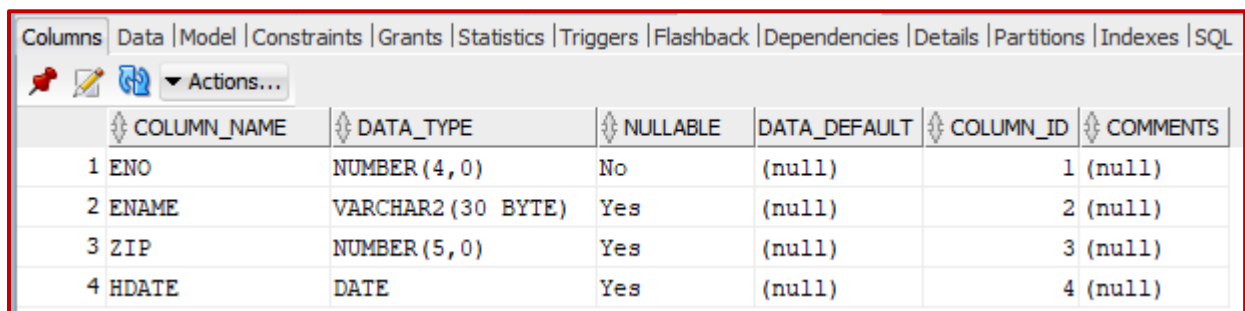## Programming Exercise

1. Objective

In this lab, you are going to write a JAVA program which is to interact with users to satisfy their queries. It is first to display a list of employees and ask user to choose one of them by entering the employee's ID number. Then the program will display more details about the employee. (*See the sample run below*.) In this program, we do not consider the error checking, assuming all inputs are correct.

2. Table EMPLOYEES

First of all, we need the database, i.e. the table and the data. Let's take a look at the table structure (*as shown below*).

	COLUMN_NAME	DATA_TYPE	NULLABLE	DATA_DEFAULT	COLUMN_ID	COMMENTS
1	ENO	NUMBER(4,0)	No	(null)	1	(null)
2	ENAME	VARCHAR2(30 BYTE)	Yes	(null)	2	(null)
3	ZIP	NUMBER(5,0)	Yes	(null)	3	(null)
4	HDATE	DATE	Yes	(null)	4	(null)

In addition, we would have the records as follows.
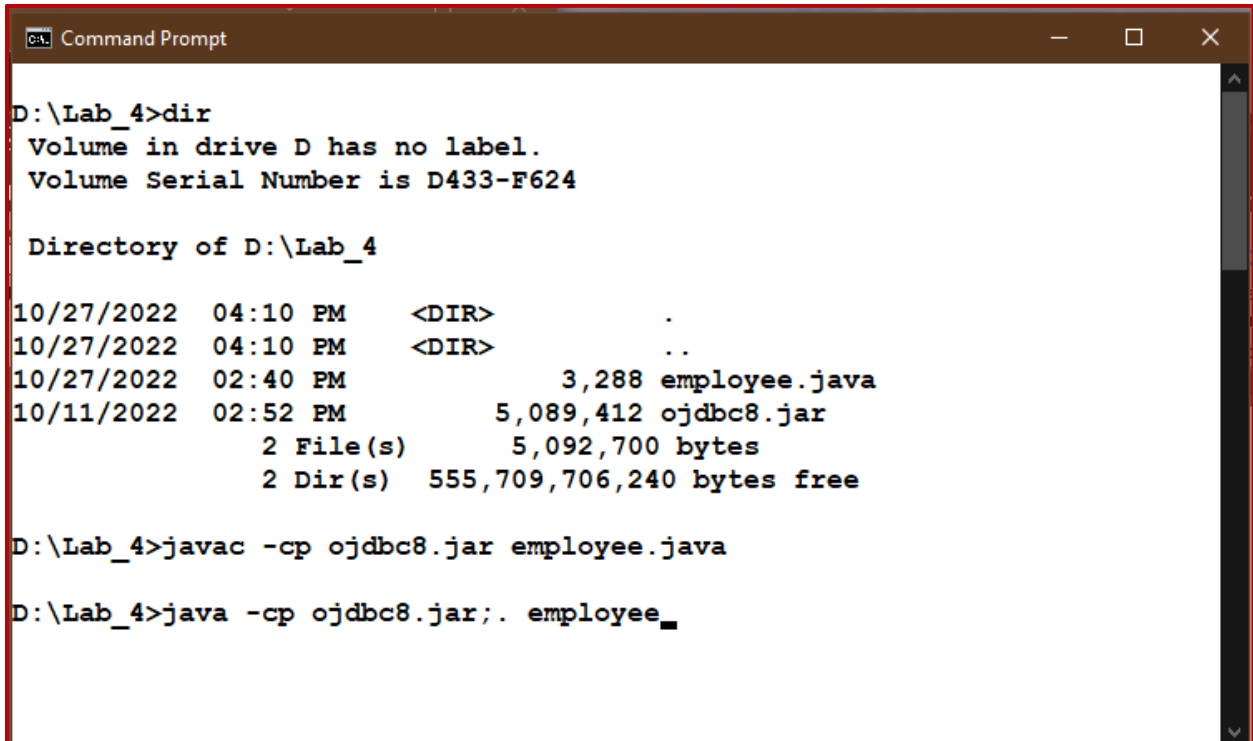
ENO	ENAME	ZIP	HDATE
1000	Jones	67226	12-DEC-10
1001	Brown	67226	12-DEC-11
1002	Green	67200	12-DEC-12
1010	Clark	67200	01-JAN-13
1011	Black	67225	01-JAN-13
1012	Kent	67206	12-FEB-16
1020	Jones	67216	26-FEB-16
1021	Smith	67225	28-MAR-17
1022	Laney	67225	28-MAR-18
1025	Marsh	67226	24-MAY-18
1028	Mary	67200	26-MAY-19

(*Or, you may import the database from* **employee_data.sql**.)

3. Sample Run of the Program

First of all, we would run this program under Department's PC. We would save the source code file at **D:\Lab_4**. The Java source code file is named "**employee.java**".

Below is the execution of the program under the Windows environment.

```
Command Prompt                                                    —    □    ✕

D:\Lab_4>dir
 Volume in drive D has no label.
 Volume Serial Number is D433-F624

 Directory of D:\Lab_4

10/27/2022  04:10 PM    <DIR>          .
10/27/2022  04:10 PM    <DIR>          ..
10/27/2022  02:40 PM             3,288 employee.java
10/11/2022  02:52 PM         5,089,412 ojdbc8.jar
               2 File(s)      5,092,700 bytes
               2 Dir(s)   555,709,706,240 bytes free

D:\Lab_4>javac -cp ojdbc8.jar employee.java

D:\Lab_4>java -cp ojdbc8.jar;. employee_
```
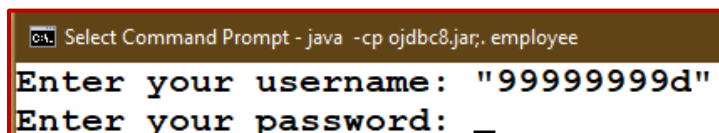
After we have compiled the source code file, we start the program and to have the following login screen. It is to ask user to input the "*Oracle ID*" and "*password*".

(*Don't forget to double quote your Oracle ID."*)

```
Select Command Prompt - java  -cp ojdbc8.jar;. employee
Enter your username: "99999999d"
Enter your password: _
```

As the program starts, it shows the list of employees. User can input one of the "employee's number" (*the first column*) to query the application.

```
Command Prompt - java  -cp ojdbc8.jar;. employee
1000 Jones
1001 Brown
1002 Green
1010 Clark
1011 Black
1012 Kent
1020 Jones
1021 Smith
1022 Laney
1025 Marsh
1028 Mary


employee number:
```

For example, user enters "1012". More details about employee 1012 will be returned and shown on the screen (*as shown below*). User can input a number to return to the query screen or "-1" to exit.

```
Command Prompt - java  -cp ojdbc8.jar;. employee
1000 Jones
1001 Brown
1002 Green
1010 Clark
1011 Black
1012 Kent
1020 Jones
1021 Smith
1022 Laney
1025 Marsh
1028 Mary

employee number: 1012
1012 Kent 67206 2016-02-12

 Enter a number to continue or -1 to exit. 1_
```

Input "-1" to terminate the application.

```
Select Command Prompt - java  -cp ojdbc8.jar;. employee
1000 Jones
1001 Brown
1002 Green
1010 Clark
1011 Black
1012 Kent
1020 Jones
1021 Smith
1022 Laney
1025 Marsh
1028 Mary

employee number: 1025
1025 Marsh 67226 2018-05-24

 Enter a number to continue or -1 to exit. -1
```

The "Exit" screen looks like the following.

```
Command Prompt - java  -cp ojdbc8.jar;. employee
Bye!
 Press 'Enter' to exit.
```

Below is the sample running on our Department's Server, *apollo*. It is similar to the previous execution (*on Windows platform*).

```
Command Prompt - ssh  csamak@csdoor.comp.polyu.edu.hk

D:\Lab_4>ssh csamak@csdoor.comp.polyu.edu.hk
csamak@csdoor.comp.polyu.edu.hk's password:
```

```
OpenSSH SSH client                                    —    □
csamak-apollo:/home/csamak/Lab_4$ ls
employee.java*  ojdbc8.jar*
csamak-apollo:/home/csamak/Lab_4$ javac -cp ojdbc8.jar employee.java
csamak-apollo:/home/csamak/Lab_4$ java -cp ojdbc8.jar:. employee
```

```
OpenSSH SSH client
Enter your username: "99999999d"
Enter your password:
```

```
OpenSSH SSH client
1000 Jones
1001 Brown
1002 Green
1010 Clark
1011 Black
1012 Kent
1020 Jones
1021 Smith
1022 Laney
1025 Marsh
1028 Mary

employee number: _
```

```
OpenSSH SSH client
1000 Jones
1001 Brown
1002 Green
1010 Clark
1011 Black
1012 Kent
1020 Jones
1021 Smith
1022 Laney
1025 Marsh
1028 Mary

employee number: 1002
1002 Green 67200 2012-12-12

 Enter a number to continue or -1 to exit. 0
```

```
OpenSSH SSH client
1000 Jones
1001 Brown
1002 Green
1010 Clark
1011 Black
1012 Kent
1020 Jones
1021 Smith
1022 Laney
1025 Marsh
1028 Mary

employee number: 1025
1025 Marsh 67226 2018-05-24

 Enter a number to continue or -1 to exit. -1
```

```
OpenSSH SSH client
Bye!
 Press 'Enter' to exit.
```

✎   End   ✎