UNIVERSITY OF TECHNOLOGY, JAMAICA

Lab Manual

FACULTY:	Engineering & Computing (FENC)
SCHOOL/DEPT:	School of Computing & Information Technology
COURSE OF STUDY:	Bachelor of Science in Computing
YEAR:	Four (3)
MODULE TITLE:	**Database Administration**

Topic: Administering Roles, Profiles, Procedures, Encryption

Objectives:

1. Administering Roles

Creating a Role

Syntax:

```
CREATE ROLE role_name
[NOT IDENTIFIED |
IDENTIFIED {BY password | USING [schema.] package | EXTERNALLY | GLOBALLY};
```

Note: The **NOT IDENTIFIED** phrase means that the role is immediately enabled. No password is required to enable the role. The **IDENTIFIED** phrase means that a user must be authorized by a specified method before the role is enabled. The **BY password** phrase means that a user must supply a password to enable the role. The **EXTERNALLY** phrase means that a user must be authorized by an external service to enable the role. An external service can be an operating system or third-party service. The **GLOBALLY** phrase means that a user must be authorized by the enterprise directory service to enable the role.

Exercise 1

1. Create the two roles below with **your ID Number** appended to the end of each role name.
   a. `Create the role labclassA which is not identified;`
   b. `Create the role labclassB which has the password pass1234;`

2. Create the two users below with **your ID Number** appended to the end of each username. Both with password pass1234
   a. StudentA
   b. StudentB

3. Allow your lab partner to log in as studentA and create the following table.

   Sales (sales_id, product, unitcost, quaitity)

Adding users a Role

Syntax:

Example: Altering A User

```
ALTER USER user_name
DEFAULT ROLE
( role_name
| ALL [EXCEPT role1, role2, ... ]
| NONE );
```

Note: The **user_name** phrase is the name of the user whose role you are setting as DEFAULT.
The **role_name** phrase is the name of the role that you wish to set as DEFAULT. The **ALL** phrase means that all roles should be enabled as DEFAULT, except those listed in the **EXCEPT** phrase.
The **NONE** phrase disables all roles as DEFAULT.

Example: Granting a Role to a user

```
GRANT <role_name> TO <username>;
```

Example: Granting a privilege to a role

```
GRANT CREATE ANY TABLE TO <role_name>;
```

Exercise 2

1. Allow your lab partner to log in as **labuser** an Grant the labclassA role to studentA.
   Observation: Was the user authorized to use this role?

2. Alter the user **studentA** to make **labclassA** the default role.

   Observation: Did you have any problems? What was the solution?

3. Grant the "create any table" privilege to **labclassA** role.

4. Allow your other lab partner to login as **studentA** and create the sales table again.
   Observation: Were they able to create the table?

5. For **studentA** insert five records into the sales table.

6. Select all the records from the sales table as **studentA**?

7. Allow your lab partner to login in as **studentB** and select all the records from the sales table in the **studentA** schema.
   Observation: What did you notice?

8. Allow your lab partner that is logged in as **studentA** to Grant select on the sales table to **studentB**. Try to select all the records in the sales table from studentA's schema.

Exercise 3

1. Grant the **labclassB** role to **studentB**.
   Observation: Where did you find this information in the system table?

2. Alter the user **studentB** to make the role **labclassB** the default role.

3. Grant "create any procedure" to the **labclassB** role.

   Observation: Where did you find this information in the system table?

4. Create another role "Labrolenested" and table of your choice. Grant the select privilege to the role "Labrolenested" you created. Grant the role to **labclassB.**

5. Attempt a select statement from the new table with studentB.
   Observation: What did you observe?

Revoke Privileges

You can revoke system privileges and roles using the SQL statement `REVOKE`. Any user with the `ADMIN OPTION` for a system privilege or role can revoke the privilege or role from any other database user or role. The revoker does not have to be the user that originally granted the privilege or role. Users with `GRANT ANY ROLE` can revoke *any* role.

Exercise 4

1. Login in as **labuser** and Revoke the "create any table" privilege from the **labclassA** role

2. Login as **StudentA** and try to create the following table.

   Product(prod_id, product_name, vender,descriotion)

Dropping Roles

In some cases, it may be appropriate to drop a role from the database. The security domains of all users and roles granted a role that was dropped is immediately changed to reflect the absence of the dropped role privileges. All indirectly granted roles of the dropped role are also removed from affected security domains. Dropping a role automatically removes the role from all user default role lists.

Because the creation of objects is not dependent on the privileges received through a role, tables and other objects are not dropped when a role is dropped.

You can drop a role using the SQL statement `DROP ROLE`. To drop a role, you must have the `DROP ANY ROLE` system privilege or have been granted the role with the `ADMIN OPTION`.

Exercise 5:

1. Query the appropriate system tables to see which role is applied to **studentA**

2. Drop the role that was granted studentA.

3. Query the appropriate system table to see which role student is applied to **studentA**.