Installation of Oracle and HR Database Setup

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Objective

This lab aims to educate students about Oracle 19c or 21c installation, SQL Developer Installation, and setup of HR Database.

Software Installation

It is ideal that you are ready with the installed software before the start of the lab. However, if due to any issues you are unable to do so, you may proceed to Lab01B while the setup is completed.

Download Oracle Database:

Oracle Database 19c Download for Microsoft Windows x64 (64-bit)

Oracle Database 21c Download for Microsoft Windows x64

21c is a newer version, however 19c is considered more stable. You may opt for either one.

- Unzip the package, copy it to the root of your disk. (C: drive) and execute the setup.
- Create and configure a single instance database for desktop class.
- Use Windows built-in account.
- Create the following credentials for lab PCs. If you are installing it on your personal computer, you may create credentials as you would like but make sure to make a note of it.
    o Name: iba
    o P/w: iba1234
- Complete the installation.

Download SQL Developer: Oracle SQL Developer Downloads

Download SQL Developer from Oracle and extract the folder in the root of your disk (C: drive). You can directly run the SQLdeveloper.exe file to use the software. It's a good idea to create a shortcut for this executable file on the desktop.

Create a New User and run the HR schema SQL script

Open command prompt and log on to SQL*Plus as SYS and connect using the AS SYSDBA privilege:

<p align="center"><code>Sqlplus / as sysdba</code></p>

We are now connected as the admin user of the database which has privileges to create more users. (Note: SYSDBA stands for System Database Administrator)
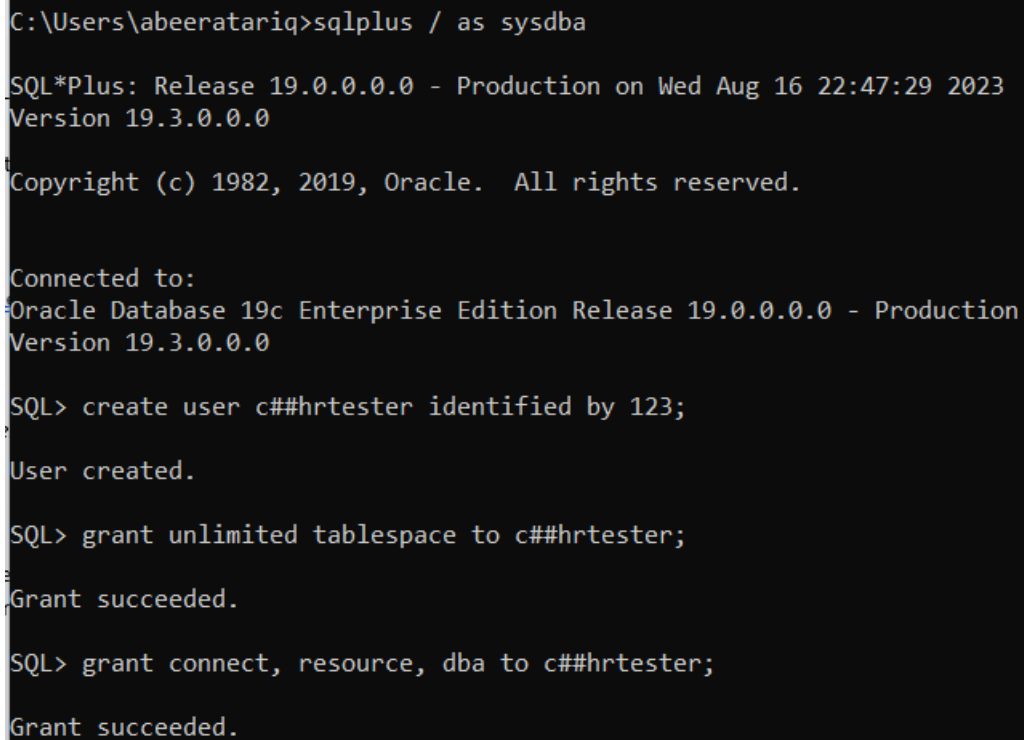
SQL> CREATE USER (any user name with prefix c##) IDENTIFIED BY (any password);

   e.g. create user c##myuser identified by 123;
   Note: *you may create a user with your own name*

SQL> GRANT UNLIMITED TABLESPACE TO C##MYUSER;

SQL> GRANT CONNECT, RESOURCE, DBA TO C##MYUSER;

```
C:\Users\abeeratariq>sqlplus / as sysdba

SQL*Plus: Release 19.0.0.0.0 - Production on Wed Aug 16 22:47:29 2023
Version 19.3.0.0.0

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Connected to:
Oracle Database 19c Enterprise Edition Release 19.0.0.0.0 - Production
Version 19.3.0.0.0

SQL> create user c##hrtester identified by 123;

User created.

SQL> grant unlimited tablespace to c##hrtester;

Grant succeeded.

SQL> grant connect, resource, dba to c##hrtester;

Grant succeeded.
```

Figure 1 Creates a user named c##hrtester as an example

Establish a connection between the recently created user and the database by utilizing SQL Developer. Begin by generating a fresh connection within the SQL Developer interface. Choose a relevant schema name, such as "hr_schema." Proceed to input the username and password that were just established during the user creation process. Lastly, initiate the connection to the associated service.
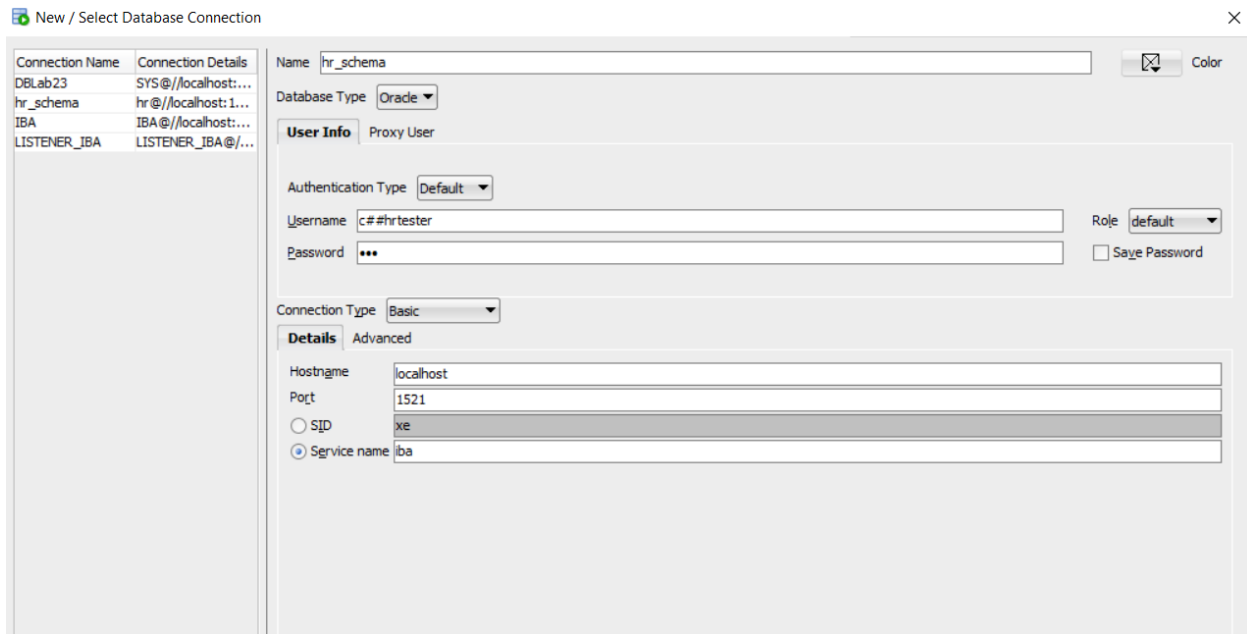
Here's a step-by-step guide to achieving this:

1. Launch SQL Developer on your system.
2. In the SQL Developer main window, navigate to the "Connections" panel.
3. Right-click within the panel and select "New Connection."
4. In the "New / Select Database Connection" window that appears:
   o Provide a meaningful name for the connection, such as "HR Schema."
   o Select the appropriate connection type (usually "Basic" for most setups).
   o For "Username," input the username you created.
   o For "Password," enter the corresponding password for the user.
   o Fill in the "Hostname" with the database server's address. (already filled)
   o Specify the "Port" number used by the database server (usually 1521 for Oracle).
   o Input the "Service Name" or "SID" for the database.
   (Note: You can verify your service name by checking the "tnsnames.ora" file located in your Oracle home directory, usually found under "network/admin." The service name is typically set as "orcl." In the screenshot above, the service name is labeled as "iba.")

5. Click the "Test" button to ensure the connection details are accurate and the connection can be established successfully.
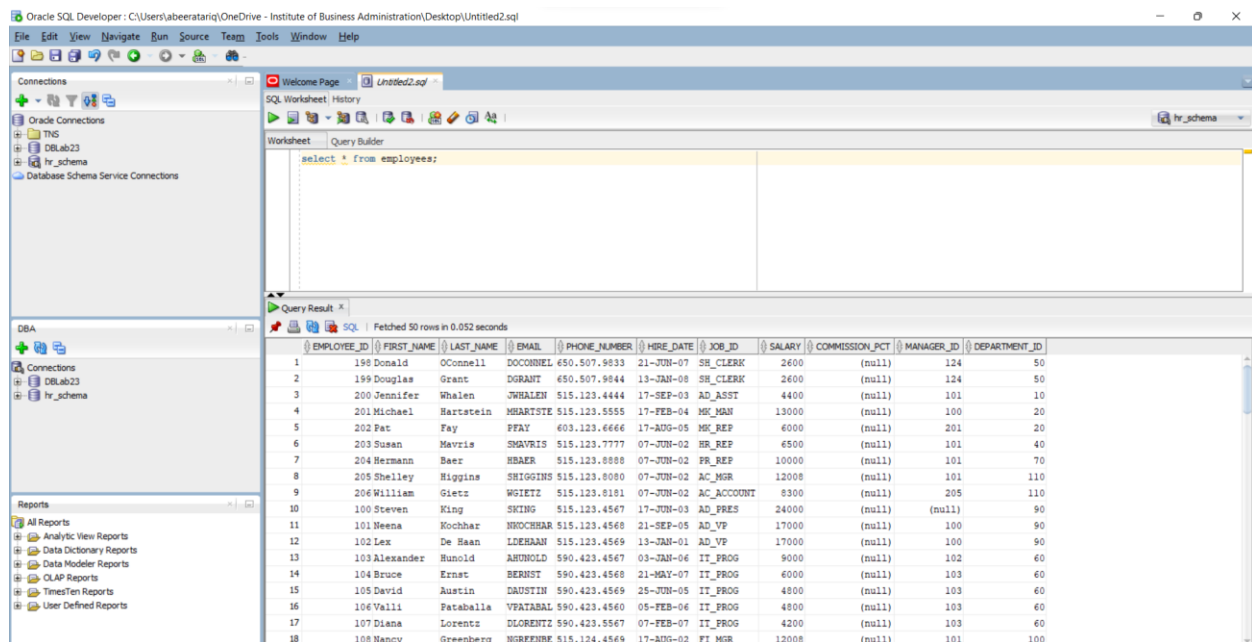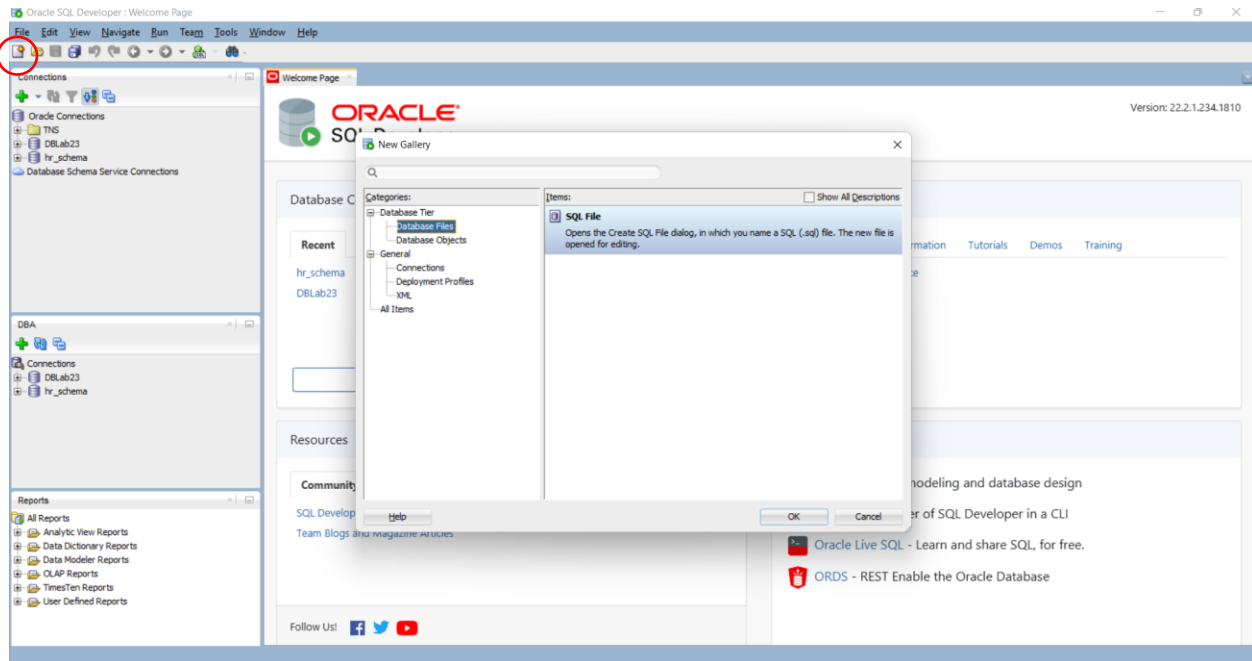
6. Upon successful testing, click "Connect" to establish the connection between SQL Developer and the database using the provided credentials.

7. The "HR Schema" connection will now appear in the "Connections" panel. You can double-click on it to open a SQL Worksheet, which allows you to execute SQL queries and commands within the context of the connected user.

By following these steps, you'll be able to seamlessly connect the newly created user to the Oracle database using SQL Developer, facilitating efficient schema management and database interaction.

Proceed to execute the HR schema script that has been provided to you. The execution of this script will facilitate the creation of all the necessary tables for the HR database.

Execute the SQL queries

You are now ready to execute scripts within SQL Developer. Begin by opening a SQL File, and from there, you can proceed to execute your desired query. In certain instances, you might be prompted to enter the associated password for authentication purposes.

Alternately, you can also use the SQLPlus command line interface.

Or you can also connect from the Windows command prompt like we did earlier.

Alternate Method – Unlock the HR schema available with Oracle Installation
(for more learning – no need to execute)

This section explains how you can unlock the HR database that is available with the Oracle Installation. It is important that you are aware of the credentials before you proceed.

Remembering credentials

Before we begin, we need some things handy. If you are doing this on the lab pcs, find the information or seek help from the IT support available should you face any issues.

1. Oracle service name:
   You can verify your service name by checking the "tnsnames.ora" file located in your Oracle home directory, usually found under "network/admin." The service name is typically set as "orcl." In the screenshot provided, the service name is labeled as "iba."

   Note: If you're uncertain about the location of the Oracle directory, you can find this information by examining the system's environment variables.
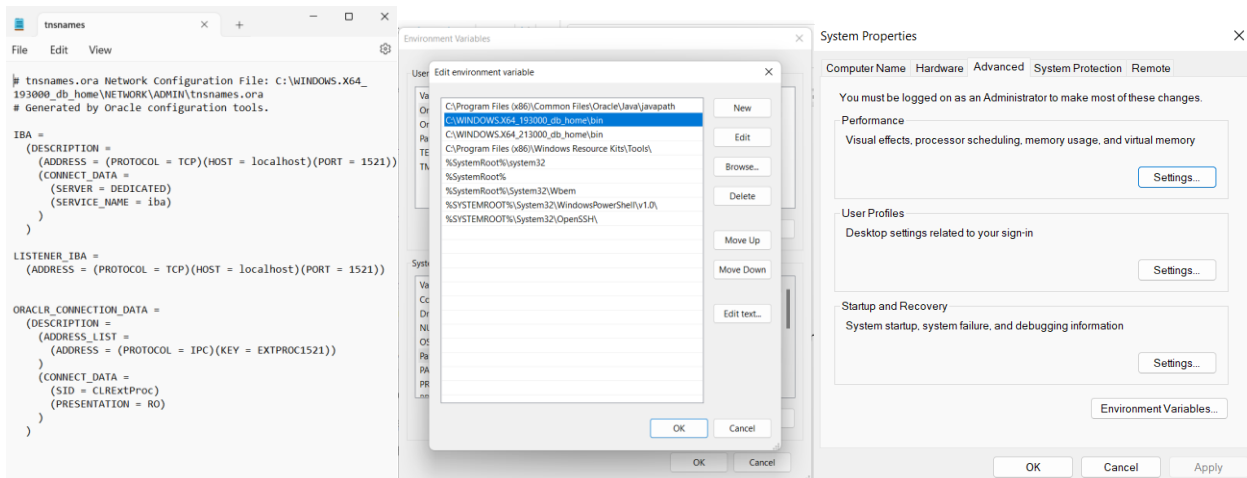
2. SYS password – this was set up by you at the time of installation.

Open command prompt and log on to SQL*Plus as SYS and connect using the AS SYSDBA privilege:

```
Sqlplus / as sysdba
```

We are now connected as the admin user of the database which has privileges to create more users.

```
Alter user hr account unlock identified by hrpass
```

If user doesn't exist then:

Verify the list of users and create the new user:

<div align="center">

`Select user from v$database`

`Create user hr identified by hrpass`

</div>

Execute again:

<div align="center">

`Alter user hr account unlock identified by hrpass`

</div>

Grant connection privileges:

<div align="center">

`Grant connect to hr;`

</div>

Execute the query for creating the HR database,

<div align="center">

`@yourpath\demo\schema\human_resources\hr_main.sql`

</div>

For example:

`@C:\WINDOWS.X64_193000_db_home\demo\schema\human_resources\hr_main.sql`

You will be prompted to provide some passwords:

Parameter 1 (Enter secure password for HR): hrpass

Parameter 2 (Enter tablespace for HR as *users)*: users

Parameter 3 (Enter Temporary tablespace as *temp*): temp

Parameter 4 (Enter **your SYS password**): iba1234 (example)

Create a new connection on SQL developer and connect with the HR credentials.