Compiling and Running Java Programs

Getting Started: WINDOWS
If you have **Windows**, go to:

http://java.sun.com/javase/downloads/index.jsp

You will see this page:
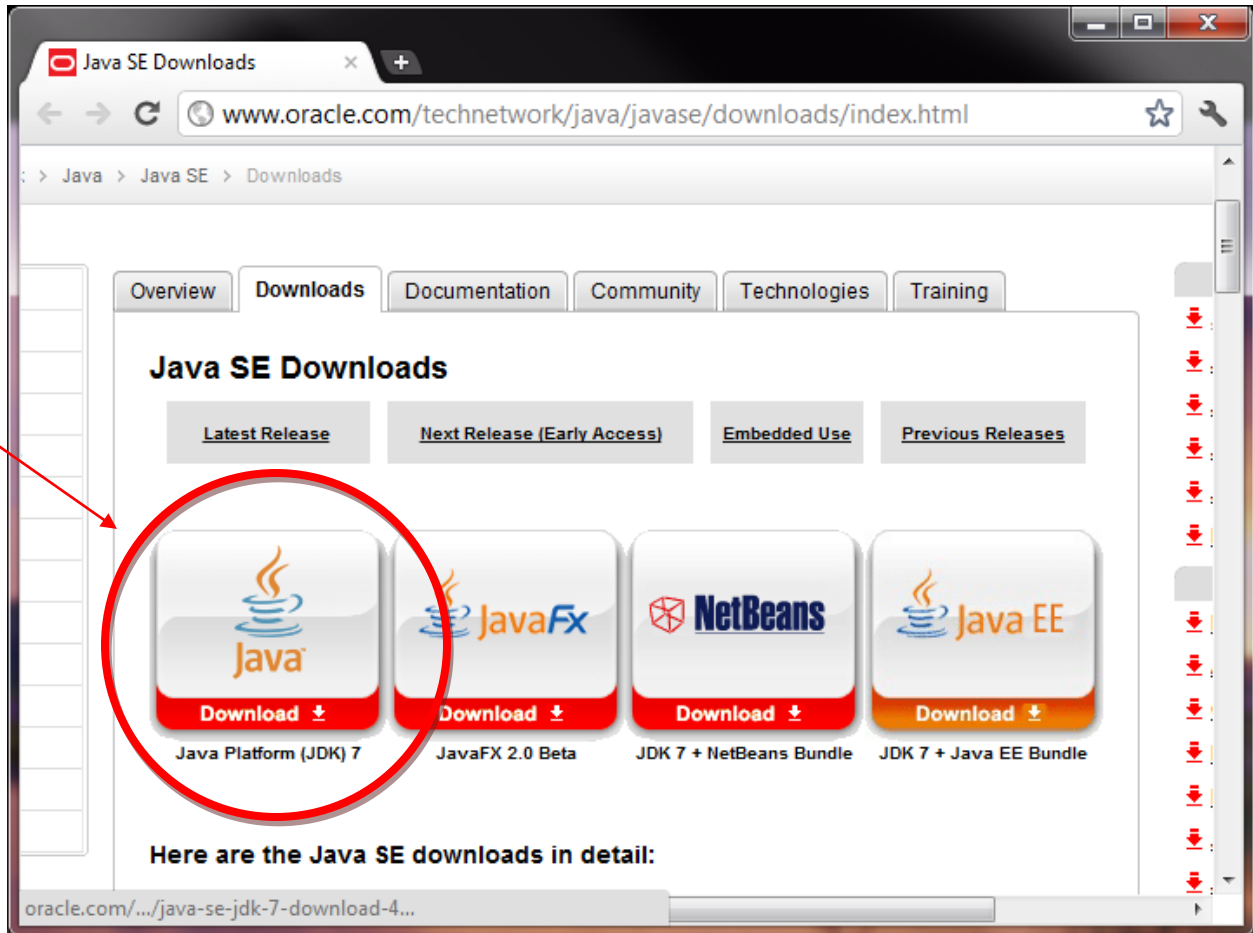
Click "**Download**" where it says "**Java Platform (JDK) 7**". (This is the option circled in red above.) Then, click the download file next to your type of operating system. You will most likely want to choose one of the Windows options – Windows x86 if you have a 32-bit operating system, and Windows x64 if you have a 64-bit operating system. The download should start automatically. Save it someplace you can find it again (like the Desktop), and then install the downloaded program.

Next, you need to find where Java was installed. Go to Start->Search->Search all files, and search for **javac.exe**. You will probably find javac.exe in a folder that looks something like this:

```
C:\Program Files\Java\jdk1.7.0\bin
```

You are going to add this directory to your "path" environment variable:

- Press the start button
- Select `Control Panel`
- Open `System and Security`
- Open `System`
- Click `Advanced system settings` (on the left-hand side)
- Click `Environment Variables`
- Find the variable `Path` under `System Variables` and click on it
- Press `Edit`
- Add this to the END of the `Path` value:

```
;C:\Program Files\Java\jdk1.7.0\bin;.
```

(The text highlighted in red is the folder where you found the `javac.exe` file. Make sure you put in the semi-colons as shown above.)

- Press `OK` twice

Getting Started: MAC OS X (any version, through Lion)
Java is already installed in all versions of Mac OS X. You don't need to download anything.

Compiling from the Command-Line
Suppose you want to compile a one-class Java program stored in the file `Hello.java`. If you are running Windows, open a command prompt. In Windows Vista or 7, go to Start and type **cmd** in the search box. If you are using a Mac, open a *terminal* window.

Change directories (use the `cd` command) to the folder where `Hello.java` is stored. To compile your program, type:

```
javac Hello.java
```

If everything works correctly, it will compile your program and create the class file `Hello.class`, which it will put in the same directory as `Hello.java`. If you made any mistakes in your program, the compiler will print error messages describing the problems.

If you want to compile a Java program that has several classes, do this instead:

```
javac *.java
```

This will compile ALL your classes and will generate class files for every .java file.

Running from the Command-Line

Suppose you just compiled your `Hello.java` file and have the class file `Hello.class`. To run your program, type:

    `java Hello`

in the command window / terminal (again, after changing directories to the folder where `Hello.class` is). If you compiled a program with several files, then use the name of the class file that contains the `main` method.

Eclipse

One of the IDEs you can use to develop Java programs is Eclipse. This software package is available in all the CIS labs. If you want to use it on your own computer, you can download it for free from here:

    http://www.eclipse.org/downloads/

You want the third option -- "Eclipse IDE for Java Developers". Click either Windows or Mac to the right (select the 32 bit option unless you are sure you have a 64 bit machine). At that point, click the download link. Save it to your computer and install it. (In Windows, the Eclipse download is a zip file. You will need to extract the files by right-clicking on the zip file and selecting "extract".)

To write a Java program, first open Eclipse. (In Windows, open the "eclipse" folder you got after extracting the files from the zip file. Double-click the "eclipse.exe" file – this starts Eclipse.) Next, select "**File->New->Java Project**". You can provide a name for your project at the bottom of the dialog. Please also select "Use project folder as root…" under "Project Layout". Click "Finish" to create your project.
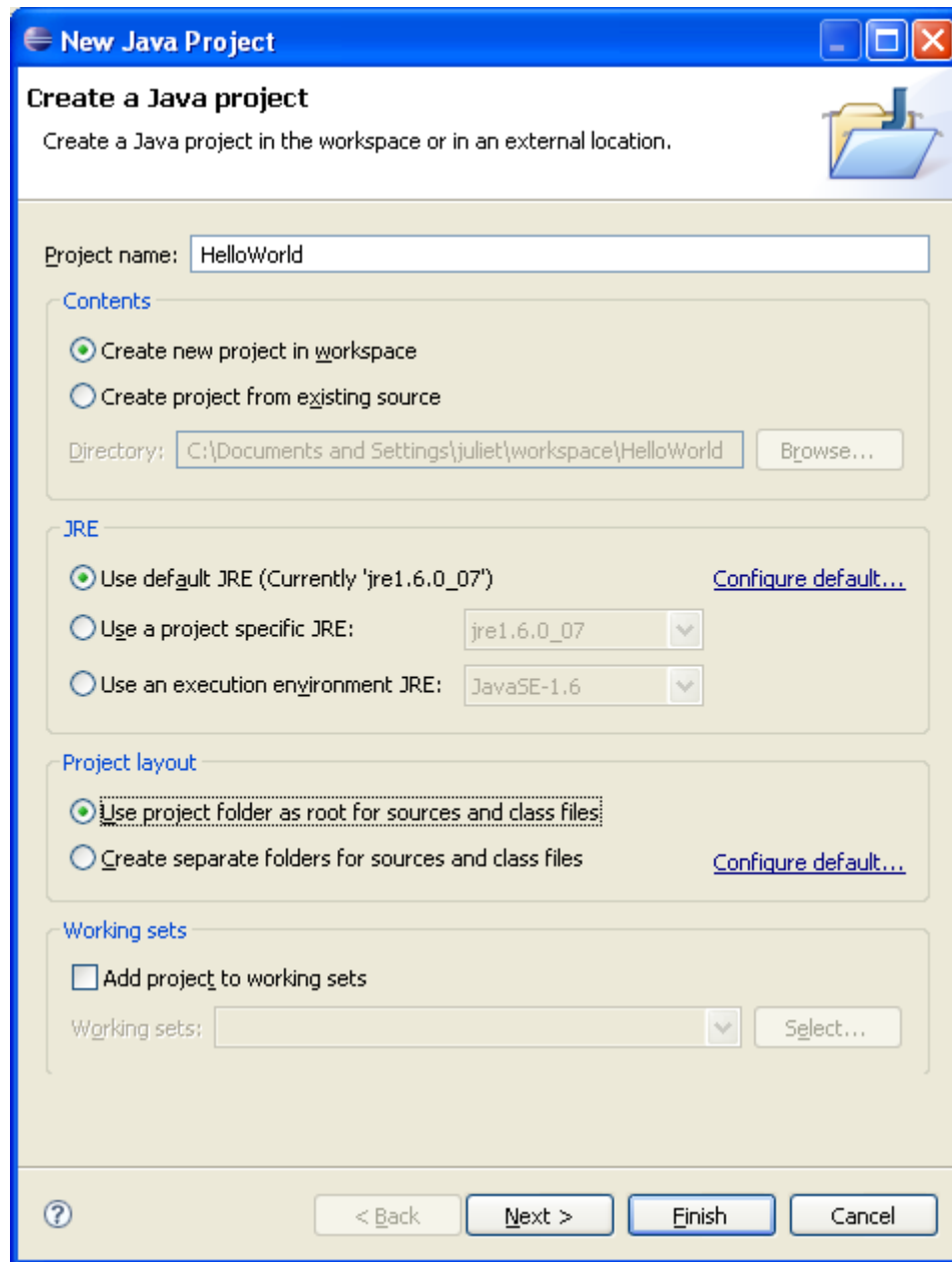
Close the welcome screen. Then select **"File->New->Class"**. Type a name for the class (shown below, with the name "Hello") and click "Finish".

You will now see something like the following:
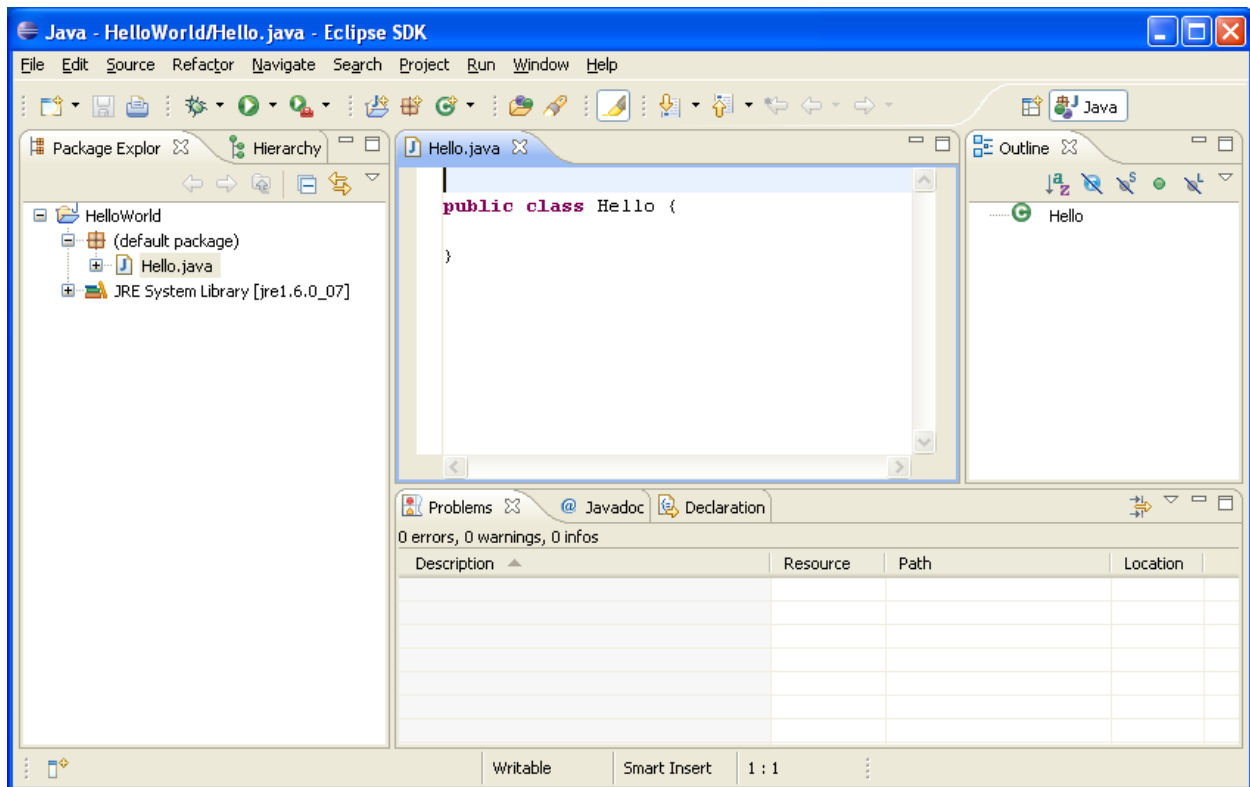
You can type the contents of your class in the middle box. For example, this is a Hello, World program:
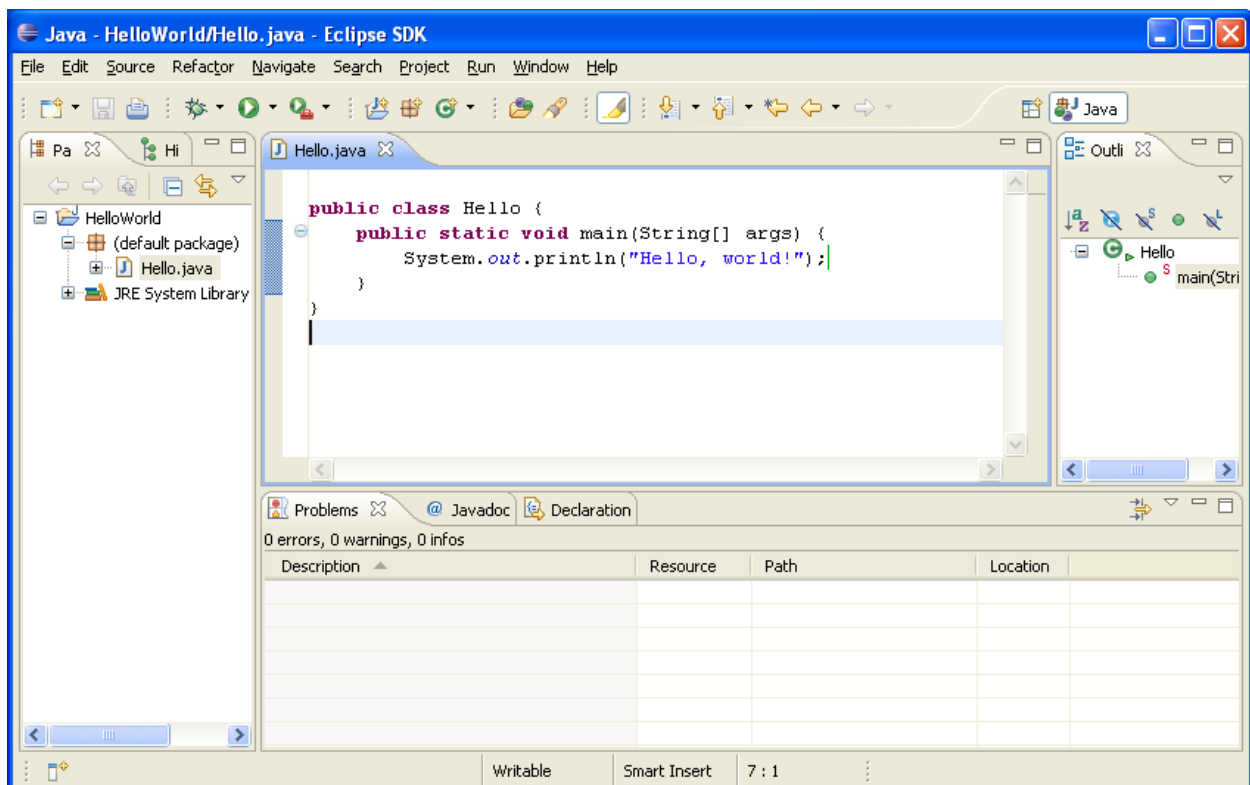
Compiling in Eclipse
Your program is automatically compiled as you type. You may notice red squiggles appearing under your program when there is a problem. You can mouse over the red part to get a description of the problem, or you can look at the description in the errors box at the bottom of the screen.

Running Your Program in Eclipse
Select **Run->Run.**   The output of your program appears at the bottom of the screen.