Introduction to computer programming A
LAB1

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Class Schedule

- **Lectures:** 10:20 am - 12:10 am Lychee Hills Building xx Room xxx
- **Lab:** 19:00 am – 20:50 pm Lychee Hills Building 6 Room 402
- **Grading policy**

  Lecture attendance and quizzes (10%)
  Lab attendance and exercise (10%)
  Assignments (30%)
  Project (20%)
  Final exam (30%)

Introduction

■ **Lab exercise:** The content of lab exercise is prepared according to the knowledge introduced in lectures. Normally, we provide 3 to 7 exercises per lab.

■ **Lab Assignment:** 2.The assignment is independent from the lab exercise and will be sent to you separately. All of you should submit the assignment before the deadline. There will be about 6 assignments in this course.

Submission of Assignment:

We will use an Online Judge (OJ) platform to automatically grade your programming assignments. More instructions will be given later.

■ **Final Project:** Before the end of this semester, all of you should accomplish a project. The number of group members is 2-3.

Other considerations

- **Student Assistant**

CS102B LAB	student Assistamt	e-mail
19:00 am – 20:50 pm Lychee Hills Building 6 Room 402 周三 **9-10** 节(lab9) 荔园**6**栋**409**机房[贾艳红]	伍凯铭	11611326@mail.sustech.edu.cn
	王子祺	11710822@mail.sustech.edu.cn

- **Communication platform:**

QQ group:

群名称:CS102A-LAB9-周三9-10节
群　号:1040739494

OBJECTIVES

1 Downloading and Installing JDK

2 Editing, Compiling and Running Java programs

3 exercises

1 Downloading and Installing JDK

1.1 what is jdk?

Source code (developed by the programmer)

```
public class Welcome {
  public static void main(String[] args) {
    System.out.println("Welcome to Java!");
  }
}
```

Bytecode (generated by the compiler for JVM
to read and interpret)

```
...
Method Welcome()
  0 aload_0
  ...

Method void main(java.lang.String[])
  0 getstatic #2 …
  3 ldc #3 <String "Welcome to Java!">
  5 invokevirtual #4 …
  8 return
```

"Welcome to Java" is displayed on the console

```
Welcome to Java!
```

Create/Modify Source Code

Saved on the disk

Source Code

Compile Source Code
e.g., `javac Welcome.java`

If compile errors occur

Stored on the disk

Bytecode

Run Bytecode
e.g., `java Welcome`

Result

If runtime errors or incorrect result

The Java Development Kit (JDK) is a software development environment used for developing Java applications and applets. It includes a Java Runtime Environment (JRE), an interpreter/loader (java), a compiler (javac), an archiver (jar), a documentation generator (javadoc) and other tools needed in Java development.

1.2 Downloading JDK

Download url: http://www.oracle.com/technetwork/java/javase/downloads/index.html

1. Scroll to the **Java SE 8u211 / Java SE 8u212** section in the middle of **the Oracle Java download page** and click on the **Download** button right below JDK. Then look for the **Java SE Development Kit 8u212** section.

2. Accept the License Agreement and pick the correct download for your operating system. In this example, we will use the Windows 64 bit version.

1.2 Downloading JDK

3. Select the right download for your operating system.

4.Sign in using your Oracle account (or create a new one) and the download should start.

1.3 Installing JDK

◆ Once the download is complete, locate the *jdk-8u212-windows-x64.exe* file and **double-click to run the installer**.

◆ Click *Next* and on the following screen optionally change the installation location by clicking on the *Change...* button. In this example the default install location of *'C:\Program Files\Java\jdk1.8.0_212\'* was kept. From now on we will refer to this directory as: *[java_install_dir]*.
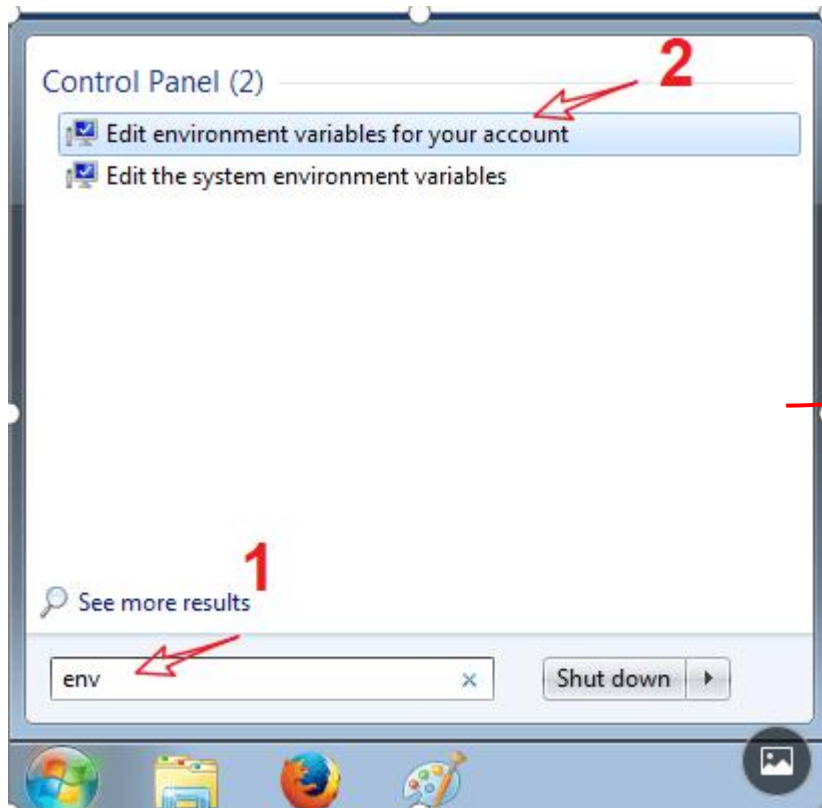
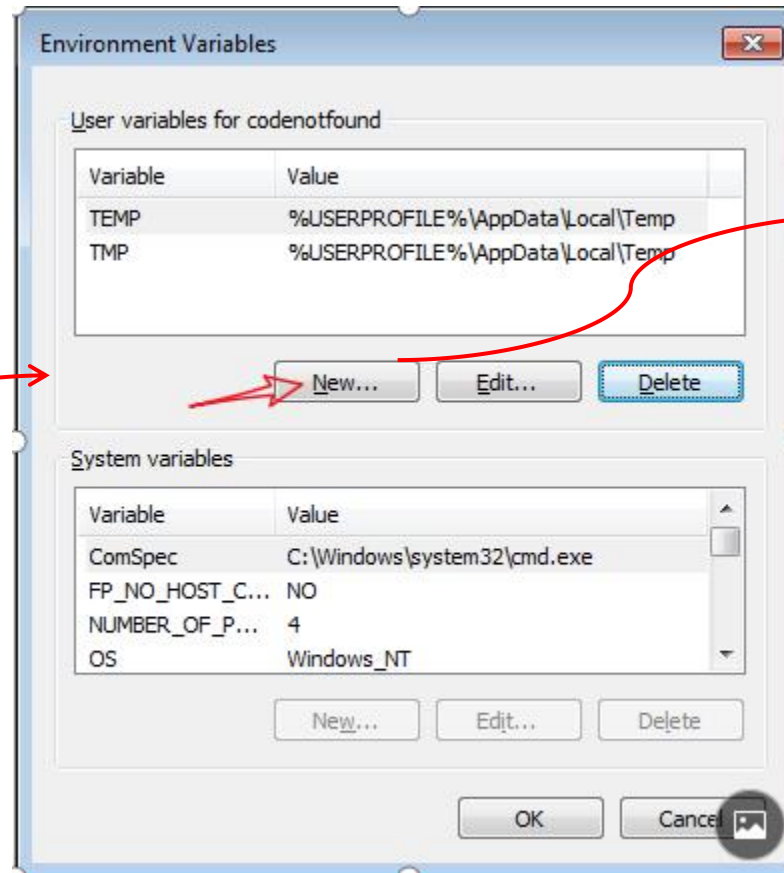➢ Click *Next* and then *Close* to finish installing Java.
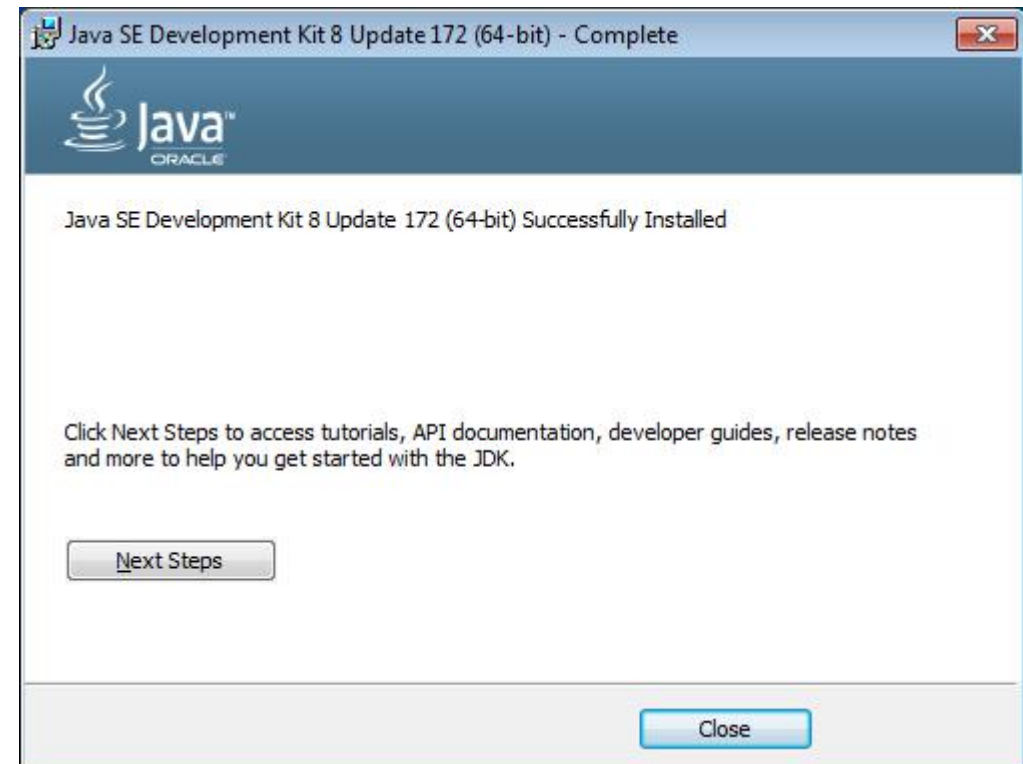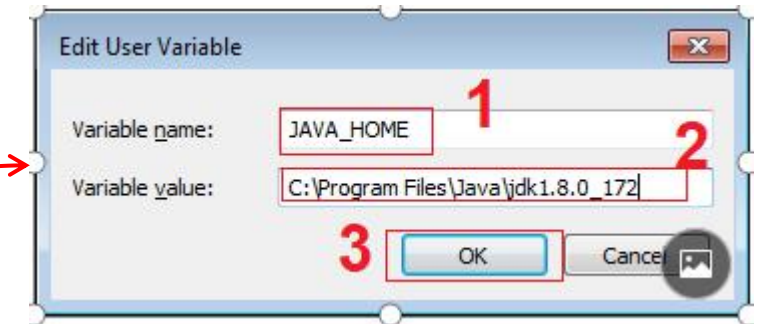
1.4 Configuring JDK

1. Click on the Windows **Start** button and enter **"env"** without quotes as shown below.

2. click on *Edit environment variables for your account* and following panel should appear.
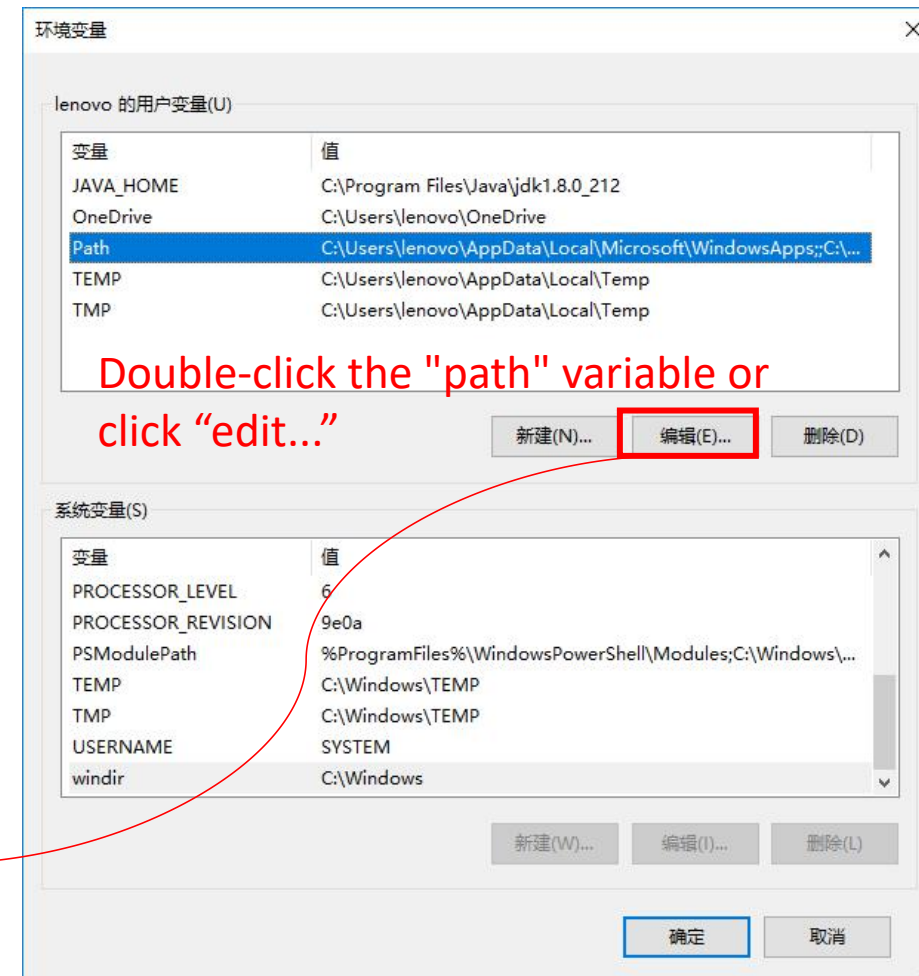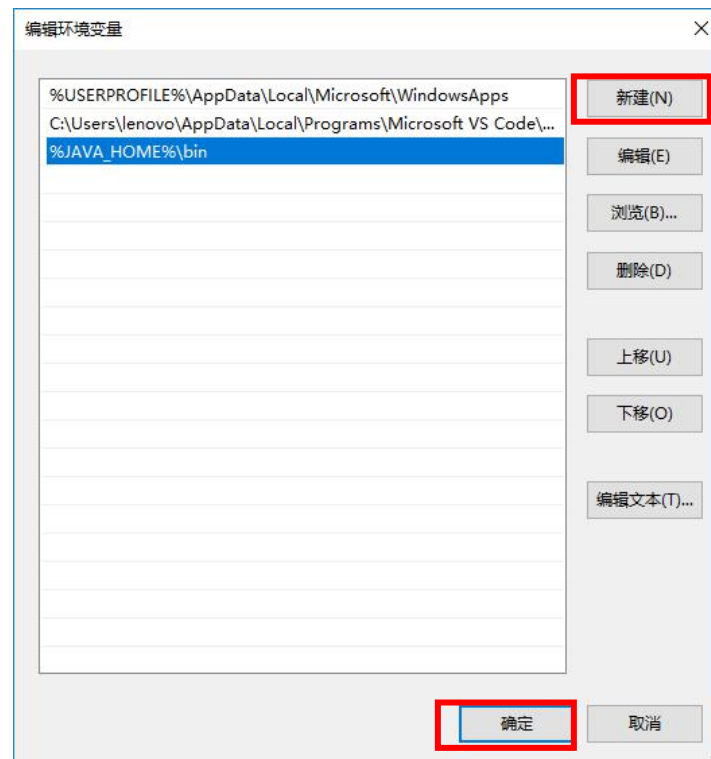
3. Click on the New button and enter "JAVA_HOME" as variable name and the [java_install_dir] as variable value. In this tutorial the installation directory is 'C:\Program Files\Java\jdk1.8.0_212'. Click OK to to save.

1.4 Configuring JDK

4. Click on the New button and enter "PATH" as variable name and "%JAVA_HOME%\bin" as variable value. Click OK to save.
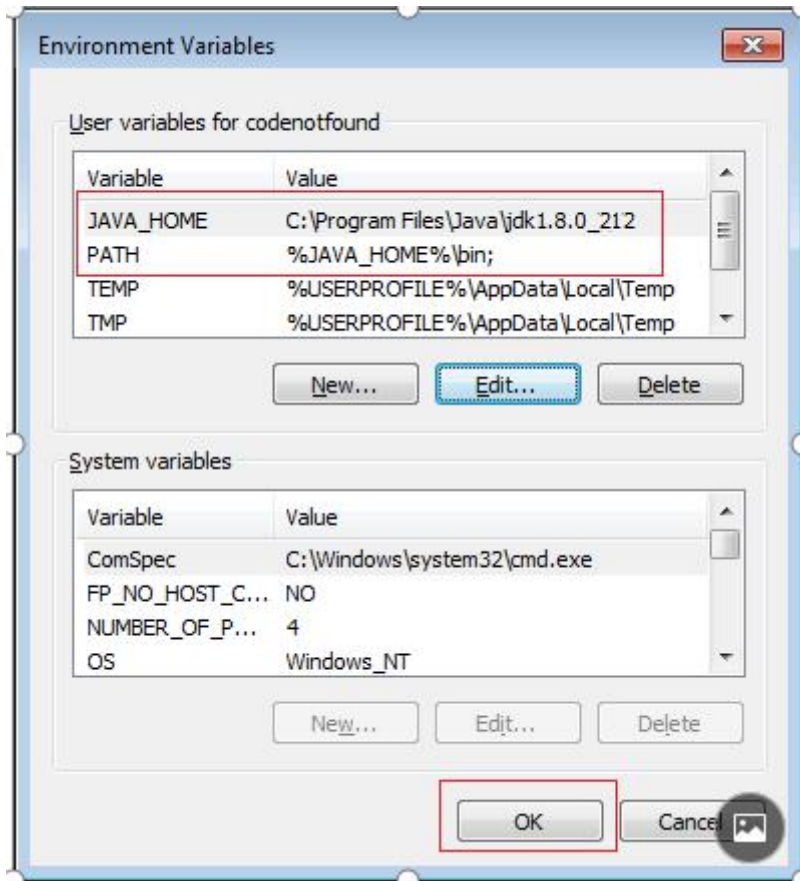
Note that in case a "PATH" variable is already present you can add ";%JAVA_HOME%\bin" at the end of the variable value.

Double-click the "path" variable or click "edit..."

1.4 Configuring JDK

In order to test the above configuration, open a command prompt by clicking on the Windows Start button and typing **"cmd"** followed by pressing ENTER. A new command prompt should open in which the following commands can be entered to verify the enviroment variable and the installed Java version:

The result should be as shown below. Click **OK** to close the environment variables panel.

```
set java_home
set path
java -version
javac -version
```
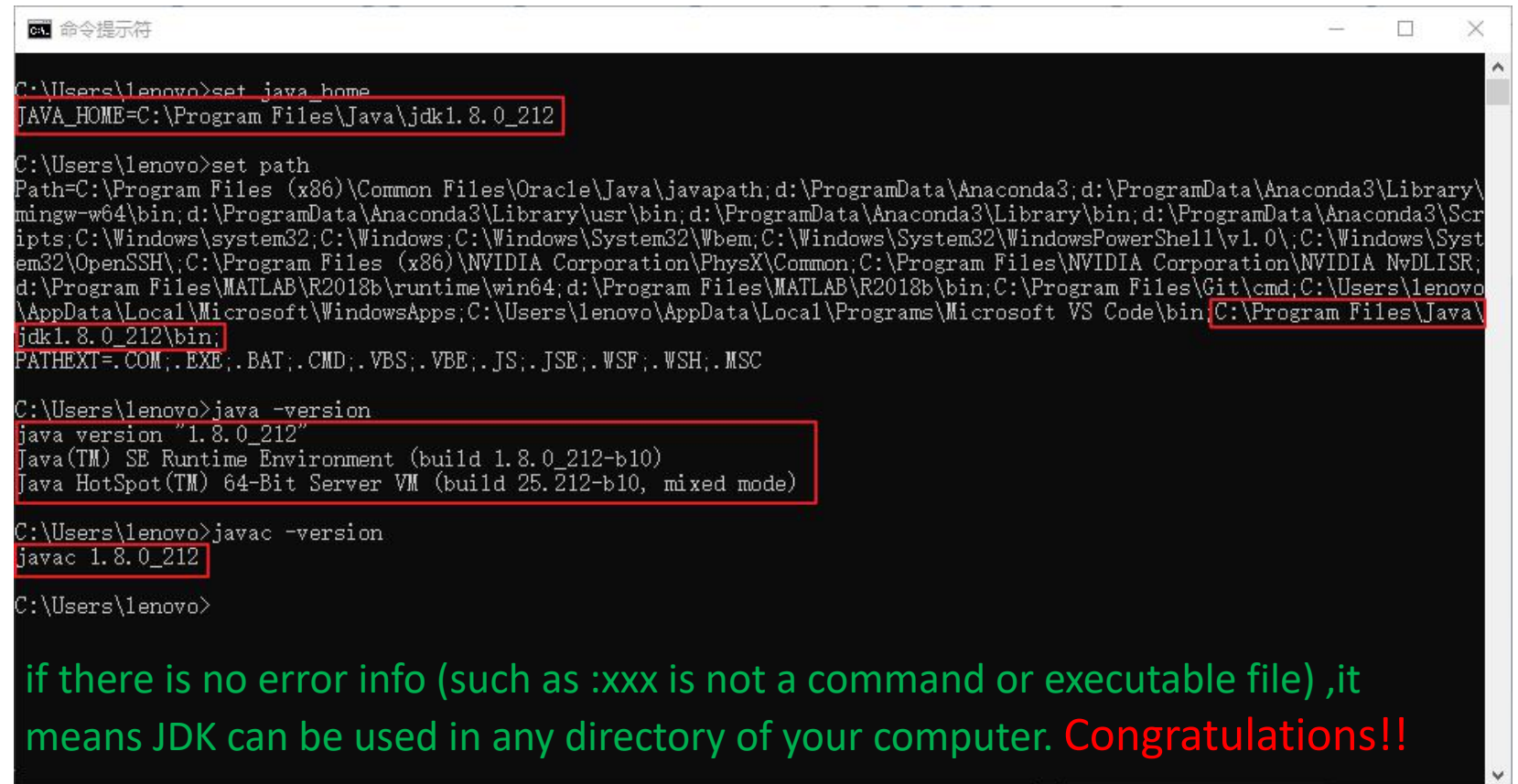

if there is no error info (such as :xxx is not a command or executable file) ,it means JDK can be used in any directory of your computer. Congratulations!!
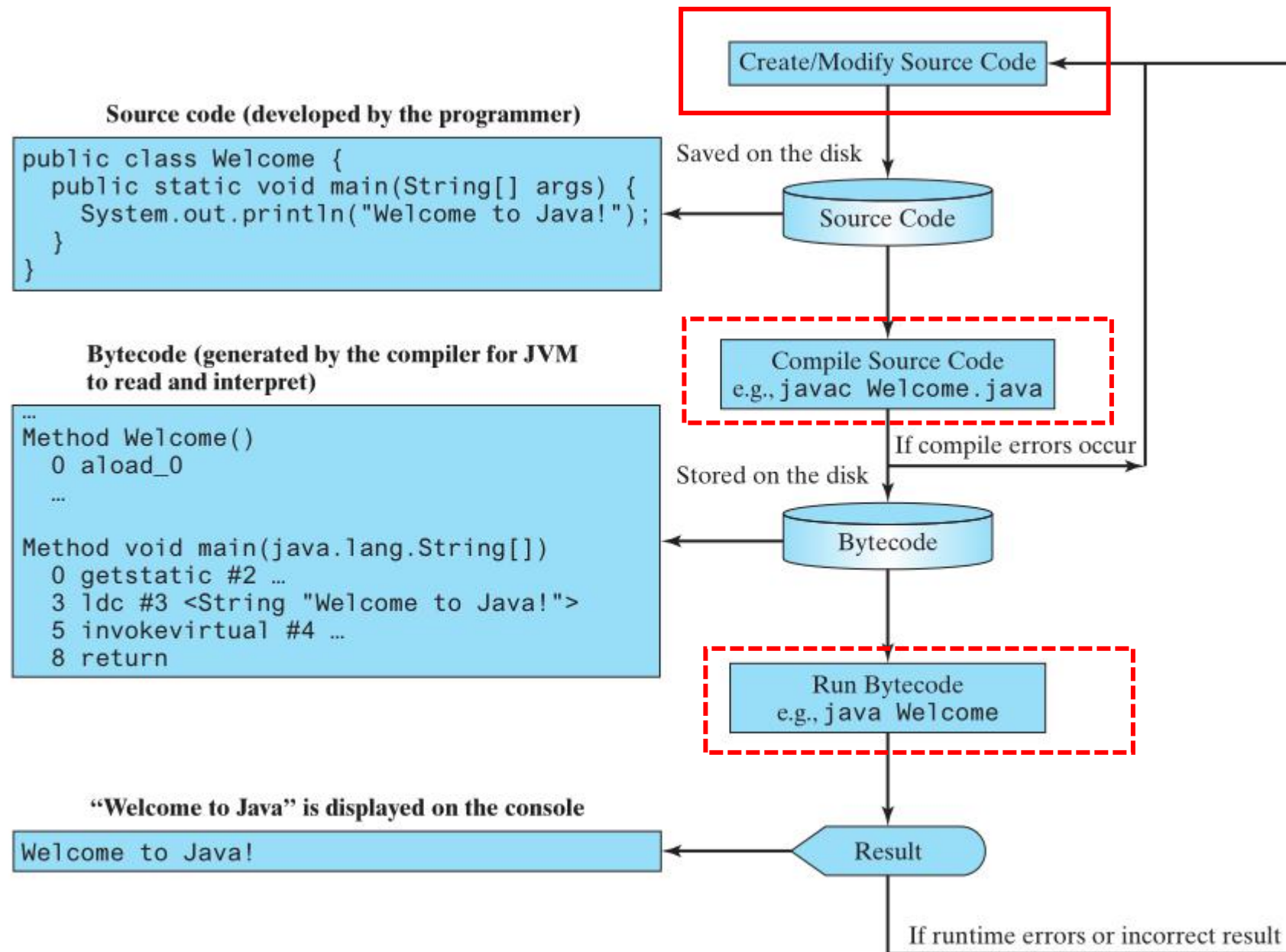
2 Editing, Compiling and Running Java programs

2.1 Editing Java Programs

2.2 Compiling Java Programs

2.3 Runing Java Programs

2. Editing, Compiling and Running Java programs

Source code (developed by the programmer)

```
public class Welcome {
  public static void main(String[] args) {
    System.out.println("Welcome to Java!");
  }
}
```

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2.1 Editing Java Programs

Editor: Notepad++ , a user-friendly Editor for beginners

Download url: https://notepad-plus-plus.org/

Using **Notepad++** to create the Java source-code file, as following shown.

NOTE:The source file must end with the extension **.java** and must have the same exact name as the public class name!!

2.2 Compiling Java Programs

Compile Source Code

javac Welcome.java

2.3 Runing Java Programs

The following command runs the bytecode :
java Welcome
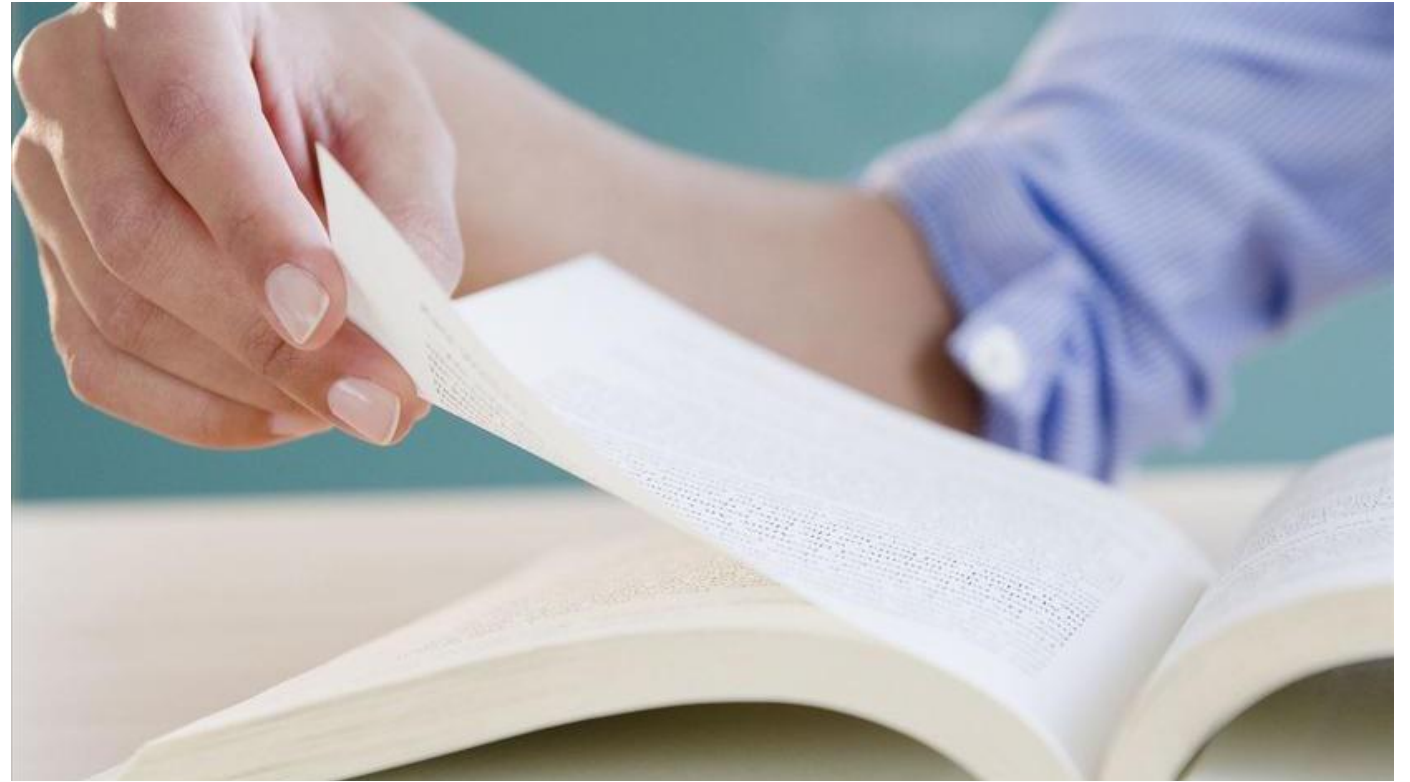
3 Exercises

Complete the exercises in the **2020S-Java-A-Lab-1.pdf** and submit to the blackboard as required.

THANK YOU

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