LAB NO. 1
Intro to Oracle DBMS SQL*PLUS environment

Objectives

List the features of Oracle Database 11*g*
Discuss the theoretical and physical aspects of a relational database
Describe Oracle server's implementation of RDBMS and object relational database management system (ORDBMS)
What is SQL and basic SQL queries

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SUBJECT: ADBMS - LAB

SUBMITTED TO: SIR KIFAYAT ULLAH

DATE: 03-09-2025

DEPARTMENT OF COMPUTING

ORACLE DATABASE 11G: FOCUS AREAS

ORACLE DATABASE 11G

ORACLE FUSION MIDDLEWARE

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- Provides a central architecture for authoring, managing, and delivering information in secure and multiple formats
- Reduces complexity and time to develop, test, and deploy all kinds of reports
    - Financial Reports, Invoices, Sales or Purchase orders, XML, and EDI/EFT(eText documents)
- Enables flexible customizations
    - For example, a Microsoft Word document report can be generated in multiple formats such as PDF, HTML, Excel, RTF, and so on.

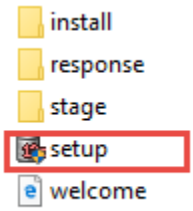
What is SQL?

SQL stands for Structured Query Language and it is an ANSI standard computer language for accessing and manipulating database systems. It is used for managing data in relational database management system which stores data in the form of tables and relationship between data is also stored in the form of tables. SQL statements are used to retrieve and update data in a database.

Installing Oracle Database

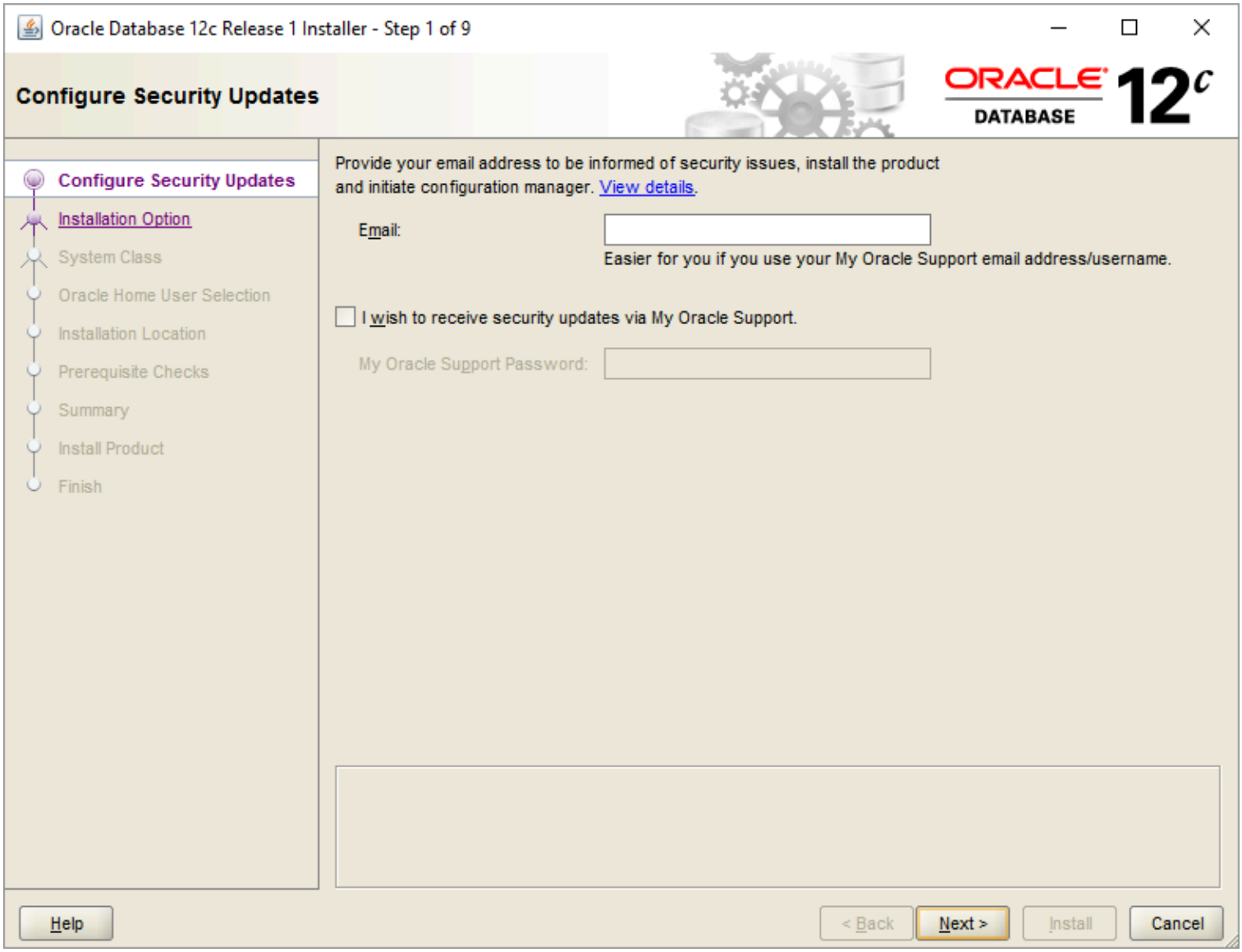
Download oracle setup, after having the installation files which are in ZIP format, you need to extract them into a specific folder on your computer.

The following picture shows the structure of the folder of the Oracle installation files after extraction.

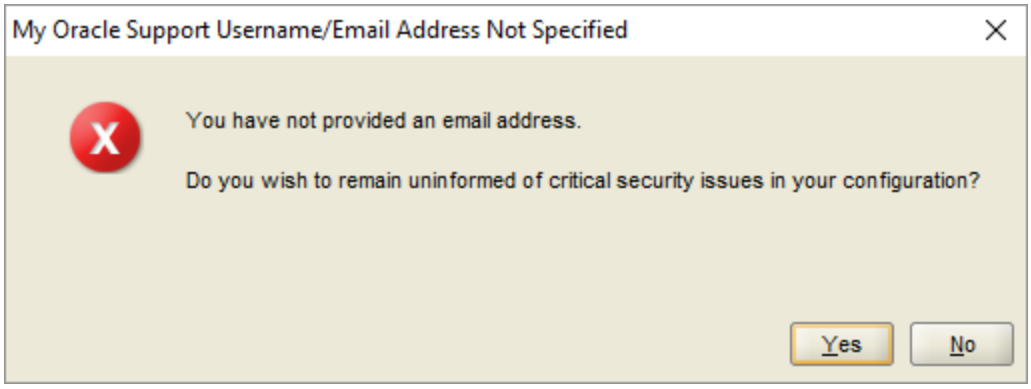


Now you need to double-click the setup.exe file to start the installation process. There will be 9 steps which mostly automatically execute.

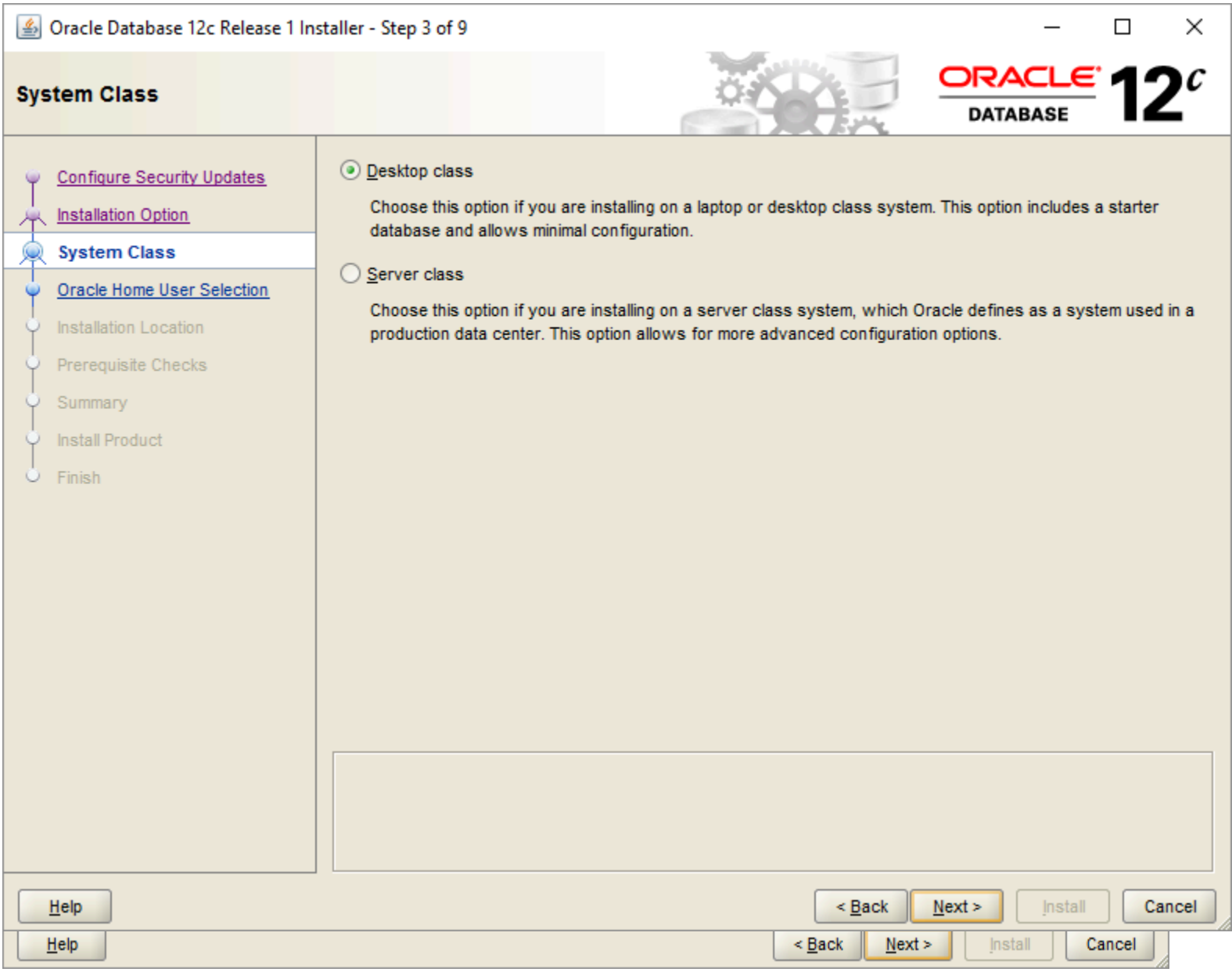
Step 1. The installer asks you to provide your email address to get the latest security issues and updates. You can ignore it by clicking the Next button



Because I didn't provide the email address, the Oracle database installer confirm it, you just need to click the No button to continue.

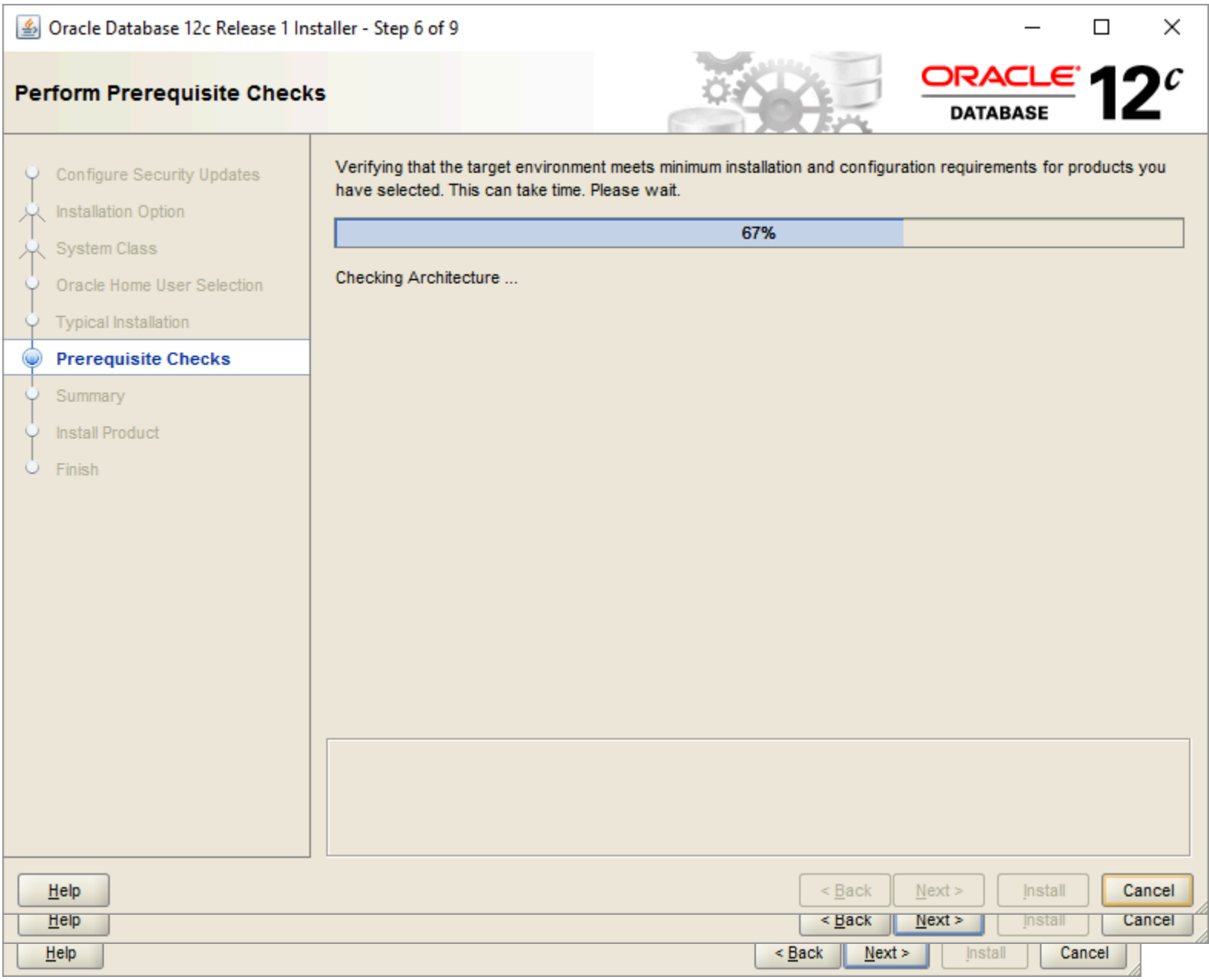


Step 2. In step 2, Oracle installer ask you to whether you want to create and configure a database, install database software only or just upgrade an existing database. Because you install the Oracle database at the first time, choose the option 1 and click the Next button.



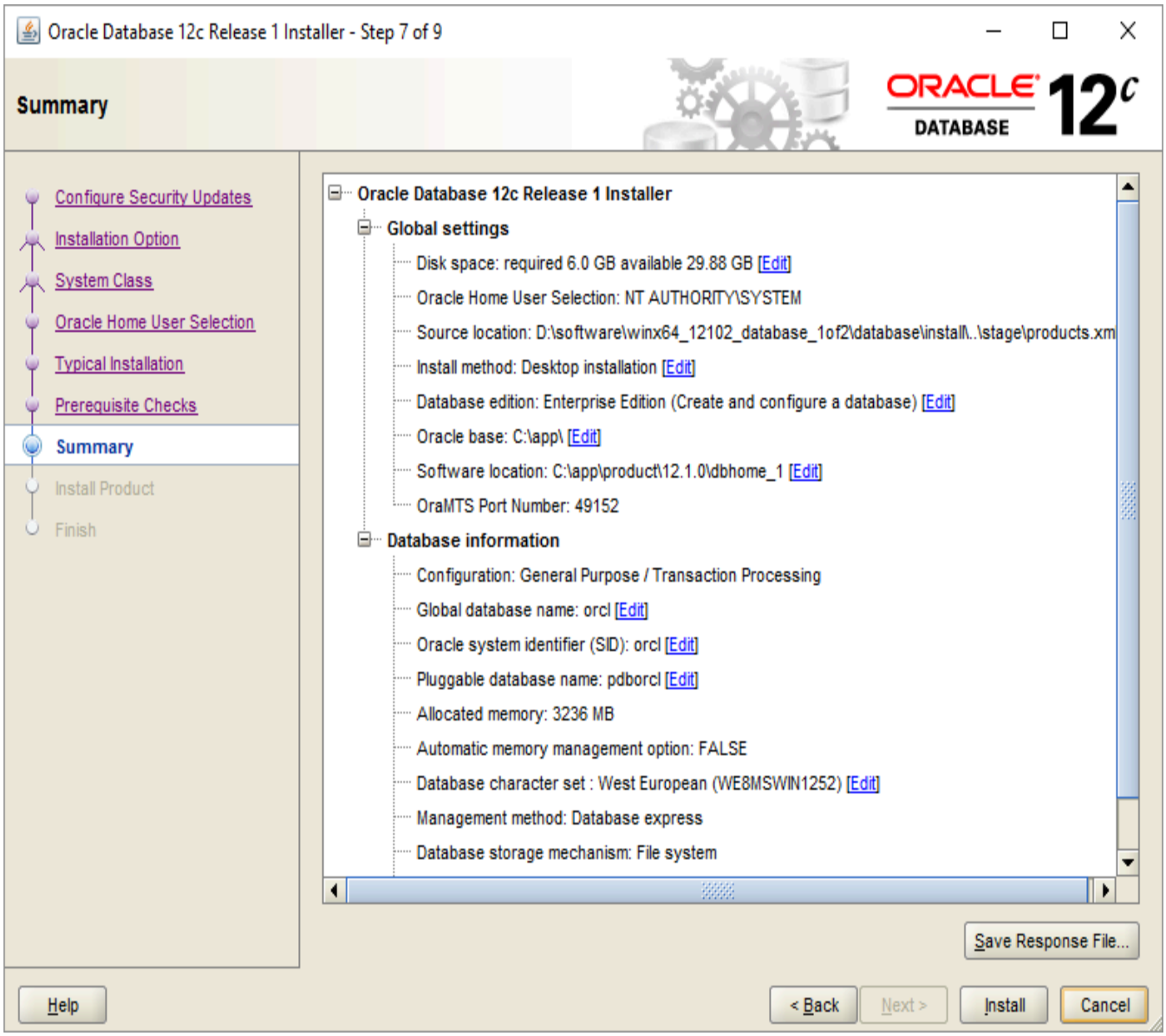
Step 3. The installer allows you to choose the system class. Because you install Oracle on your computer, not a server, therefore, you choose the first option: desktop class and click the Next button.

Step 4. This step allows you to specify the Windows user account to install and configure Oracle Home for enhanced security. Choose the third option: “Use Windows Built-in Account”.



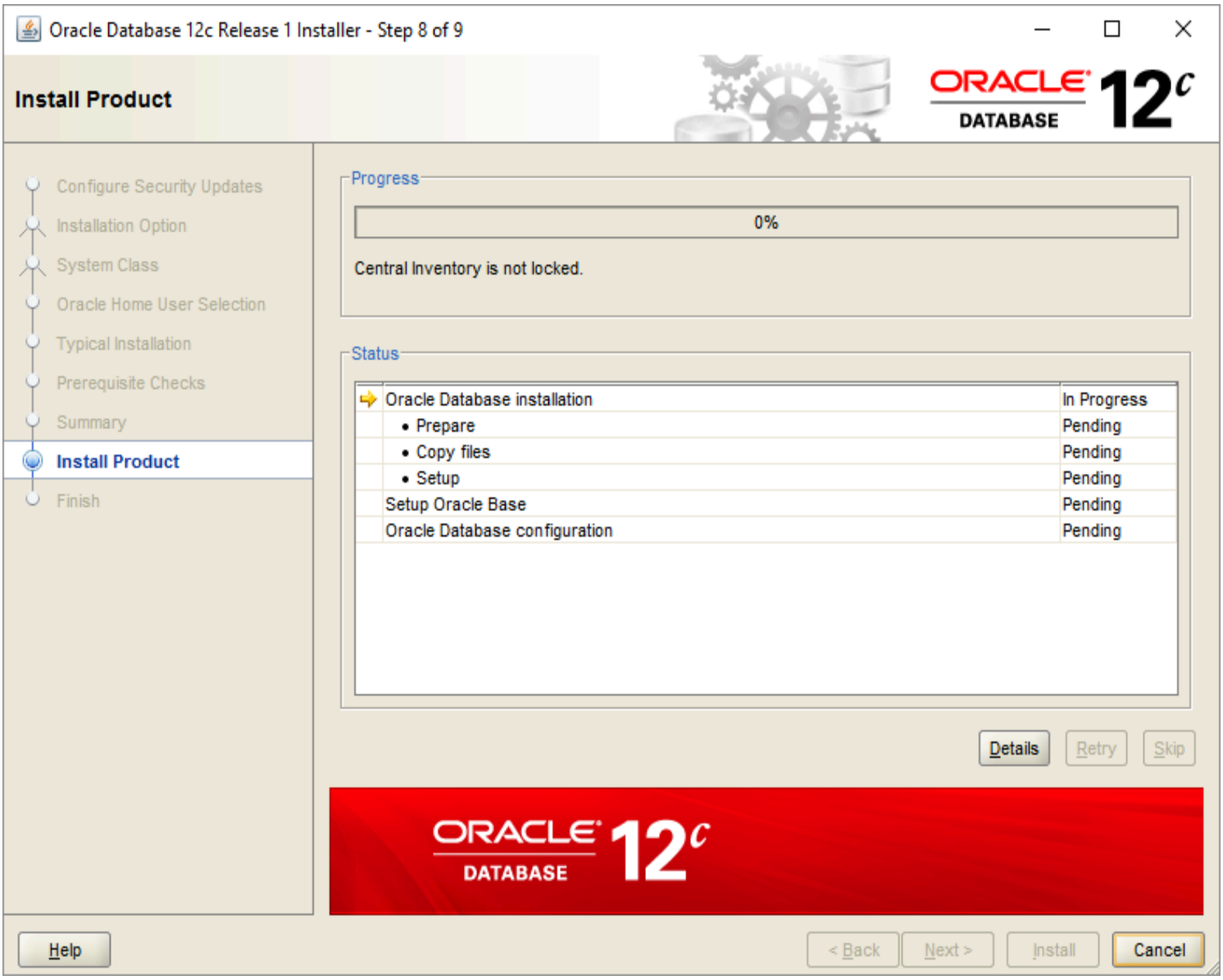
Step 5. in this step you can (1) choose the folder on which Oracle database will be installed, (2) Global database name and password, (3) pluggable database name.

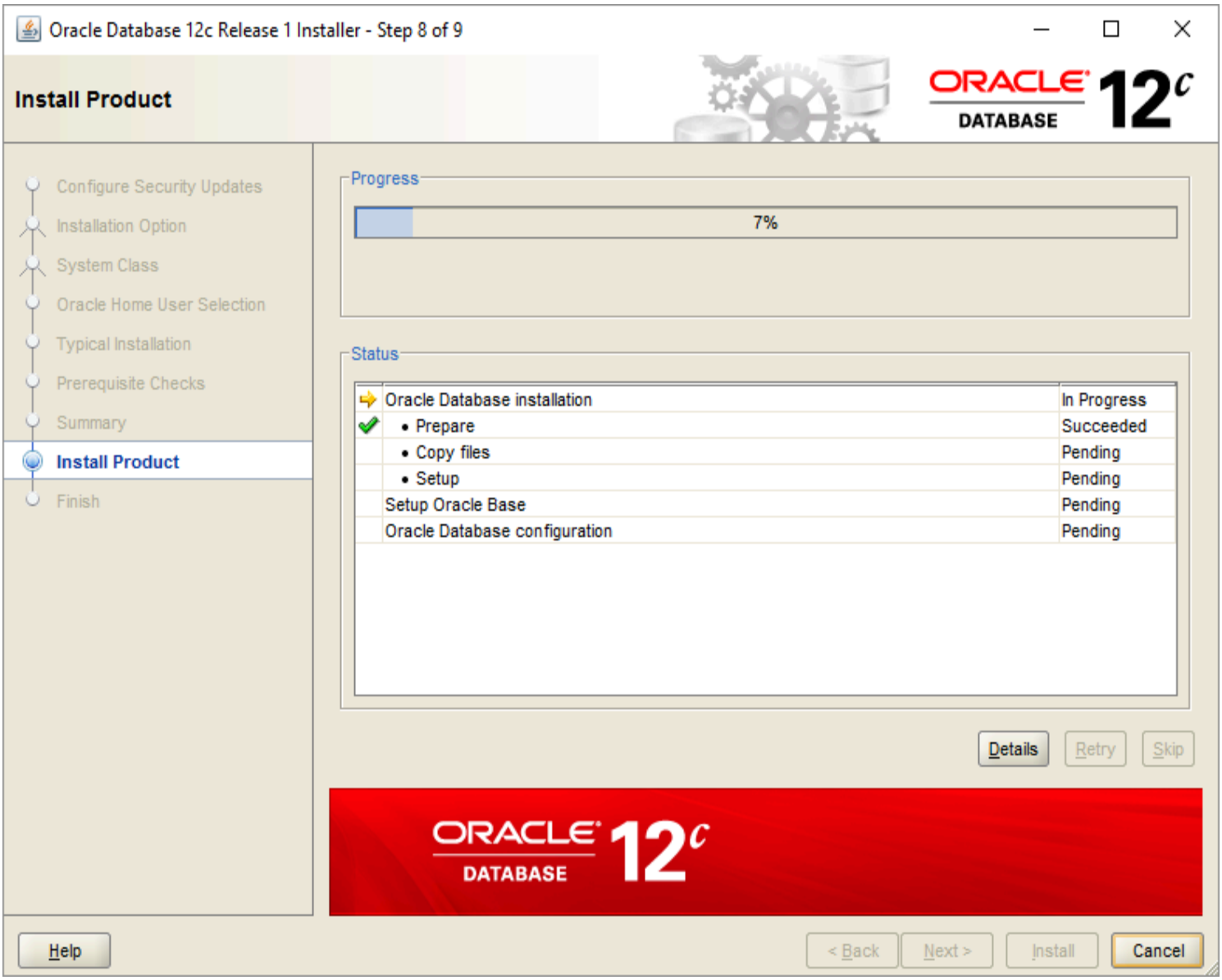
Step 6. The installer performs the prerequisite check.



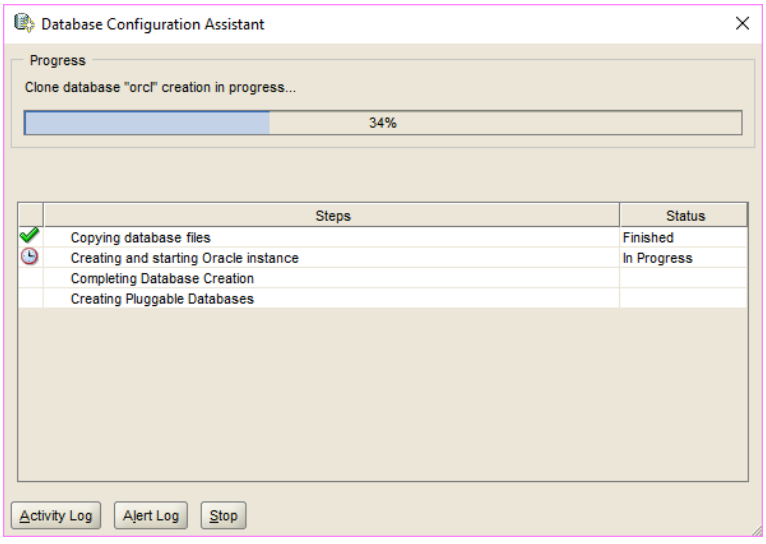
Step 7. The installer shows you the summary of the information such as global settings, database information, etc. You need to review the information and click the install button if everything is fine.

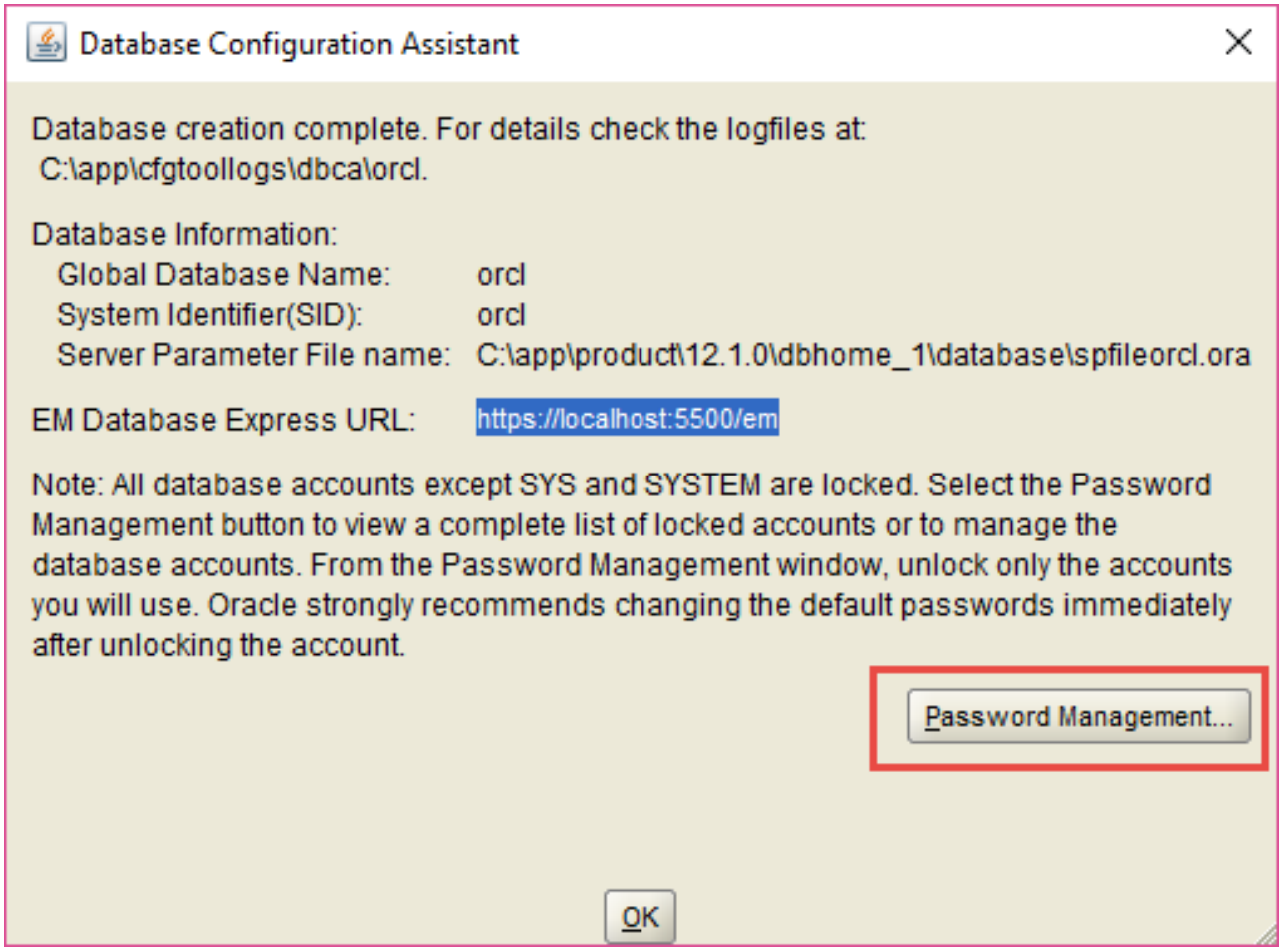
Step 8. The installer starts installing Oracle database. It will take a few minutes to complete, depending on your computer.


Oracle Database 12c Release 1 Installer - Step 8 of 9
Install Product
ORACLE DATABASE 12c
Configure Security Updates
Installation Option
System Class
Oracle Home User Selection
Typical Installation
Prerequisite Checks
Summary
Install Product
Finish
Progress
0%
Central Inventory is not locked.
Status
Oracle Database installation
In Progress
• Prepare
Pending
• Copy files
Pending
• Setup
Pending
Setup Oracle Base
Pending
Oracle Database configuration
Pending
Details
Retry
Skip
ORACLE DATABASE 12c
Help
< Back
Next >
Install
Cancel

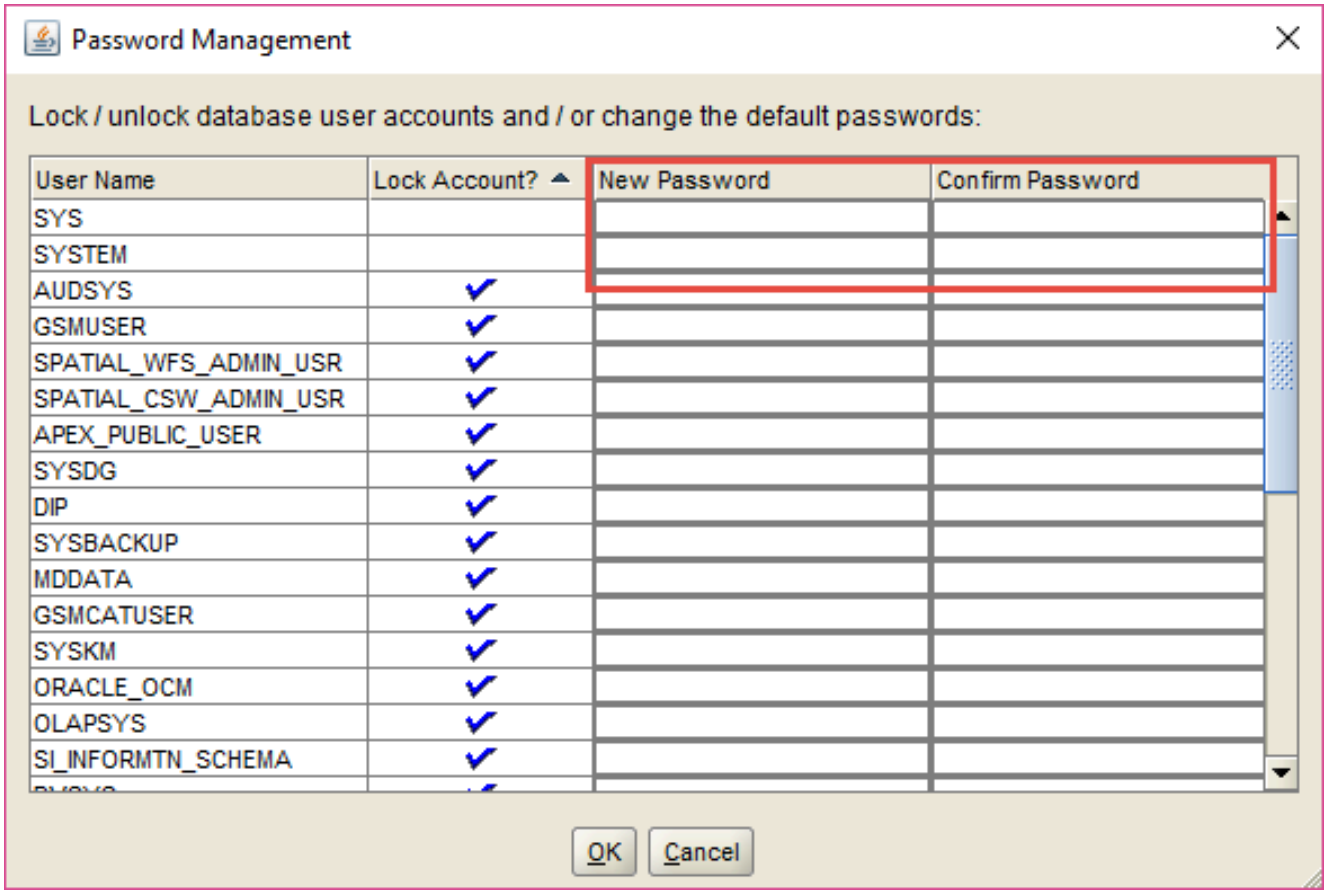


You will see the Database Configuration Assistant window. Click the *Password management*... button to enter the password for Oracle database accounts.

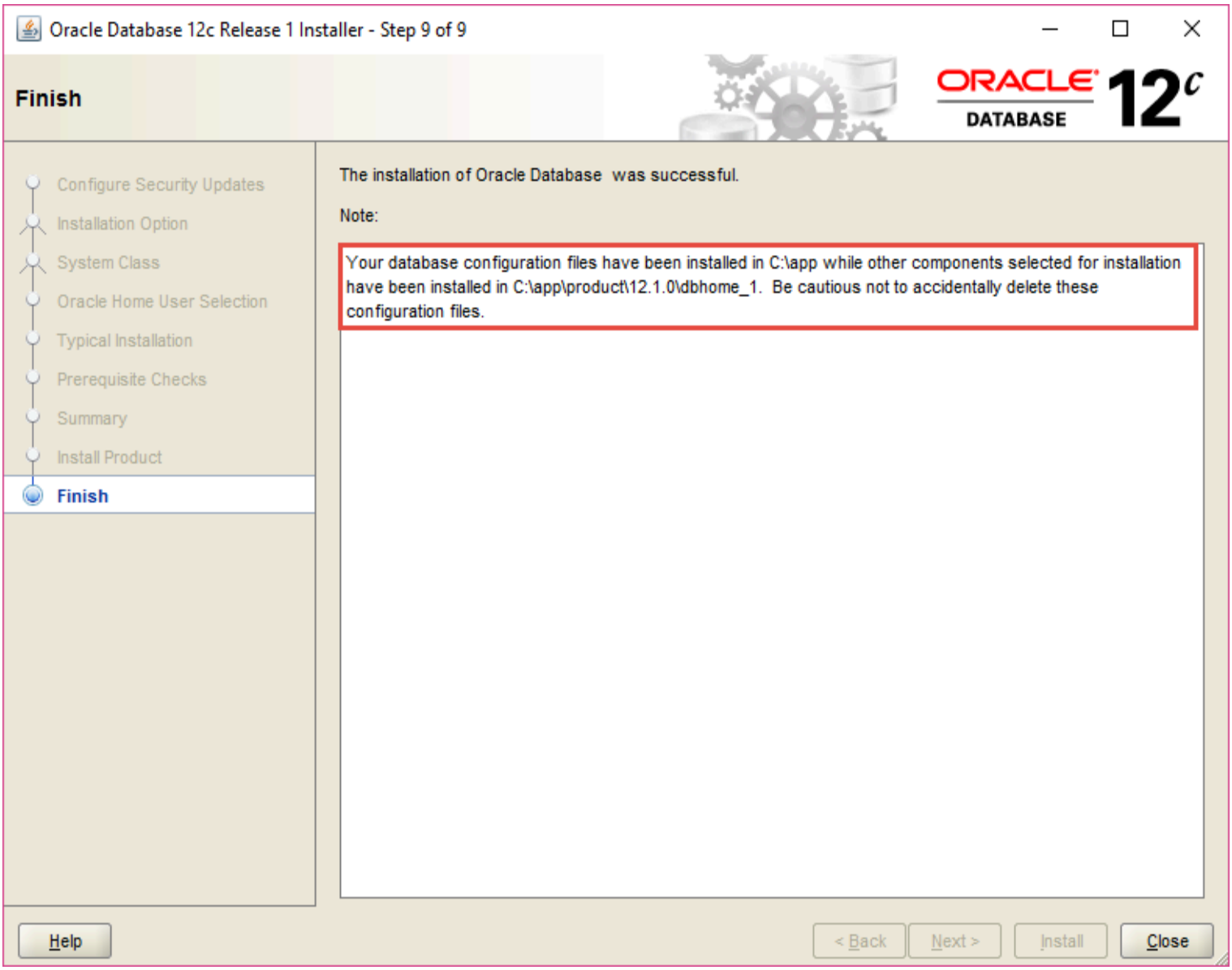




Enter the password for SYS and SYSTEM accounts and then click OK button.



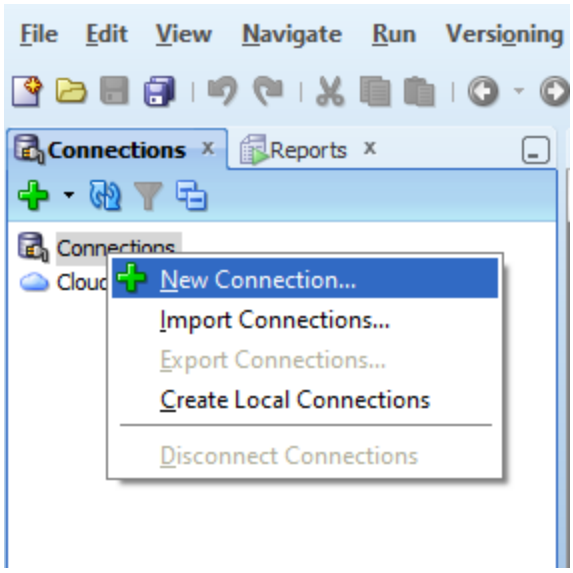
Step 9. Once installation completes successfully, the installer will inform you as shown in the following screenshot. Click the Close button to close the window.



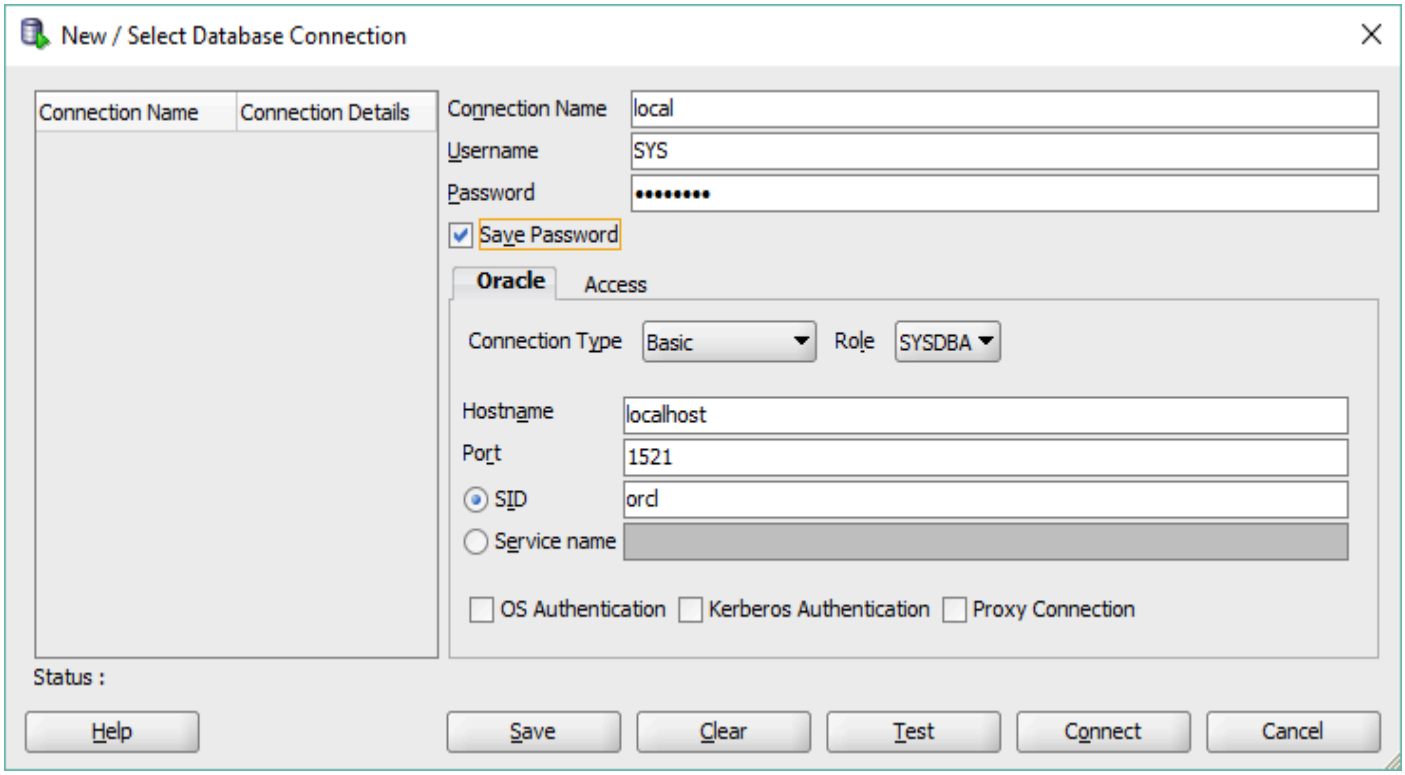
Connecting to Oracle Database

First, launch the SQL developer application provided by the Oracle Database.

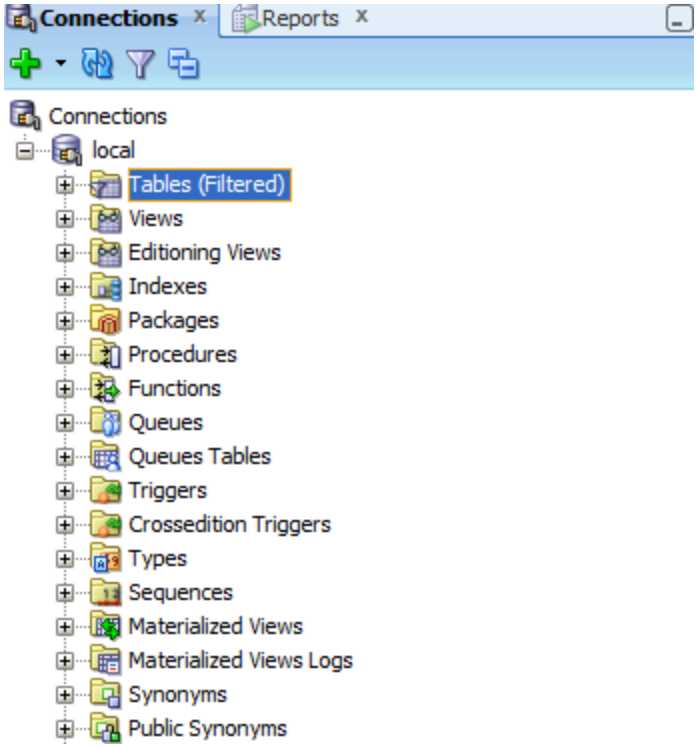
Second, right-click the connections node and choose **New Connection …** menu item to create a new connection.



Third, enter the information that you provided during the installation process as shown in the following screenshot. Click the Connect button to connect to the Oracle Database.



SQL developer will display all objects as shown below.



Congratulation! you have installed Oracle Database 12c successfully. Let's start exploring Oracle.

Adding an entry to the tnsnames.ora file

The `tnsnames.ora` file is typically located in the following directory:

```
C:\app\<user>\product\12.1.0\dbhome_1\network\admin\
```

Code language: SQL (Structured Query Language) (sql)

If you follow the above installation steps, then the file is located at the following directory:

```
C:\app\product\12.1.0\dbhome_1\network\admin\
```

Code language: SQL (Structured Query Language) (sql)

You first open the `tnsnames.ora` file using any text editor such as Notepad or Notepad++. Then, you need to add the following lines at the end of the file:

```
PDBORCL =
  (DESCRIPTION =
    (ADDRESS = (PROTOCOL = TCP)(HOST = localhost)(PORT = 1521))
    (CONNECT_DATA =
      (SERVER = DEDICATED)
      (SERVICE_NAME = pdborcl)
    )
  )
```

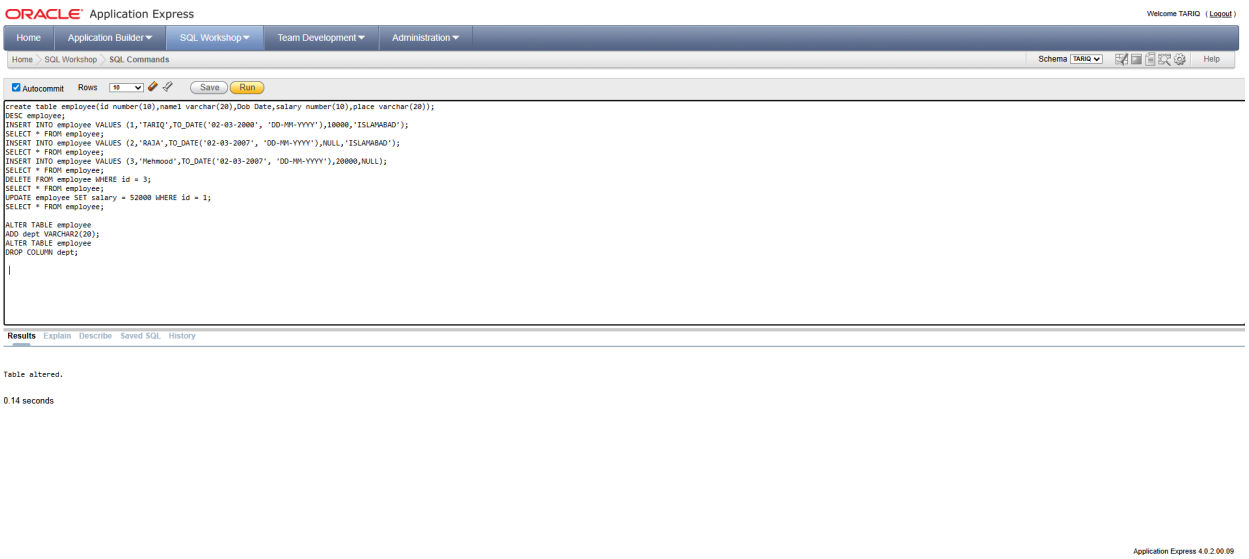
Code language: SQL (Structured Query Language) (sql)

After that, you can save the file and close it. It is time to download and load a sample database into the Oracle Database server.

TASK 1

Code:

```
create table employee(id number(10),name1 varchar(20),Dob Date,salary
number(10),place varchar(20));

DESC employee;

INSERT INTO employee VALUES (1,'TARIQ',TO_DATE('02-03-2000',
'DD-MM-YYYY'),10000,'ISLAMABAD');

SELECT * FROM employee;

INSERT INTO employee VALUES (2,'RAJA',TO_DATE('02-03-2007',
'DD-MM-YYYY'),NULL,'ISLAMABAD');

SELECT * FROM employee;

INSERT INTO employee VALUES (3,'Mehmood',TO_DATE('02-03-2007',
'DD-MM-YYYY'),20000,NULL);

SELECT * FROM employee;

DELETE FROM employee WHERE id = 3;

SELECT * FROM employee;

UPDATE employee SET salary = 52000 WHERE id = 1;

SELECT * FROM employee;


ALTER TABLE employee

ADD dept VARCHAR2(20);

ALTER TABLE employee

DROP COLUMN dept;

SELECT * FROM employee;

DROP TABLE employee;
```


ORACLE Application Express
Welcome TARIQ (Logout)
Home
Application Builder
SQL Workshop
Team Development
Administration
Home > SQL Workshop > SQL Commands
Schema TARIQ
Help
Autocommit
Rows 10
Save
Run
create table employee(id number(10),name1 varchar(20),Dob Date,salary number(10),place varchar(20));
DESC employee;
INSERT INTO employee VALUES (1,'TARIQ',TO_DATE('02-03-2000', 'DD-MM-YYYY'),10000,'ISLAMABAD');
SELECT * FROM employee;
INSERT INTO employee VALUES (2,'RAJA',TO_DATE('02-03-2007', 'DD-MM-YYYY'),NULL,'ISLAMABAD');
SELECT * FROM employee;
INSERT INTO employee VALUES (3,'Mehmood',TO_DATE('02-03-2007', 'DD-MM-YYYY'),20000,NULL);
SELECT * FROM employee;
DELETE FROM employee WHERE id = 3;
SELECT * FROM employee;
UPDATE employee SET salary = 52000 WHERE id = 1;
SELECT * FROM employee;
ALTER TABLE employee
ADD dept VARCHAR2(20);
ALTER TABLE employee
DROP COLUMN dept;
Results Explain Describe Saved SQL History
Table altered.
0.14 seconds
Application Express 4.0.2.00.09


DROP TABLE employee;
Results Explain Describe Saved SQL History
Table dropped.
0.13 seconds

TASK 2

```
SQL> connect
Enter user-name: system
Enter password:
Connected.
SQL> create table employee(id number(10),name1 varchar(20),Dob Date,salary number(10),place varchar(20));

Table created.

SQL> DESC employee;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 ID                                                 NUMBER(10)
 NAME1                                              VARCHAR2(20)
 DOB                                                DATE
 SALARY                                             NUMBER(10)
 PLACE                                              VARCHAR2(20)

SQL> INSERT INTO employee VALUES (1,'TARIQ',TO_DATE('02-03-2000', 'DD-MM-YYYY'),10000,'ISLAMABAD');

1 row created.

SQL> SELECT * FROM employee;

        ID NAME1                DOB           SALARY PLACE
---------- -------------------- --------- ---------- --------------------
         1 TARIQ                02-MAR-00      10000 ISLAMABAD

SQL> INSERT INTO employee VALUES (2,'RAJA',TO_DATE('02-03-2007', 'DD-MM-YYYY'),NULL,'ISLAMABAD');

1 row created.

SQL> SELECT * FROM employee;

        ID NAME1                DOB           SALARY PLACE
---------- -------------------- --------- ---------- --------------------
         1 TARIQ                02-MAR-00      10000 ISLAMABAD
         2 RAJA                 02-MAR-07            ISLAMABAD

SQL> INSERT INTO employee VALUES (3,'Mehmood',TO_DATE('02-03-2007', 'DD-MM-YYYY'),20000,NULL);

1 row created.

SQL> SELECT * FROM employee;

        ID NAME1                DOB           SALARY PLACE
---------- -------------------- --------- ---------- --------------------
         1 TARIQ                02-MAR-00      10000 ISLAMABAD
         2 RAJA                 02-MAR-07            ISLAMABAD
         3 Mehmood              02-MAR-07      20000
```

```
SQL> SELECT * FROM employee;

        ID NAME1                DOB           SALARY PLACE
---------- -------------------- --------- ---------- --------------------
         1 TARIQ                02-MAR-00      10000 ISLAMABAD
         2 RAJA                 02-MAR-07            ISLAMABAD
         3 Mehmood              02-MAR-07      20000

SQL> DELETE FROM employee WHERE id = 3;

1 row deleted.

SQL> SELECT * FROM employee;

        ID NAME1                DOB           SALARY PLACE
---------- -------------------- --------- ---------- --------------------
         1 TARIQ                02-MAR-00      10000 ISLAMABAD
         2 RAJA                 02-MAR-07            ISLAMABAD

SQL> UPDATE employee SET salary = 52000 WHERE id = 1;

1 row updated.

SQL> SELECT * FROM employee;

        ID NAME1                DOB           SALARY PLACE
---------- -------------------- --------- ---------- --------------------
         1 TARIQ                02-MAR-00      52000 ISLAMABAD
         2 RAJA                 02-MAR-07            ISLAMABAD

SQL>
SQL> ALTER TABLE employee
  2  ADD dept VARCHAR2(20);

Table altered.

SQL> ALTER TABLE employee
  2  DROP COLUMN dept;

Table altered.

SQL> SELECT * FROM employee;

        ID NAME1                DOB           SALARY PLACE
---------- -------------------- --------- ---------- --------------------
         1 TARIQ                02-MAR-00      52000 ISLAMABAD
         2 RAJA                 02-MAR-07            ISLAMABAD

SQL>
```

```
SQL> DROP TABLE employee;

Table dropped.

SQL>
```