2. Grant UPDATE privilege on the DEPARTMENTS table to user_test1.
3. Test creating a table and updating the DEPARTMENTS table.

Exercise 5: Querying Privileges and Roles

1. Write a query to list all system privileges for user_test1.
2. Write a query to list all roles granted to user_test1.
3. Write a query to list all object privileges for user_test1.

Exercise 6: User Profiles with Resource Limits

1. Create a profile named SECURE_PROFILE with the following parameters:
   - FAILED_LOGIN_ATTEMPTS = 3
   - PASSWORD_LOCK_TIME = 1 day
   - PASSWORD_LIFE_TIME = 30 days
   - SESSIONS_PER_USER = 2
   - CPU_PER_SESSION = 10000 (centiseconds)
   - CONNECT_TIME = 60 (minutes)
2. Assign this profile to user_test1.
3. Query the profile settings and verify the assigned profile for the user.