Advanced Databases - Lab No. 3

Third Year of the “Computer Engineering” Program

Setting Up the Oracle Development Environment

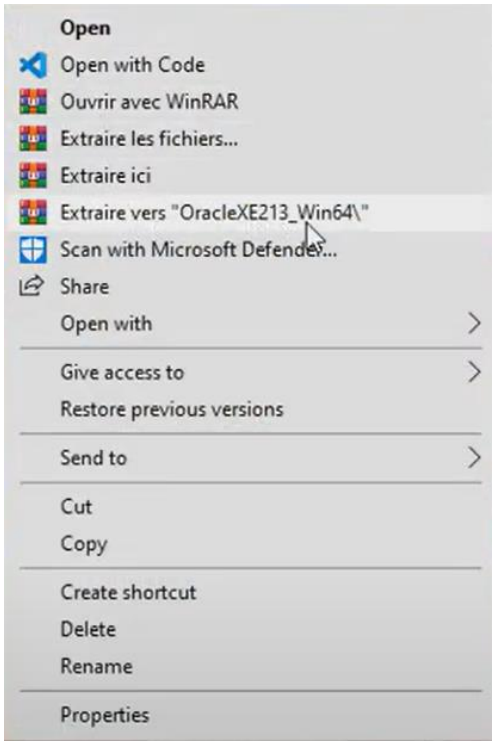
Part I: Download Required Software

Please follow the steps below to download the necessary tools for this lab:

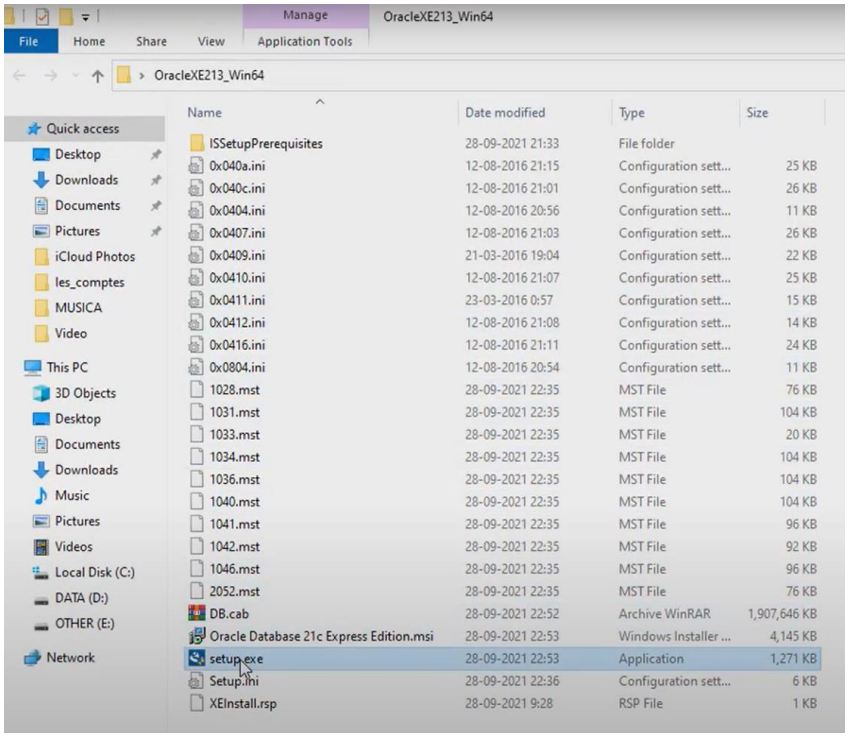
1. **Download Oracle Database 21c Express Edition**
   👉 https://www.oracle.com/database/technologies/xe-downloads.html
2. **Download SQL Developer**
   👉 https://www.oracle.com/database/sqldeveloper/technologies/download/
3. **Download the HR Database Files**
   👉 https://drive.google.com/file/d/13Q6YX_fdkDgwAO-ToeVN8HvSIqYBu-v7/view

Part II: Installing Oracle Database 21c

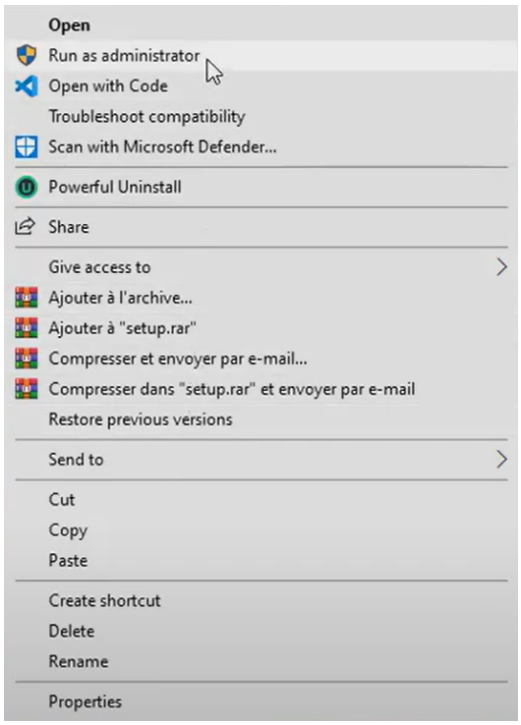
1. Extract the Oracle ZIP file to a local folder on your computer.



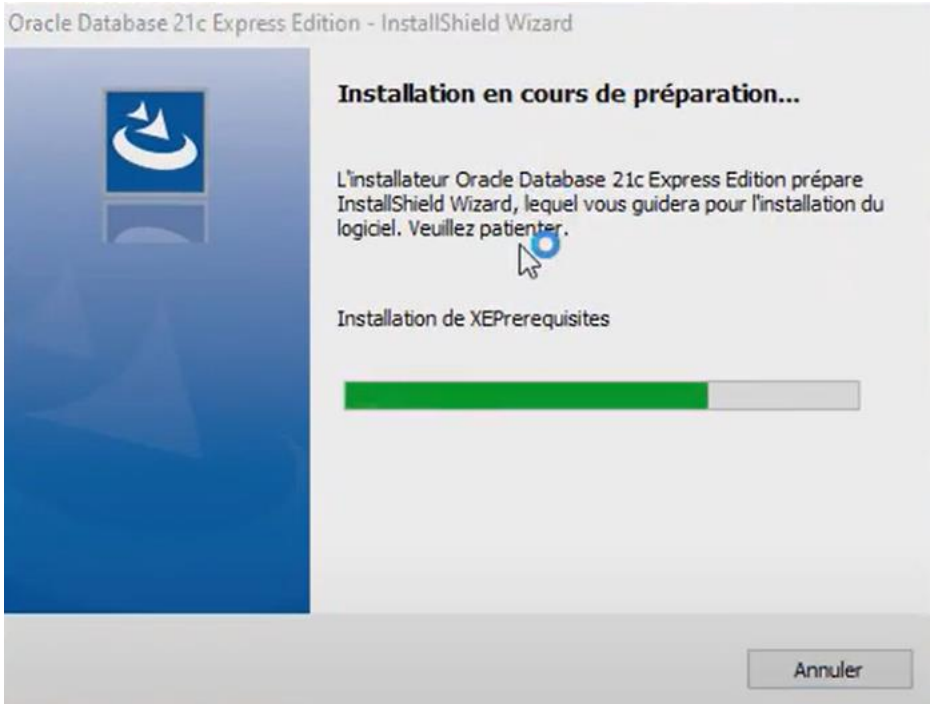
2. Open the extracted folder, then locate the file named setup.exe.



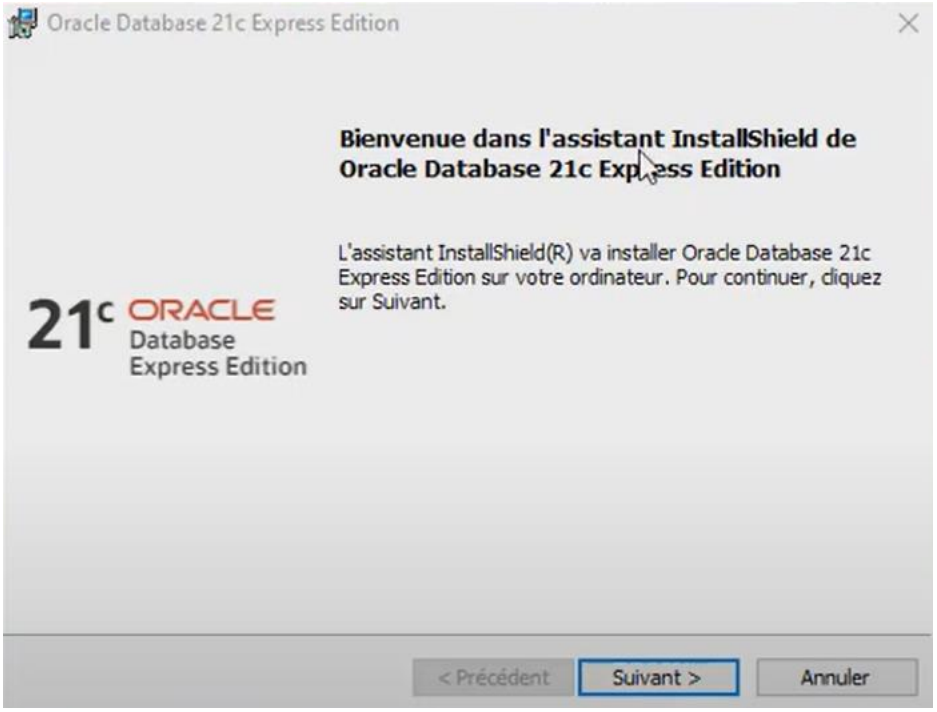
3. Right-click the file and select Run as administrator.



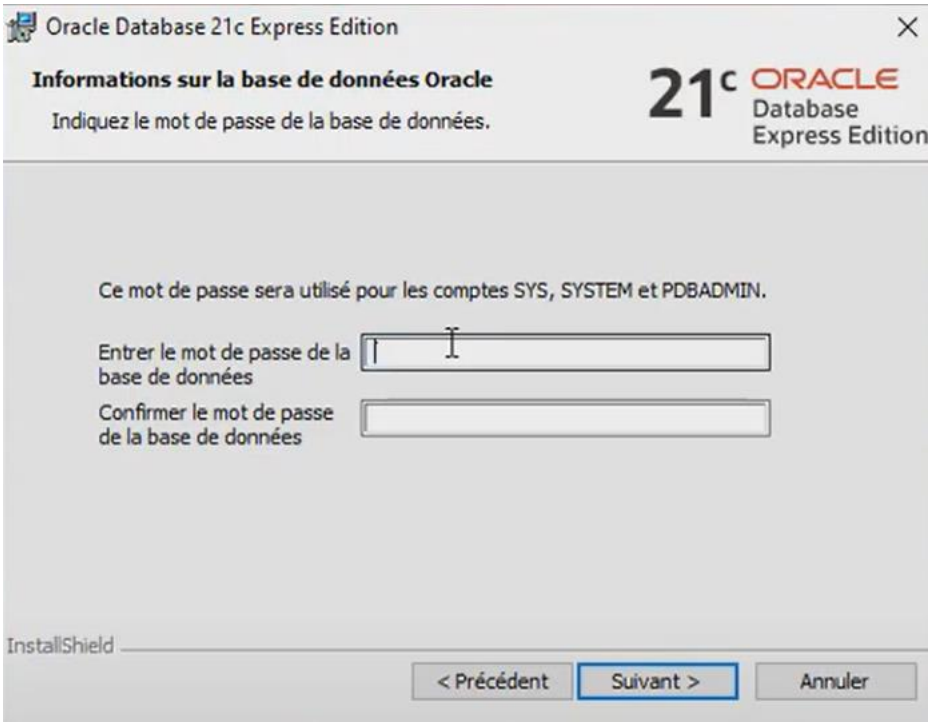
4. You will see a window indicating that prerequisites are being prepared; wait for this step to finish.



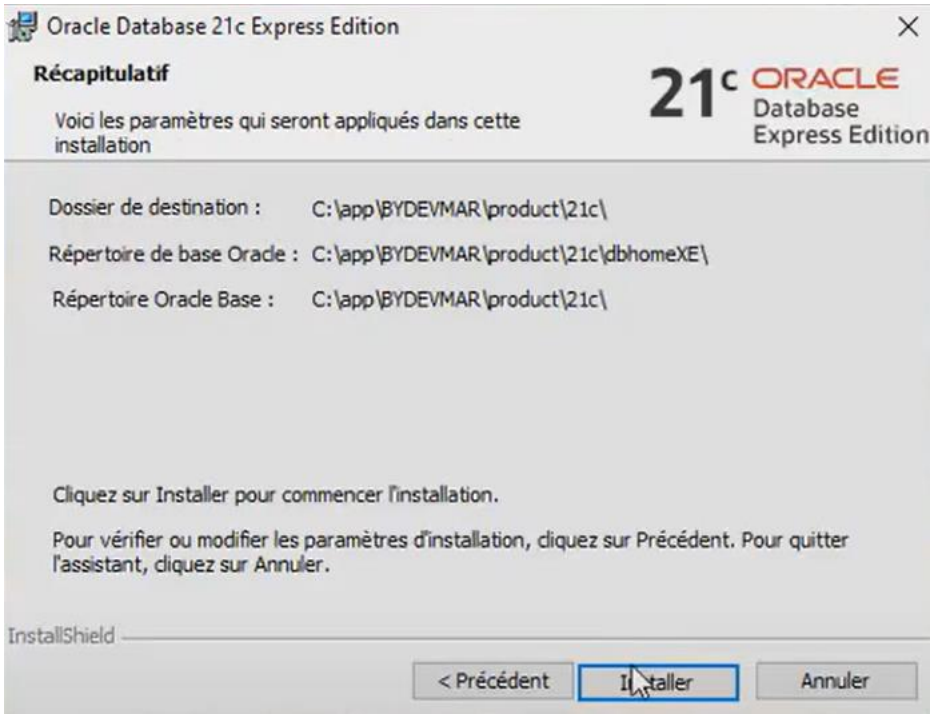
5. The installation window shown below will open. Click Continue to proceed. Accept the terms of the license agreement and press Continue.



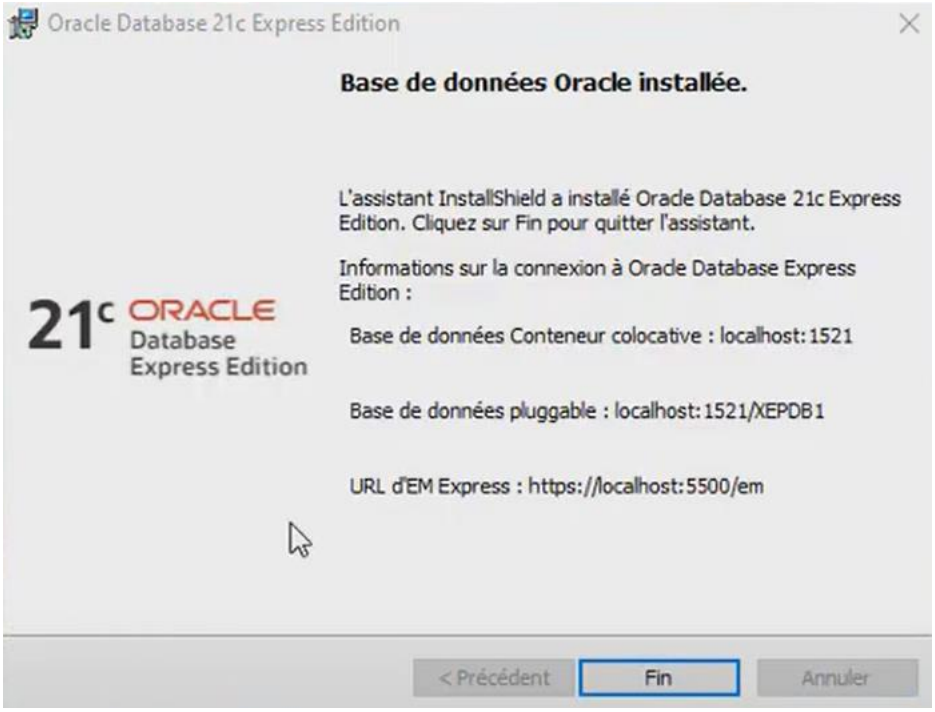
6. Enter the following password: oracleUIR2025@



7. Click Install.

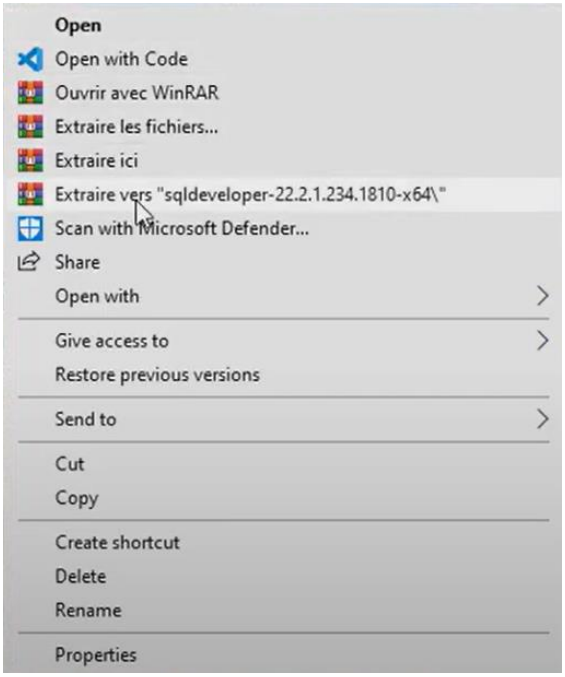


8. The installation process will take around 15 minutes. Before clicking Finish, take a screenshot similar to the one below, as you will need this information later.

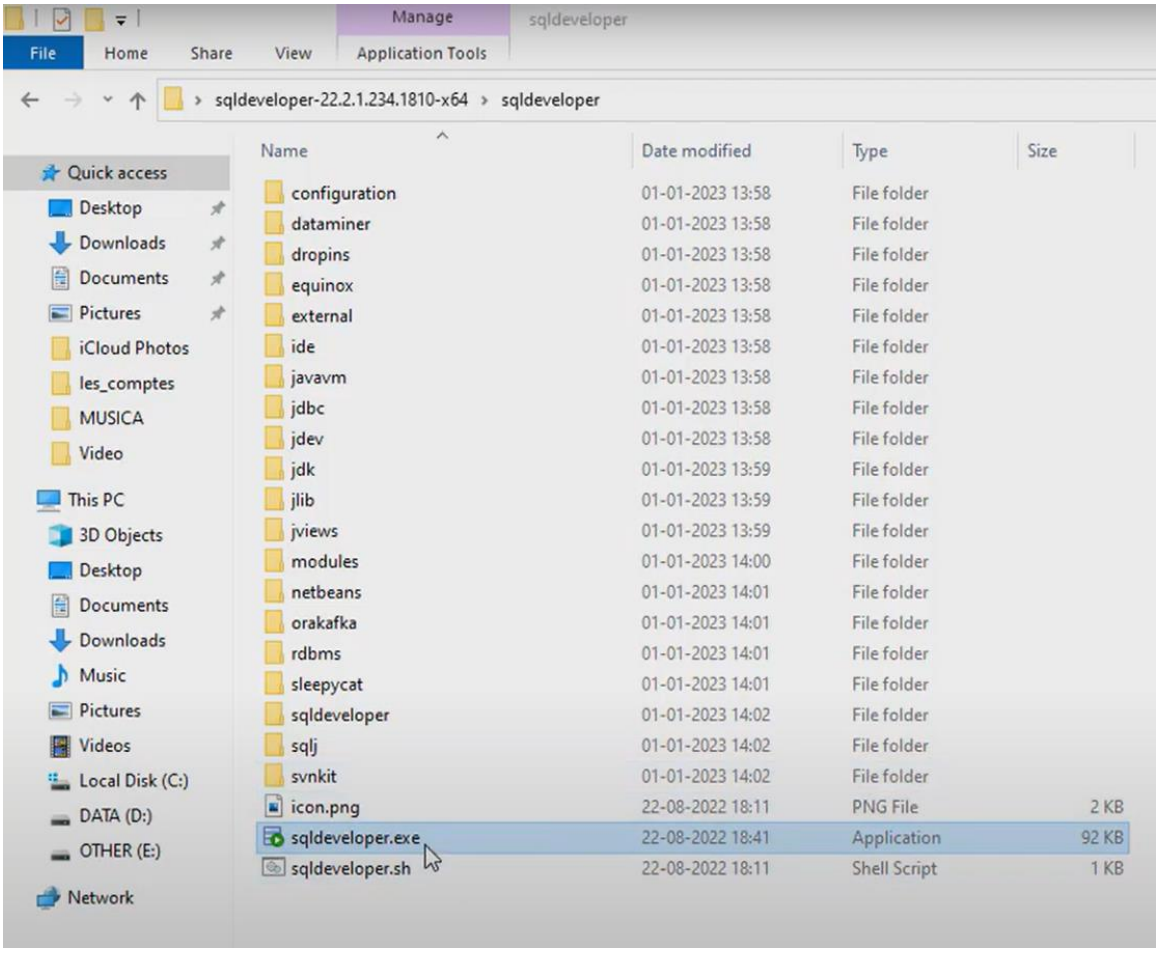


Part III: Installing SQL Developer

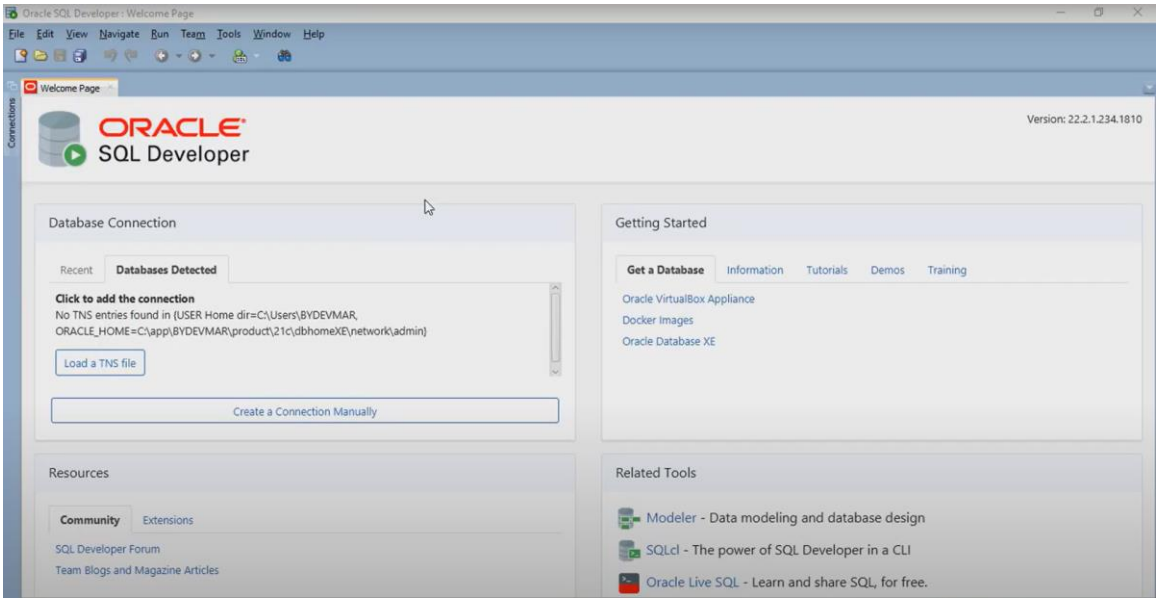
1. Extract the SQL Developer ZIP file to a local folder on your computer.



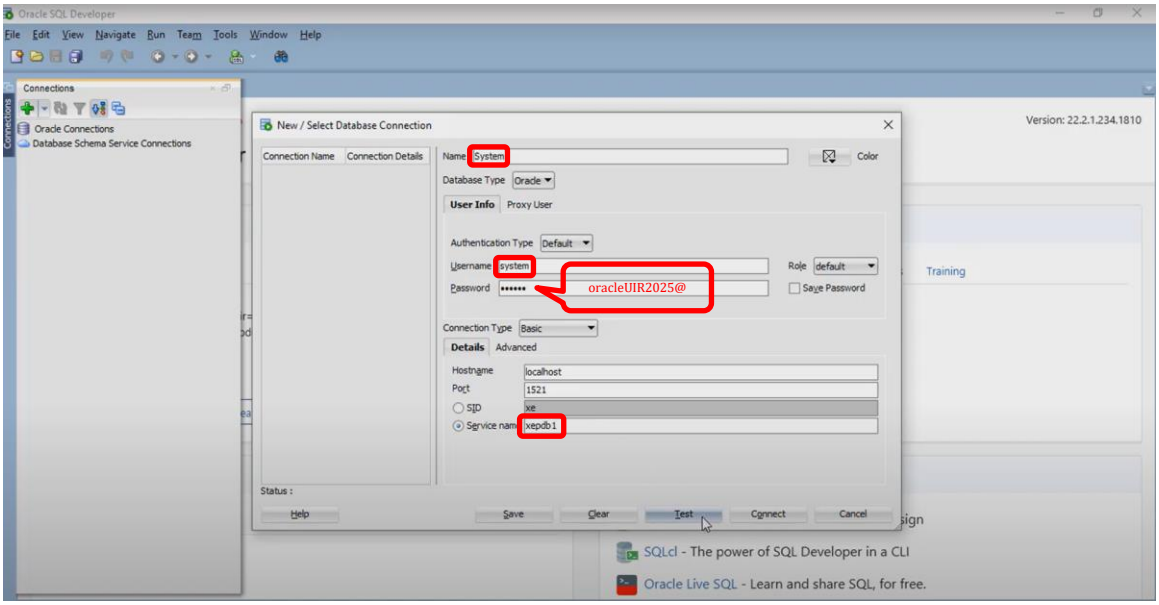
2. Open the extracted folder, then locate the file named sqldeveloper.exe and double-click it.



3. You will see the following interface.



4. Click on Connections, then press the green plus (+) button.
5. Enter the information shown in the image below, then click Test followed by Connect.



Part IV: HR Database Setup in SQL Developer

The HR (Human Resources) database is a sample schema provided by Oracle to help users learn and practice SQL and PL/SQL. It contains data about employees, departments, jobs, and locations; similar to what you might find in a real company's HR system. You can use it to explore database concepts, run queries, and write PL/SQL programs. Below is the schema of the HR database, showing the main tables and their relationships.

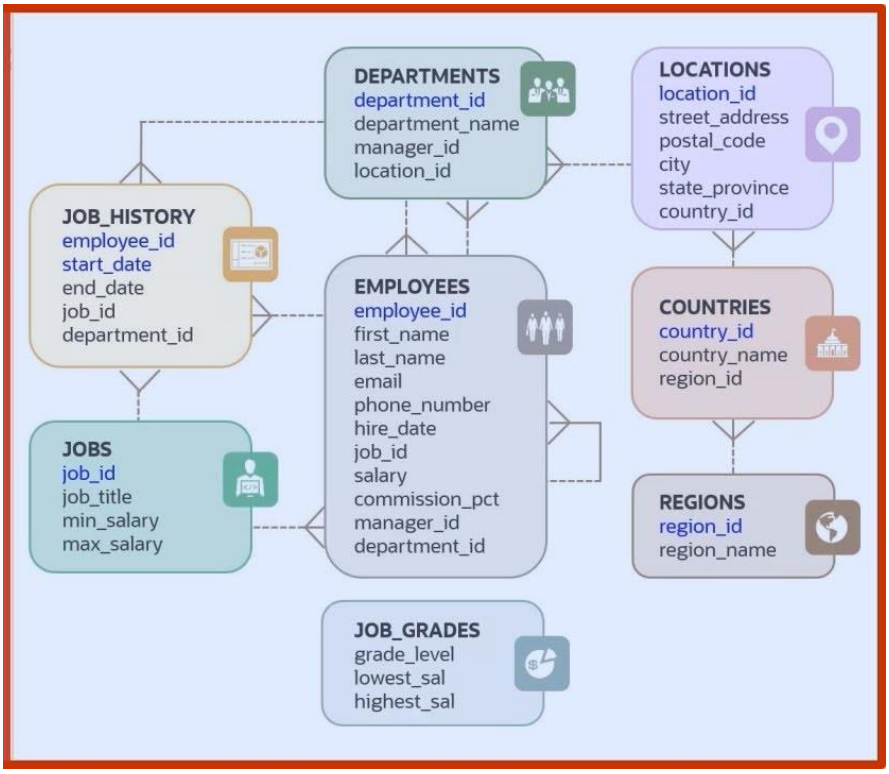
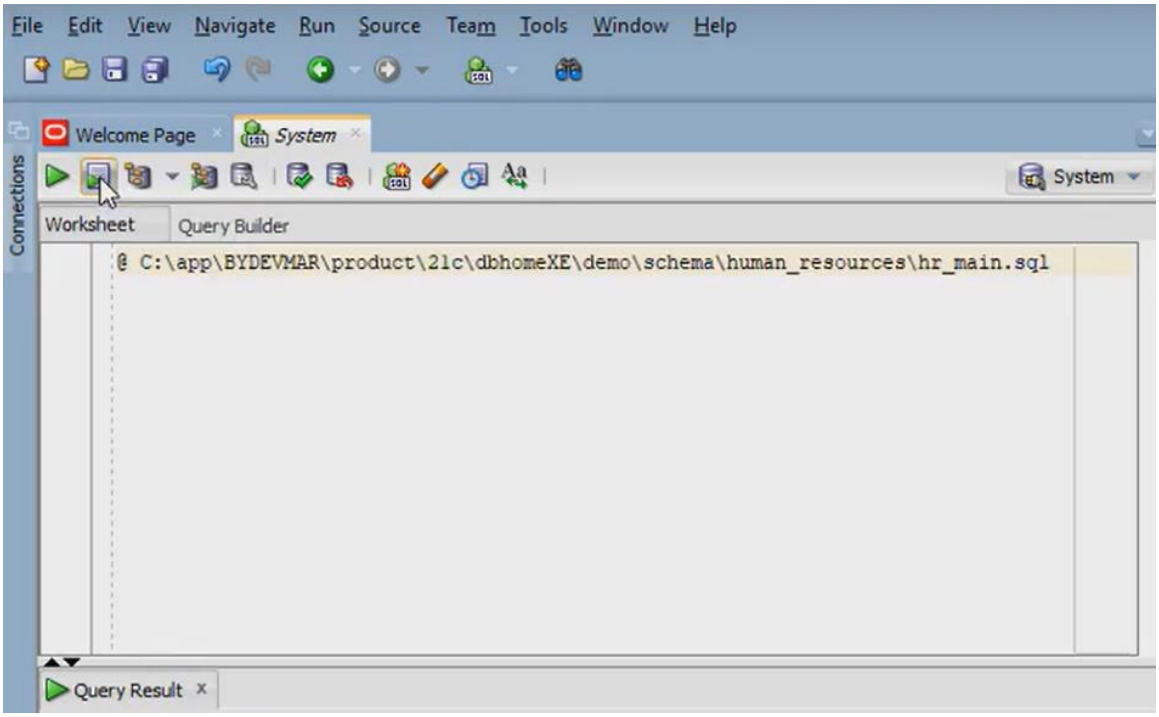


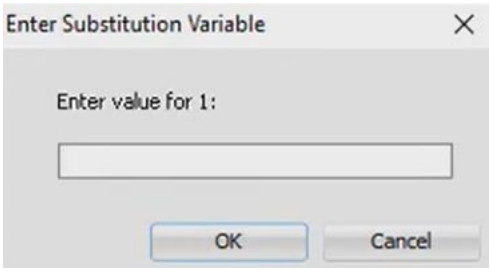
Figure 1: Schema of the Oracle HR database

1. Extract the HR ZIP file to a local folder on your computer.
2. Open the unzipped human_resources folder. Inside it, find another folder named human_resources, then copy it.
3. Go to Local Disk (C:) and open the directory: C:\app\...\product\21c\dbhomeXE\demo\schema\
4. Paste the copied human_resources folder inside the schema folder.
5. Once done, copy the full path of the newly pasted human_resources folder.
6. Open the file hr.txt that was sent to you by email. Replace the existing path “C:\app\oelha\product\21c\dbhomeXE\demo\schema\” with the new path you just copied.

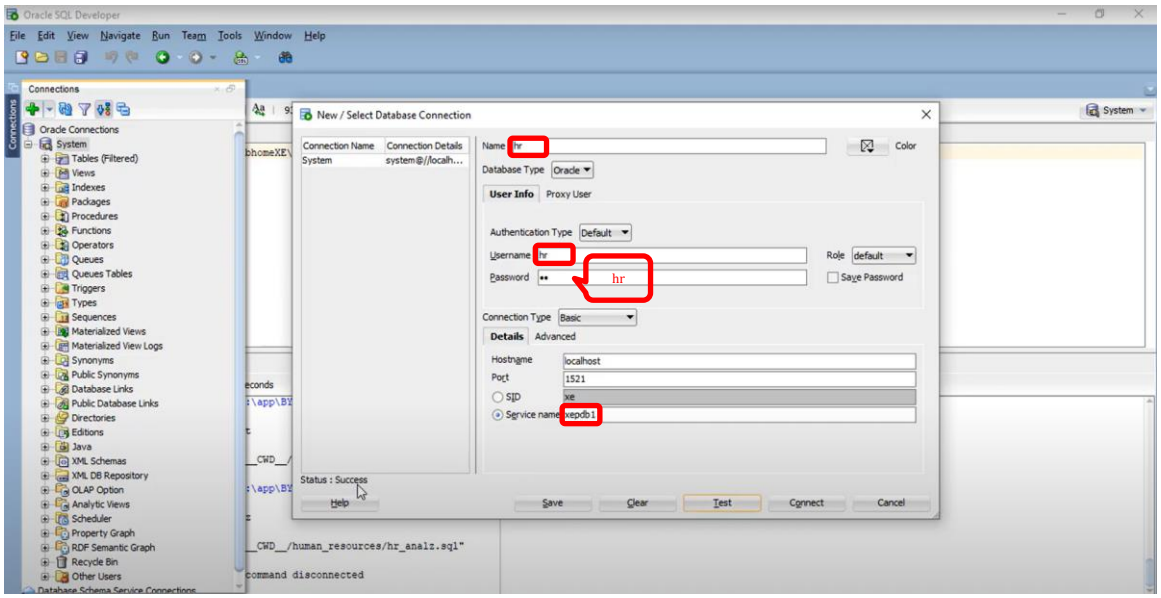
7. In SQL Developer, run the first line of the hr.txt script.



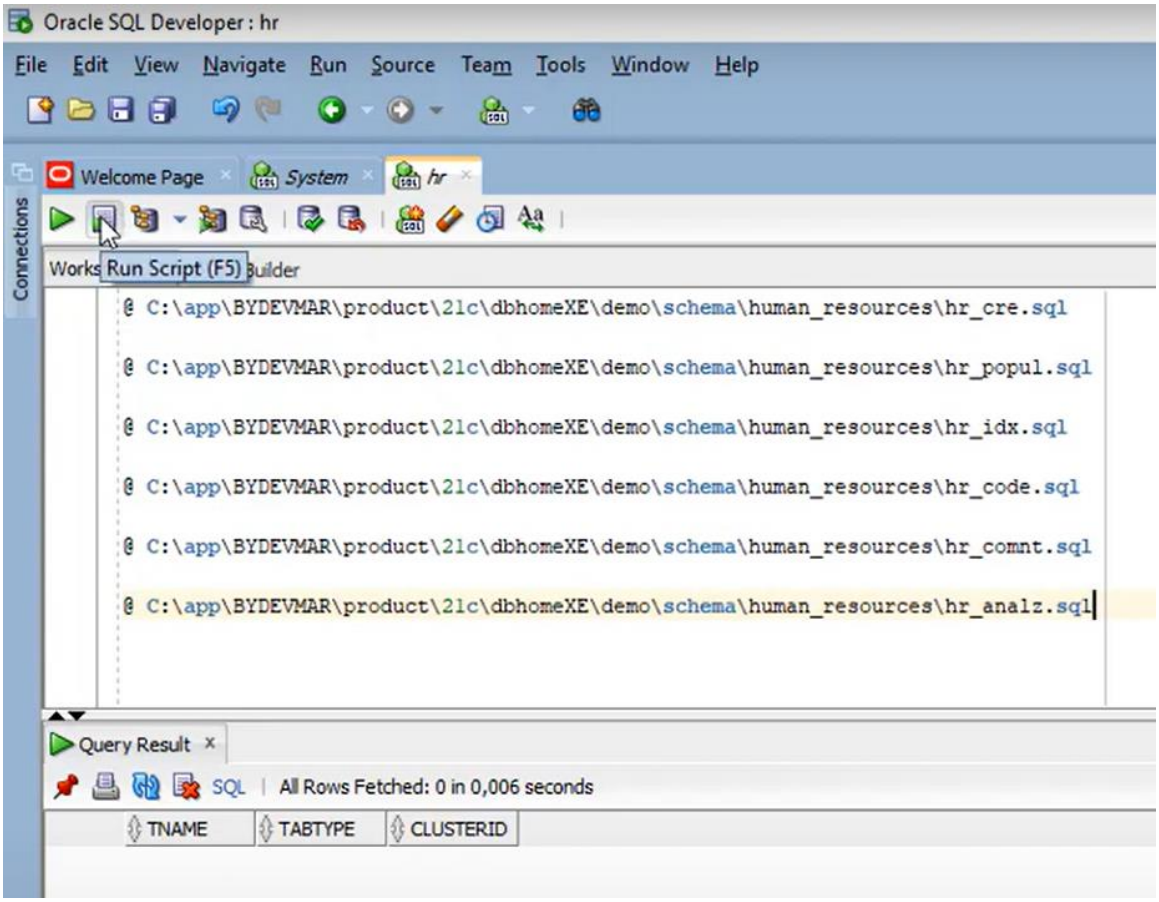
8. In the dialog boxes that open, enter the values from the hr.txt file successively.



7. Click on Connections, then press the green plus (+) button.
8. Enter the information shown in the image below, then click Test followed by Connect.



9. Copy and paste the remaining lines from the hr.txt file, then click Run Script.



Part V: Exercise PL/SQL

1. List all the tables in the HR database.
2. Display the first name, last name, and salary of all employees.
3. Show the employees who earn more than 10,000.
4. List employees who work in department 90, ordered by their salary (highest first).
5. Write a PL/SQL block that classifies an employee's salary:
   - "Low" if less than 5,000
   - "Medium" if between 5,000 and 10,000
   - "High" if more than 10,000

   Use the employee with employee_id = 103.

Note: Take a screenshot of your SQL queries and their results and submit them as your lab report.