

# 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	<a href="mailto:11611326@mail.sustech.edu.cn">11611326@mail.sustech.edu.cn</a>
	王子祺	<a href="mailto:11710822@mail.sustech.edu.cn">11710822@mail.sustech.edu.cn</a>

- 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

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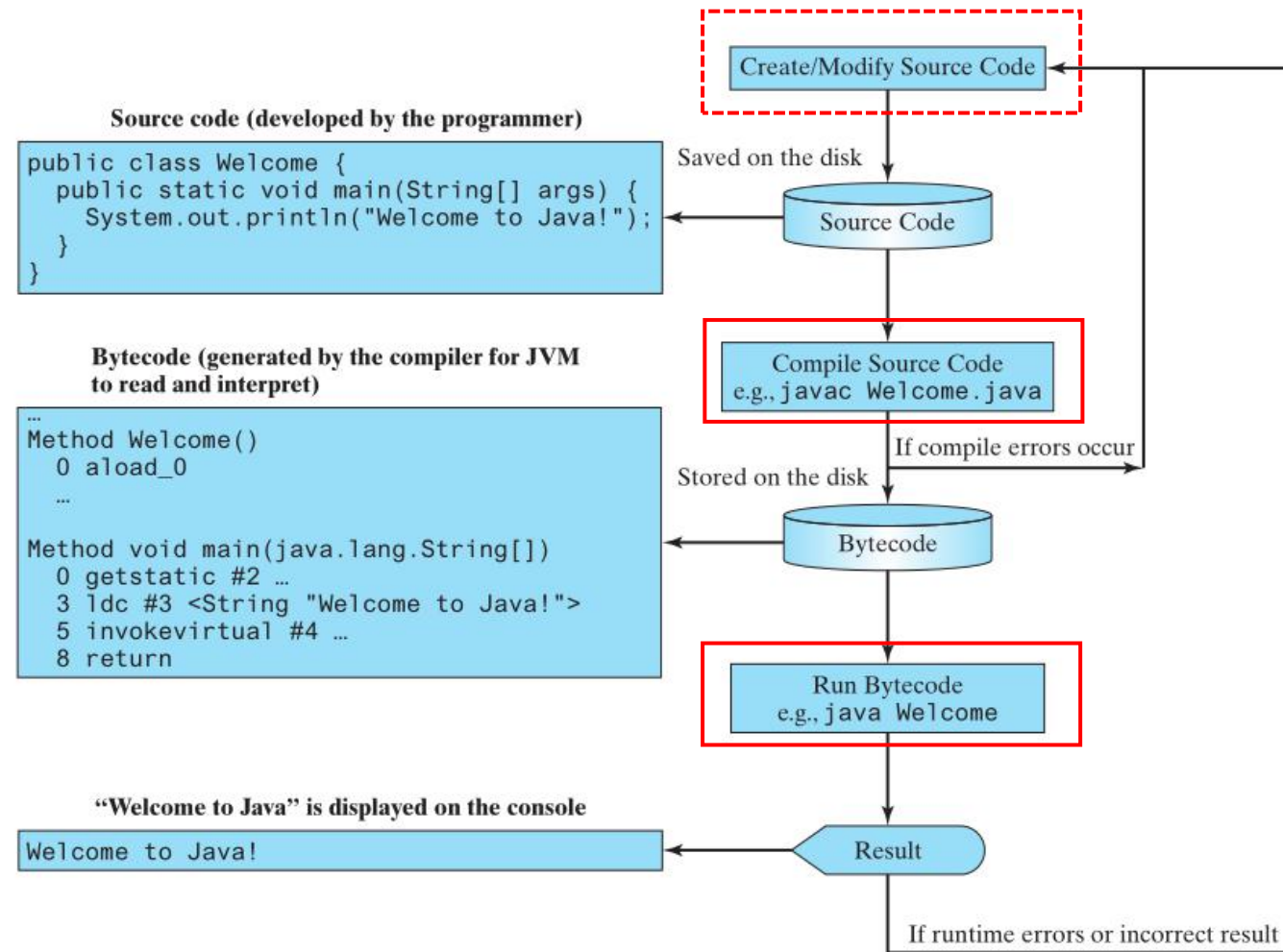
1.1 What is JDK

1.2 Downloading JDK

1.3 Installing JDK

1.4 Configuring JDK

# 1.1 what is jdk?



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.

**Java SE 8u211 / Java SE 8u212**  
Java SE 8u211 / Java SE 8u212 includes important bug fixes. Oracle strongly recommends that all Java SE 8 users upgrade to this release.  
[Learn more](#)

- Installation Instructions
- Release Notes
- Oracle License
- Java SE Licensing Information User Manual
  - Includes Third Party Licenses
- Certified System Configurations
- Readme Files
  - JDK ReadMe
  - JRE ReadMe

**JDK**  
**DOWNLOAD**

**Server JRE**  
**DOWNLOAD**

**JRE**  
**DOWNLOAD**

**Which Java package do I need?**

- Software Developers: JDK** (Java SE Development Kit). For Java Developers. Includes a complete JRE plus tools for developing, debugging, and monitoring Java applications.
- Administrators running applications on a server: Server JRE** (Server Java Runtime Environment) For deploying Java applications on servers. Includes tools for JVM monitoring and tools commonly required for server applications, but does not include browser integration (the Java plug-in), auto-update, nor an installer. [Learn more](#)
- End user running Java on a desktop: JRE:** (Java Runtime Environment). Covers most end-users needs. Contains everything required to run Java applications on your system.

**Java SE Development Kit 8u212**  
You must accept the [Oracle Technology Network License Agreement for Oracle Java SE](#) to download this software.  
[click here](#) ☒ Accept License Agreement ☐ Decline License Agreement

Product / File Description	File Size	Download
Linux ARM 32 Hard Float ABI	72.86 MB	<a href="#">jdk-8u212-linux-arm32-vfp-hflt.tar.gz</a>
Linux ARM 64 Hard Float ABI	69.77 MB	<a href="#">jdk-8u212-linux-arm64-vfp-hflt.tar.gz</a>
Linux x86	174.11 MB	<a href="#">jdk-8u212-linux-i586.rpm</a>
Linux x86	188.92 MB	<a href="#">jdk-8u212-linux-i586.tar.gz</a>
Linux x64	171.13 MB	<a href="#">jdk-8u212-linux-x64.rpm</a>
Linux x64	185.98 MB	<a href="#">jdk-8u212-linux-x64.tar.gz</a>
Mac OS X x64	252.25 MB	<a href="#">jdk-8u212-macosx-x64.dmg</a>
Solaris SPARC 64-bit (SVR4 package)	125.06 MB	<a href="#">jdk-8u212-solaris-sparcv9.tar.Z</a>
Solaris SPARC 64-bit	88.15 MB	<a href="#">jdk-8u212-solaris-sparcv9.tar.gz</a>
Solaris x64 (SVR4 package)	124.3 MB	<a href="#">jdk-8u212-solaris-x64.tar.Z</a>
Solaris x64	85.41 MB	<a href="#">jdk-8u212-solaris-x64.tar.gz</a>
Windows x86	202.64 MB	<a href="#">jdk-8u212-windows-i586.exe</a>
Windows x64	215.26 MB	<a href="#">jdk-8u212-windows-x64.exe</a>



## 1.2 Downloading JDK

3. Select the right download for your operating system.

Java SE Development Kit 8u212		
You must accept the <a href="#">Oracle Technology Network License Agreement for Oracle Java SE</a> to download this software.		
Thank you for accepting the Oracle Technology Network License Agreement for Oracle Java SE; you may now download this software.		
Product / File Description	File Size	Download
Linux ARM 32 Hard Float ABI	72.86 MB	<a href="#">jdk-8u212-linux-arm32-vfp-hflt.tar.gz</a>
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Windows x86	202.64 MB	<a href="#">jdk-8u212-windows-i586.exe</a>
Windows x64	215.26 MB	<a href="#">jdk-8u212-windows-x64.exe</a>
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.



创建您的 Oracle 帐户

已有 Oracle 帐户? [登录](#)

电子邮件地址 \*

您的电子邮件地址即为您的用户名。

密码 \*

密码必须同时包含大小写字母和至少 1 个数字, 不得与您电子邮件的任何部分相同, 并且必须至少包含 8 个字符。

重新键入密码 \*

国家/地区 \*

-选择-

姓名 \*

姓氏

名字

英文名字 \*

英文姓氏

英文名字

职位 \*

办公电话 \*

公司名称 \*

地址 \*

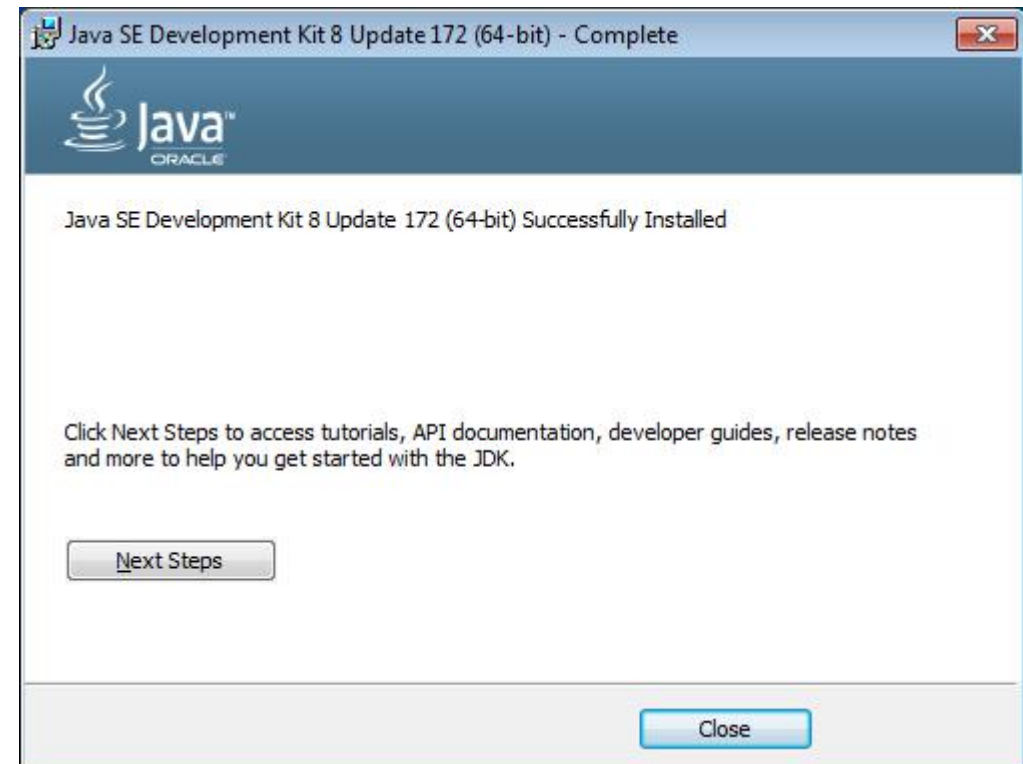
城市 \*

## 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]*.

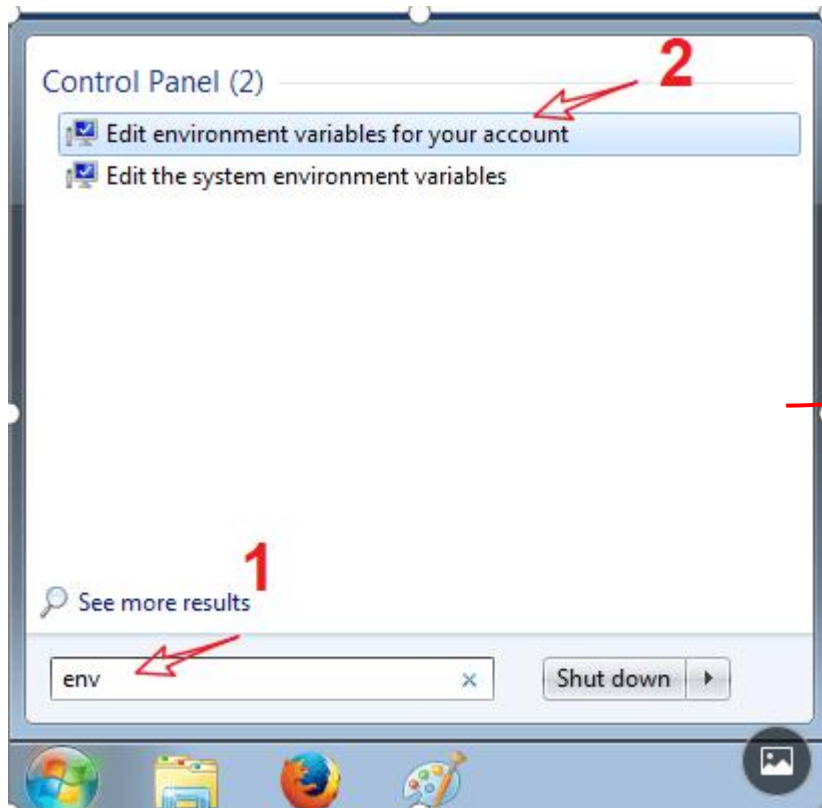


- Click *Next* and then *Close* to finish installing Java.

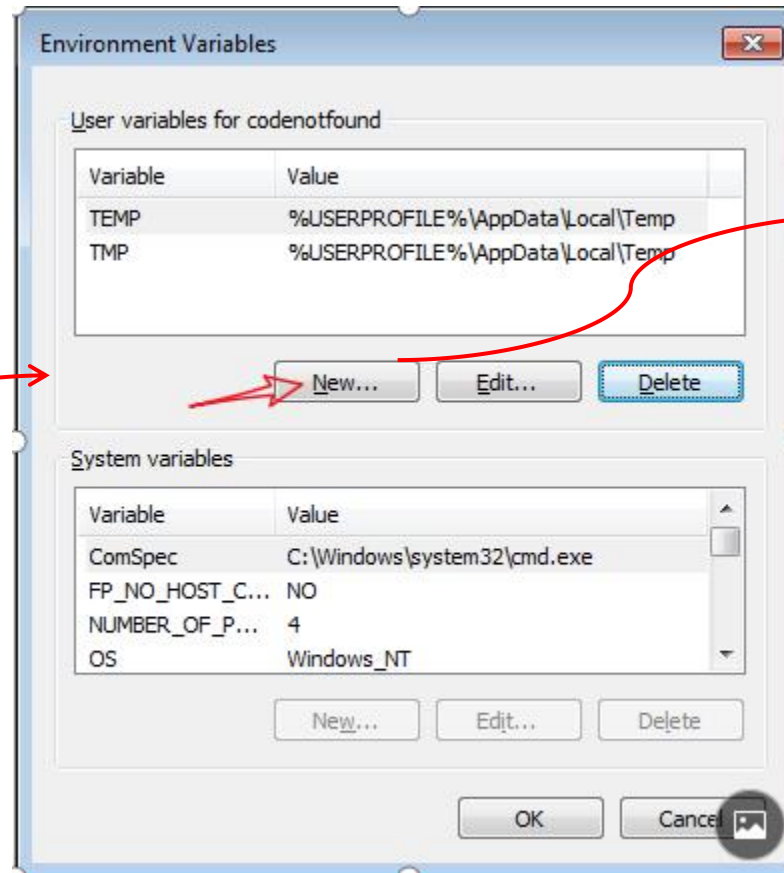


## 1.4 Configuring JDK

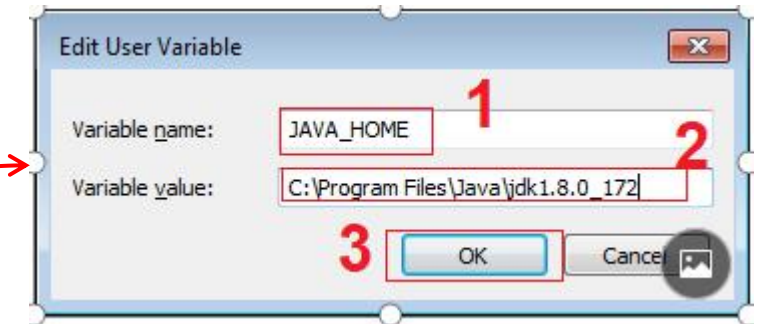
1. Click on the Windows **Start** button and enter “**env**” without quotes as shown below.



2. click on *Edit environment variables for your account* and following panel should appear.



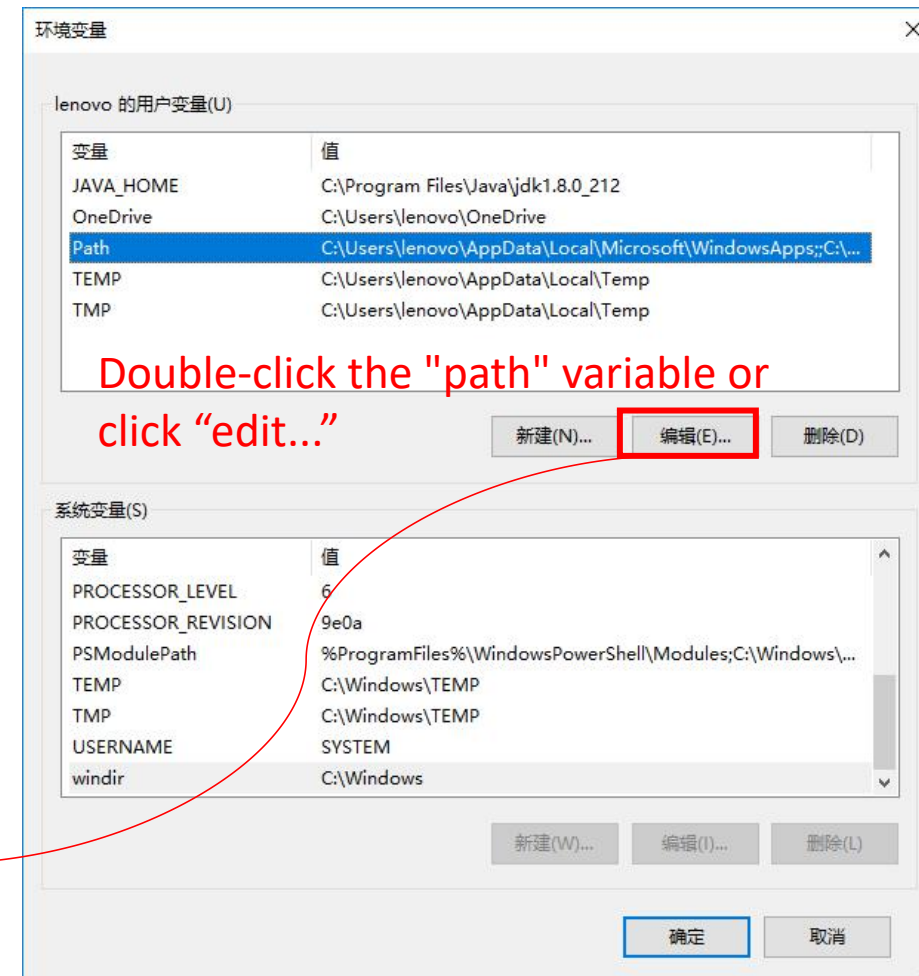
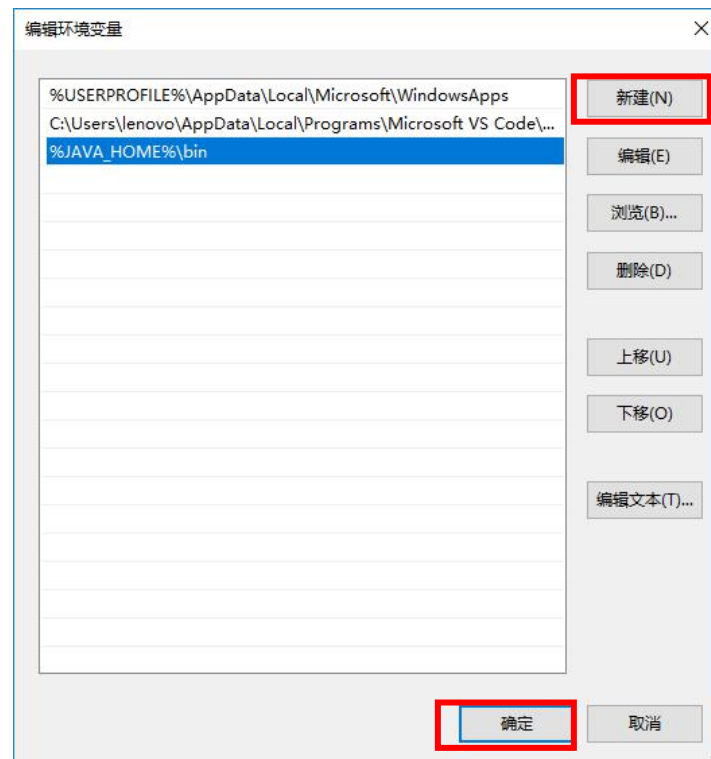
3. Click on the New button and enter “**JAVA\_HOME**” as variable name and the [java\_install\_dir] as variable value. In this tutorial the installation directory is '**C:\Program Files\Java\jdk1.8.0\_212**'. Click OK to to save.



## 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.

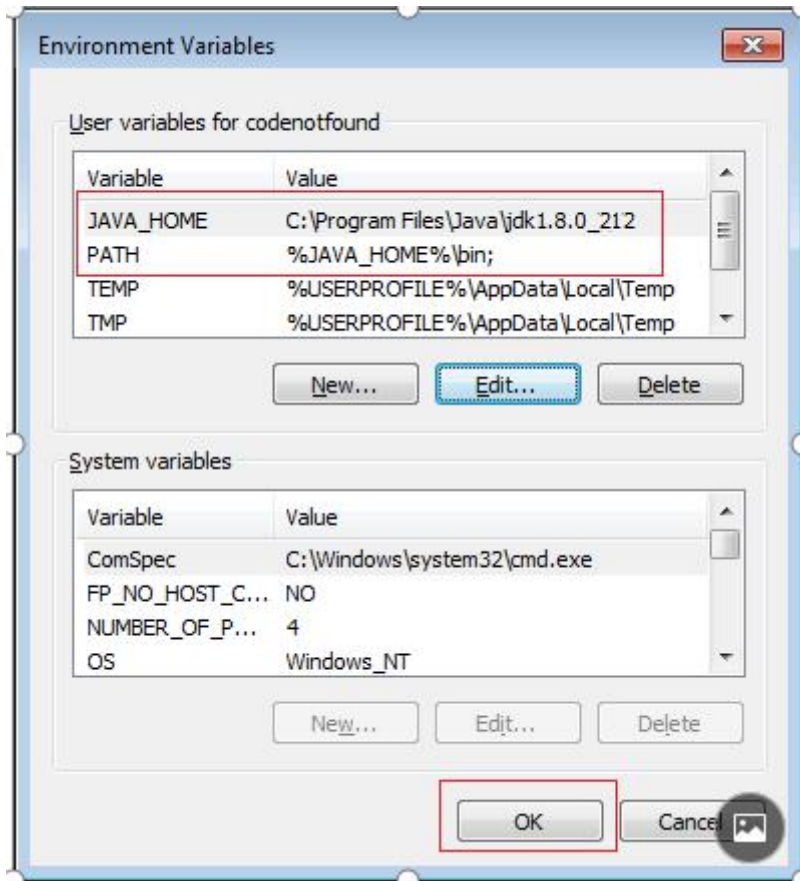
**Note that** in case a '**PATH**' variable is already present you can add “**;%JAVA\_HOME%\bin**” at the end of the variable value.





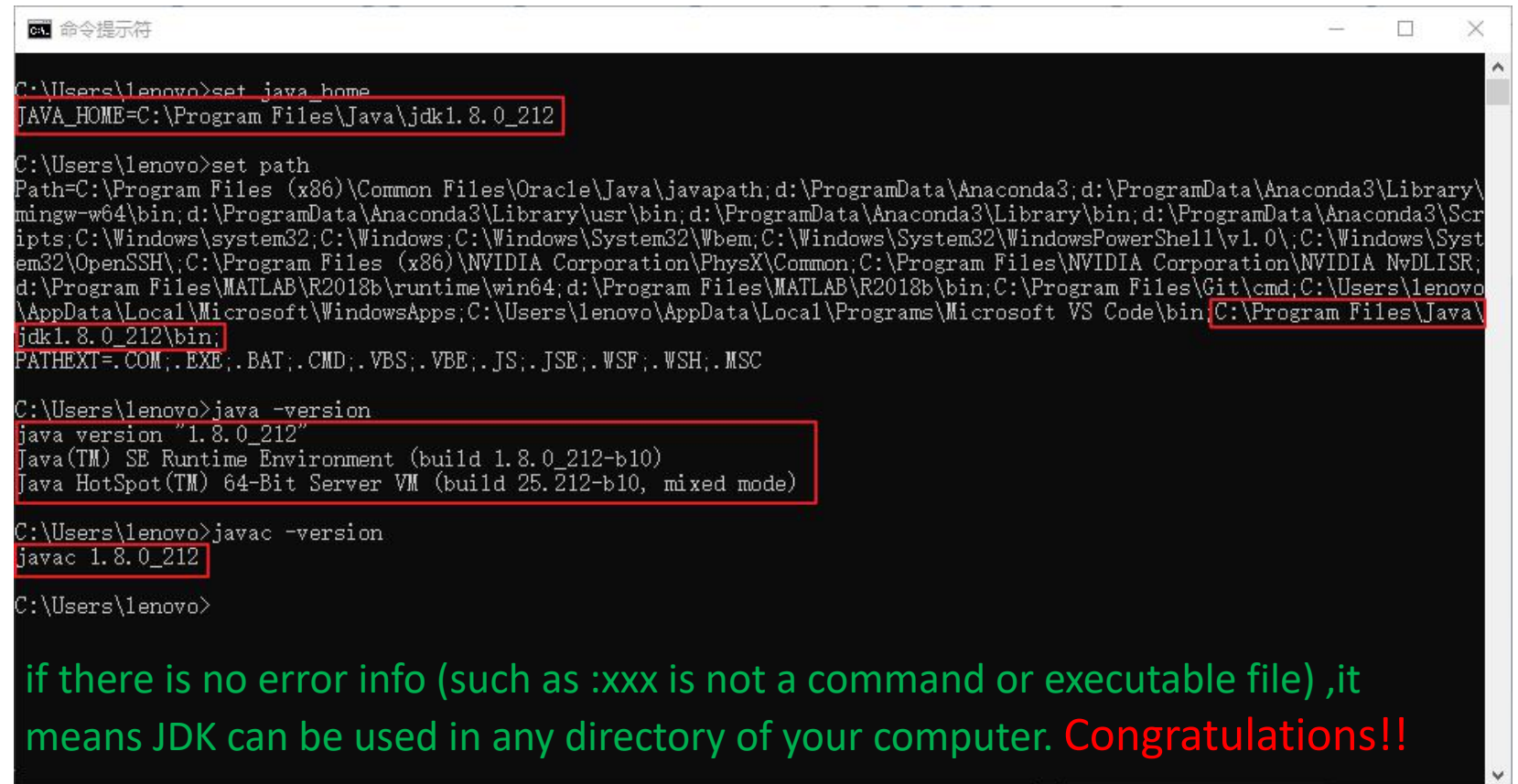
## 1.4 Configuring JDK

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



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 environment variable and the installed Java version:

```
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

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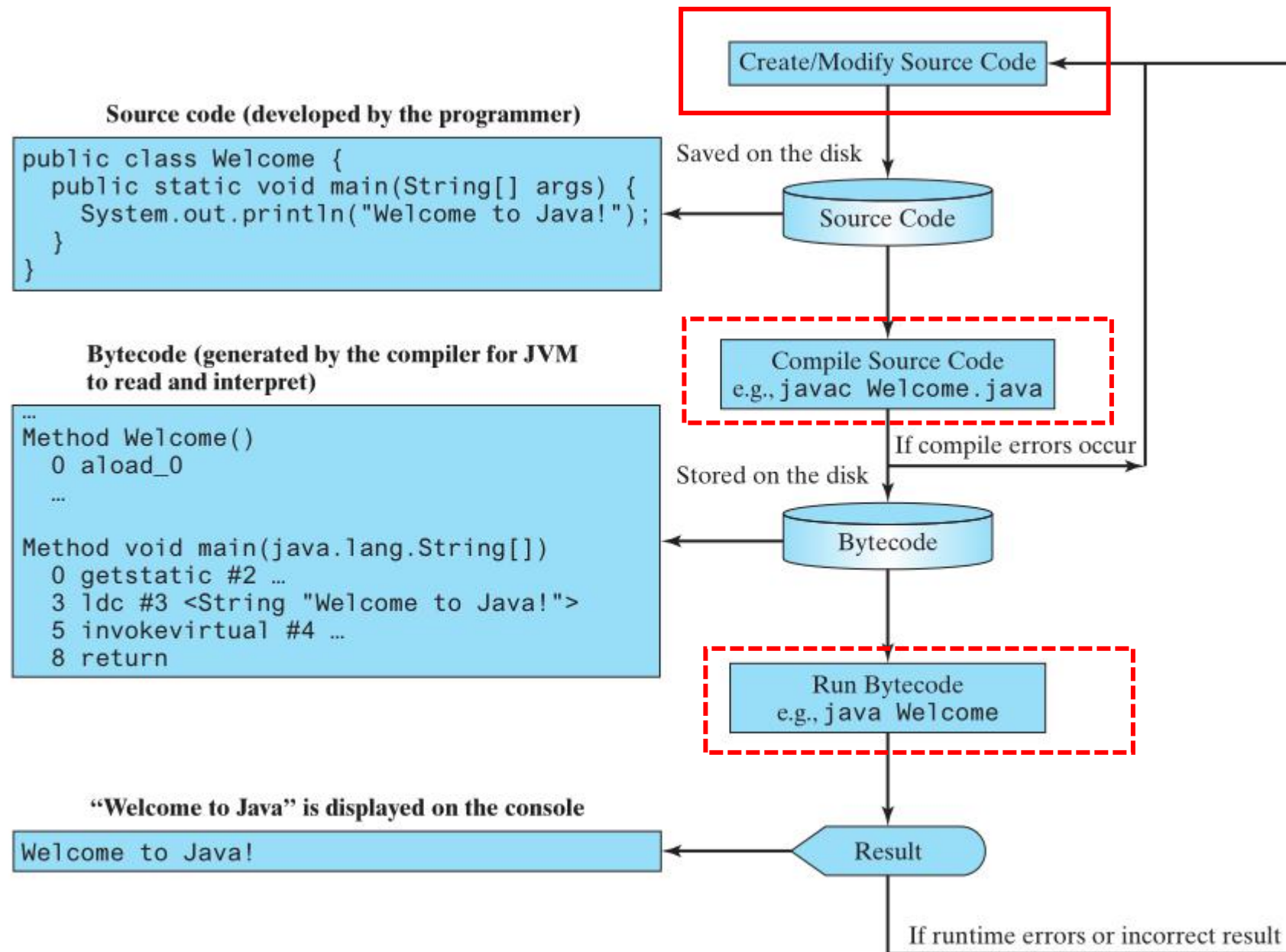
2.1 Editing Java Programs

2.2 Compiling Java Programs

2.3 Running Java Programs



## 2. Editing, Compiling and Running Java programs



## 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.

```
*F:\JAVA_B\eclipse-workspace\JAVAB_LAB1\Welcome.java - Notepad++
文件(F) 编辑(E) 搜索(S) 视图(V) 编码(N) 语言(L) 设置(T) 工具(O) 宏(M) 运行(R) 插件(P) 窗口(W) ?
Welcome.java
1 public class Welcome{
2 public static void main(String[] args) {
3 //Display message Welcom to Java! on the console
4 System.out.println('Welcome to Java');
5 }
6 }
```

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*

```
命令提示符
'rm' 不是内部或外部命令，也不是可运行的程序
或批处理文件。

F:\JAVA_B\exercise>del Welcome.class

F:\JAVA_B\exercise>dir
驱动器 F 中的卷没有标签。
卷的序列号是 0005-79AF

F:\JAVA_B\exercise 的目录
2019/07/08  20:33    <DIR>        .
2019/07/08  20:33    <DIR>        ..
2019/06/12  19:20    <DIR>        SIS
2019/06/12  17:18                417 Test.class
2019/06/12  17:17                147 Test.java
2019/07/08  20:30                113 Welcome.java
               3 个文件          677 字节
               3 个目录 308,487,585,792 可用字节

F:\JAVA_B\exercise>
```

```
命令提示符
3 个目录 308,487,585,792 可用字节

F:\JAVA_B\exercise>javac Welcome.java

F:\JAVA_B\exercise>dir
驱动器 F 中的卷没有标签。
卷的序列号是 0005-79AF

F:\JAVA_B\exercise 的目录
2019/07/08  20:34    <DIR>        .
2019/07/08  20:34    <DIR>        ..
2019/06/12  19:20    <DIR>        SIS
2019/06/12  17:18                417 Test.class
2019/06/12  17:17                147 Test.java
2019/07/08  20:34                424 Welcome.class
2019/07/08  20:30                113 Welcome.java
               4 个文件          1,101 字节
               3 个目录 308,487,585,792 可用字节

F:\JAVA_B\exercise>
```

## 2.3 Runing Java Programs

The following command runs the bytecode :

*java Welcome*

```
命令提示符
F:\JAVA_B\exercise>dir
驱动器 F 中的卷没有标签。
卷的序列号是 0005-79AF

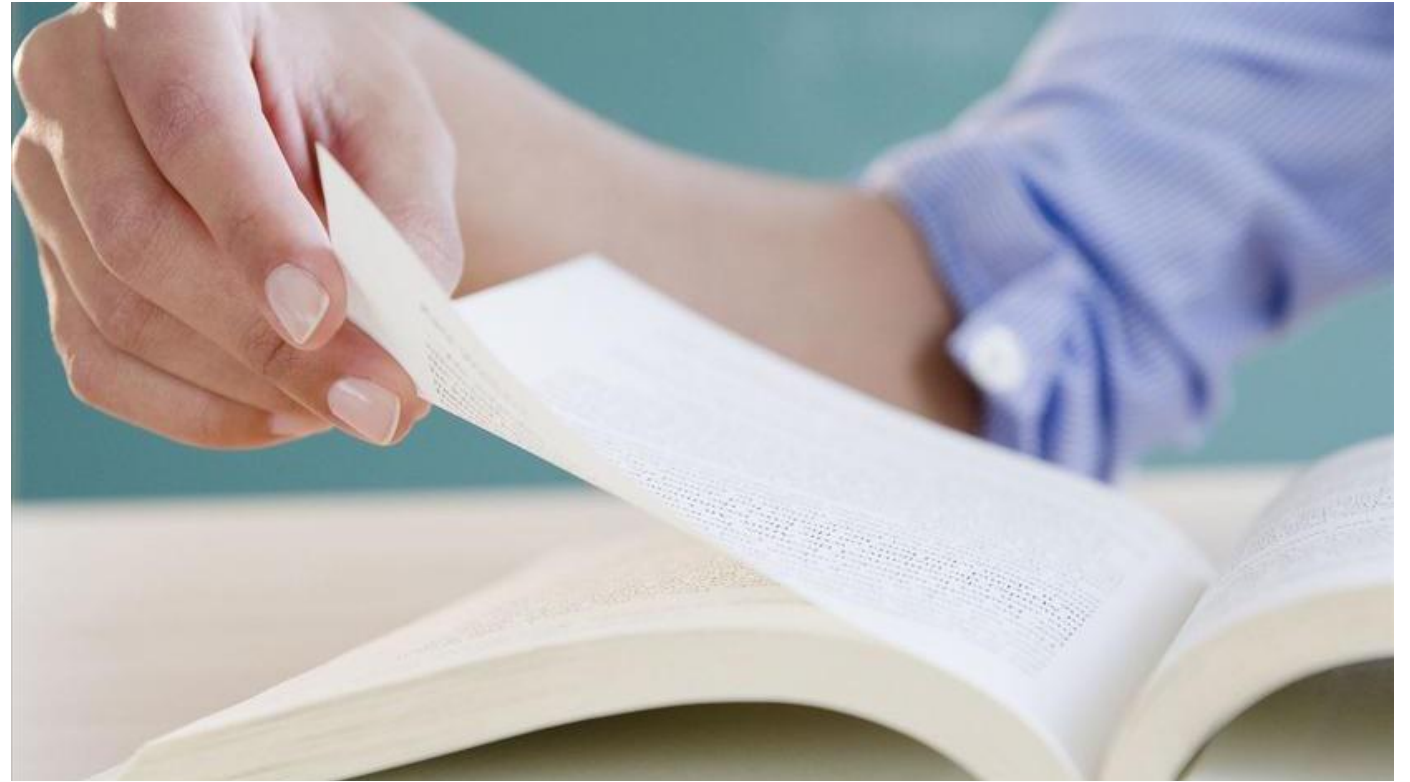
F:\JAVA_B\exercise 的目录
2019/07/08  20:34    <DIR>          .
2019/07/08  20:34    <DIR>          ..
2019/06/12  19:20    <DIR>          SIS
2019/06/12  17:18                417 Test.class
2019/06/12  17:17                147 Test.java
2019/07/08  20:34                424 Welcome.class
2019/07/08  20:30                113 Welcome.java
               4 个文件                1,101 字节
               3 个目录 308,487,585,792 可用字节

F:\JAVA_B\exercise>java Welcome
Welcome to Java!

F:\JAVA_B\exercise>
```

# 3 Exercises

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





# THANK YOU

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