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The Java Programming Environment

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The Java Programming Environment

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- *types of programs :*
 - console programs
 - graphical applications
 - applets

2.1 Installing the Java Development Kit

The most complete and up-to-date versions of JDK are available from Oracle for Linux, Mac OS X, Solaris, and Windows.

Versions in various states of development exist for many other platforms.

2.1.1 Downloading the JDK

- url: www.oracle.com/technetwork/java/javase/downloads
- *get the software you need :*

Name	Acronym	Explanation
Java Development Kit	JDK	If you want to write Java programs
Java Runtime Environment	JRE	If you want to run Java programs
Server JRE	-	If you want to run Java programs on servers
Standard Edition	SE	If you want to use desktops and simple server application
Enterprise Edition	EE	The Java platform for complex server application
Micro Edition	ME	The Java platform for use on cell phones and other small devices
Java FX	-	An alternate toolkit for graphical user interfaces that is included in Oracle's Java SE distribution
OpenJDK	-	A free and open source implementation of Java SE . It does not include browser integration or JavaFX
Java 2	J2	An outdated term that described Java versions from 1998 until 2006
Software Development Kit	SDK	An outdated term that described the JDK from 1998 until 2006
Update	u	Oracle's term for bug fix release
NetBeans	-	Oracle's integrated development

2.1.2 Setting up the JDK

Under Window

- *Install path :*
 - *warning: without spaces (路径不要带有空格)*

In this note, when referring to the **jdk/bin** directory, we mean the directory with a name such as **C:\Java\jdk1.8.0_31\bin**

- *setting path :* Add the **jdk/bin** directory to the executable path¹
 - *way: Control Panel => System and Security => System => Advanced System Settings => System Properties => Advanced Tab => Environment button => System Variables => Path*

启动控制面板、选择系统和安全、选择系统、选择高级系统设置、选择系统属性、选择高级属性、单击环境按钮、滚动系统变量、找到Path系统环境变量、添加以分号结尾的**bin**直接路径(例如:
C:\Java\jdk1.8.0_31\bin;)

- *testing path: open a terminal window => type the line: **javac -version***

打开终端窗口，键入: javac -version 并回车进行测试，得到类似这样的响应: javac 1.8.0_31

- *download the documentation : www.oracle.com/technetwork/java/javase/downloads*
- *download the Core Java program examples : <http://horstmann.com/corejava>*

2.2 Using the Command-Line Tools

1. Open a terminal window
2. Go to **codejava/v1ch02/Welcome** directory
3. such that :

```
C:\WINDOWS\system32>cd F:\Java\corejava\v1ch02\Welcome
C:\WINDOWS\system32>F:
F:\Java\corejava\v1ch02\Welcome>javac Welcome.java
F:\Java\corejava\v1ch02\Welcome>java Welcome
Welcome to Core Java!
=====
F:\Java\corejava\v1ch02\Welcome>
```

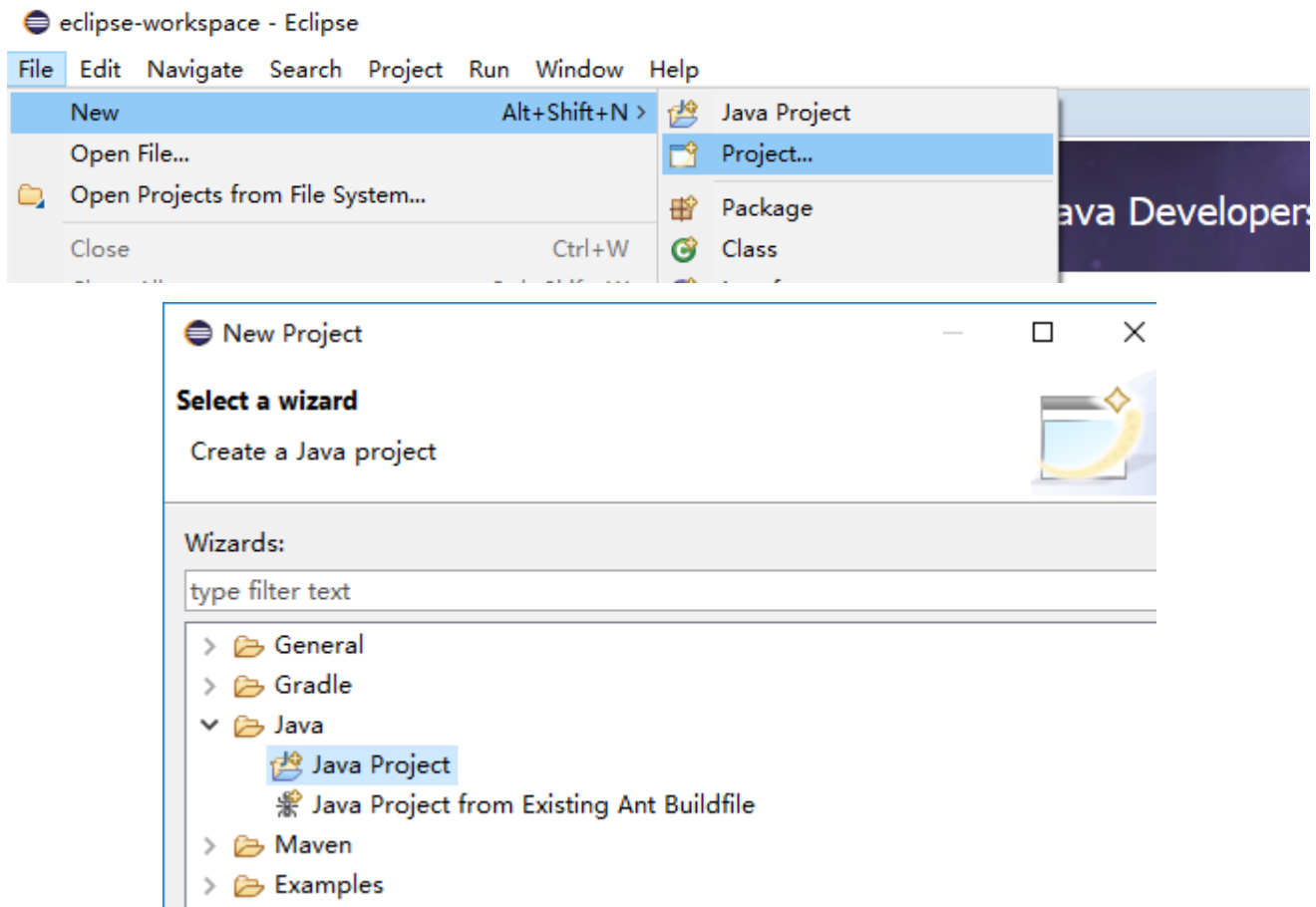
- *javac program: the Java compiler*
 - **.java** => **.class**
- *java program: executes the bytecodes*
 1. **launches** the **Java virtual machine(JVM)**
 2. **executes** the **bytecodes** that the compiler placed in the **class file**

```
/**
 * This program displays a greeting for the reader.
 * @version 1.0 2018-03-07
 * @author KiOii(_EM_Cpper)
 */
public class Welcome
{
    public static void main(String[] args)
    {
        String greeting = "Hello,World!";
        System.out.println(greeting);
        for(int i = 0;i < greeting.length();i++)
            System.out.print("=");
        System.out.println();
    }
}
```

Tip: The excellent tutorial at <http://docs.oracle.com/javase/tutorial/getStarted/cupjava>

2.3 Using an Integrated Development Environment

- Eclipse IDE for Java Developers
 - url: <http://eclipse.org/downloads>



Project name:

☐ Use default location

Location:

JRE

☒ Use an execution environment JRE:

☐ Use a project specific JRE:

☐ Use default JRE (currently 'jdk') [Configure JREs...](#)

Project layout


☐ Use project folder as root for sources and class files


☒ Create separate folders for sources and class files [Configure default...](#)


Working sets

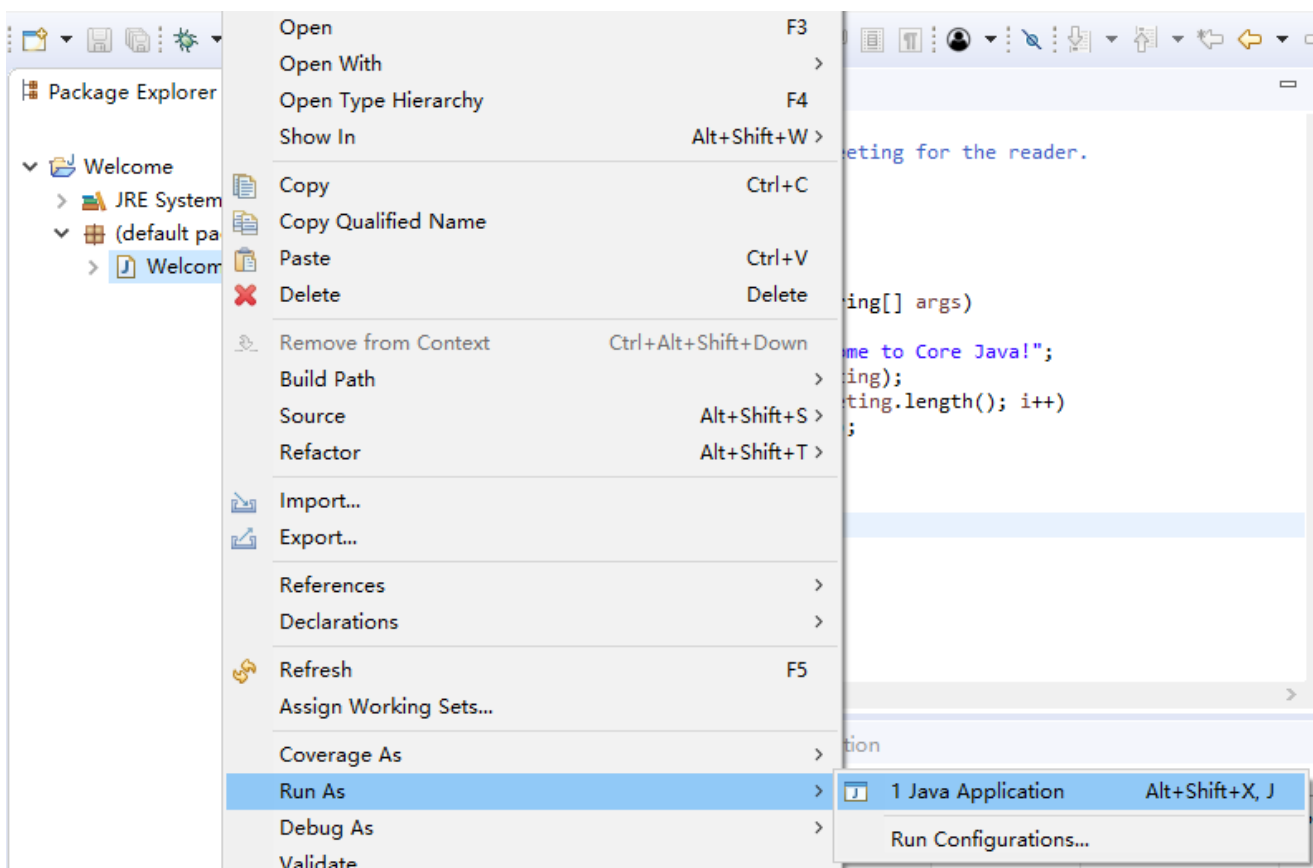
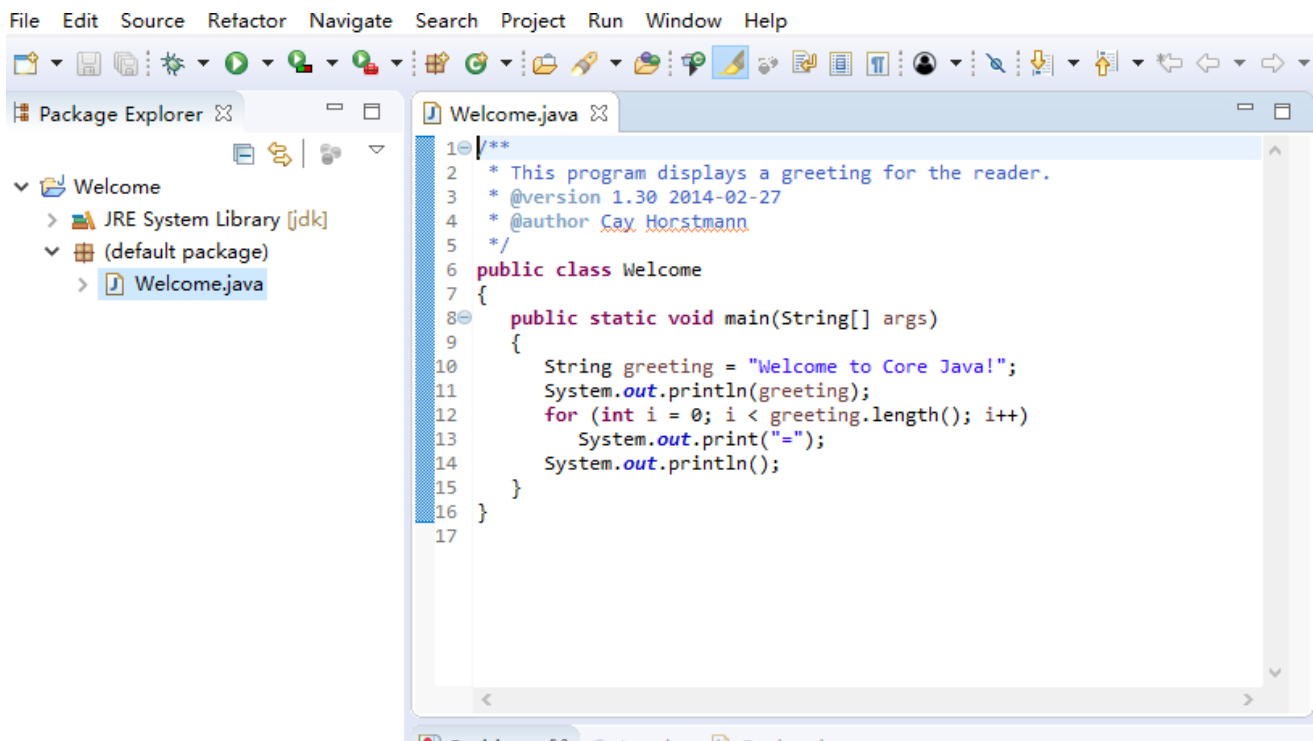
☐ Add project to working sets

Working sets:

 The wizard will automatically configure the JRE and the project layout based on







2.4 Running a Graphical Application

- ImageViewer.java
 - directory: **corejava/v1ch02/ImageViewer**
 - way: **javac, java**

2.5 Building and Running Applets

- RoadApplet.java
 - *directory:* **corejava/v1ch02/RoadApplet**
 - way:

```
javac RoadApplet.java
jar cvmf RoadApplet.jar RoadApplet.mf *.class
appletviewer RoadApplet.html
```

1. 将直接路径名添加到可执行路径中，这将使得操作系统在遍历目录列表时定位到可执行文件。🔗