Configuring Java for your Computer
By Dr. James (Jimmy) Robertson
August 12, 2012

Introduction

You need the Java Developer's Kit (JDK) and an Integrated Development Environment (IDE) for this course. The JDK provides the Java compiler and run time environments while the IDE wraps a user friendly graphical user interface around the Java compiler allowing for easy debugging and creation of your Java code.

You can use either Netbeans or Eclipse as the IDE for this course (and all other courses at UMUC). This document provides current download instructions and tips for configuring your environment. Each of the IDEs have very detailed user's guides and installation instructions that you should use to help you configure and optimize the software for your environment.

The steps needed to configure your environment for this course include:

1. Installing the JDK
2. Installing an IDE (either Netbeans or Eclipse)
3. Testing your environment to make sure it works

This document will walk through each of these steps at high level. In all cases, it is assumed, you have permissions to install software on your machine. Java works on PC's, MACs and Linux machines. Just be sure you download the appropriate versions based on your environment.

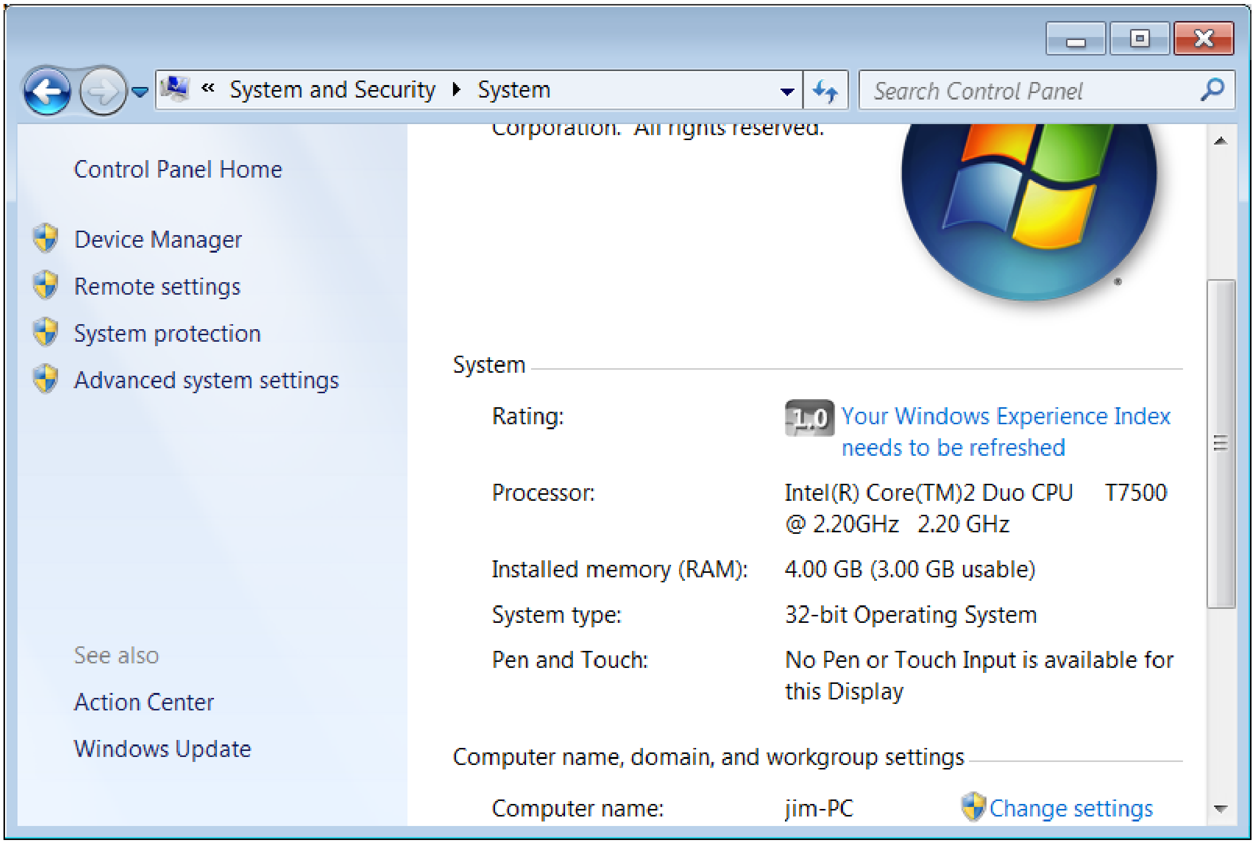
Step 1. Installing the JDK

Prior to installing an IDE, you need to have the JDK installed on your system. If you are already compiling Java programs you probably already have the JDK installed. However; you should make sure you have the most recent version. (At the time of this writing the current JDK version is 7.x)

a. Download the current JDK by going to the Oracle web site. Now, links change, but at the time of this writing the JDK 7 download is available here:

http://www.oracle.com/technetwork/java/javase/downloads/jdk7-downloads-1637583.html

b. Once you go to this site and accept the license you have to choose the version to download. This is trickier than it used to be due to propagation of so many different O/S versions. But you probably know your O/S information. The challenge for Windows users is if you are using 32-bit or 64-bit. You can determine this by looking into the Control Panel -> System and then view the System type. Below is a screenshot from a Laptop running Windows 7 32-bit system:



System

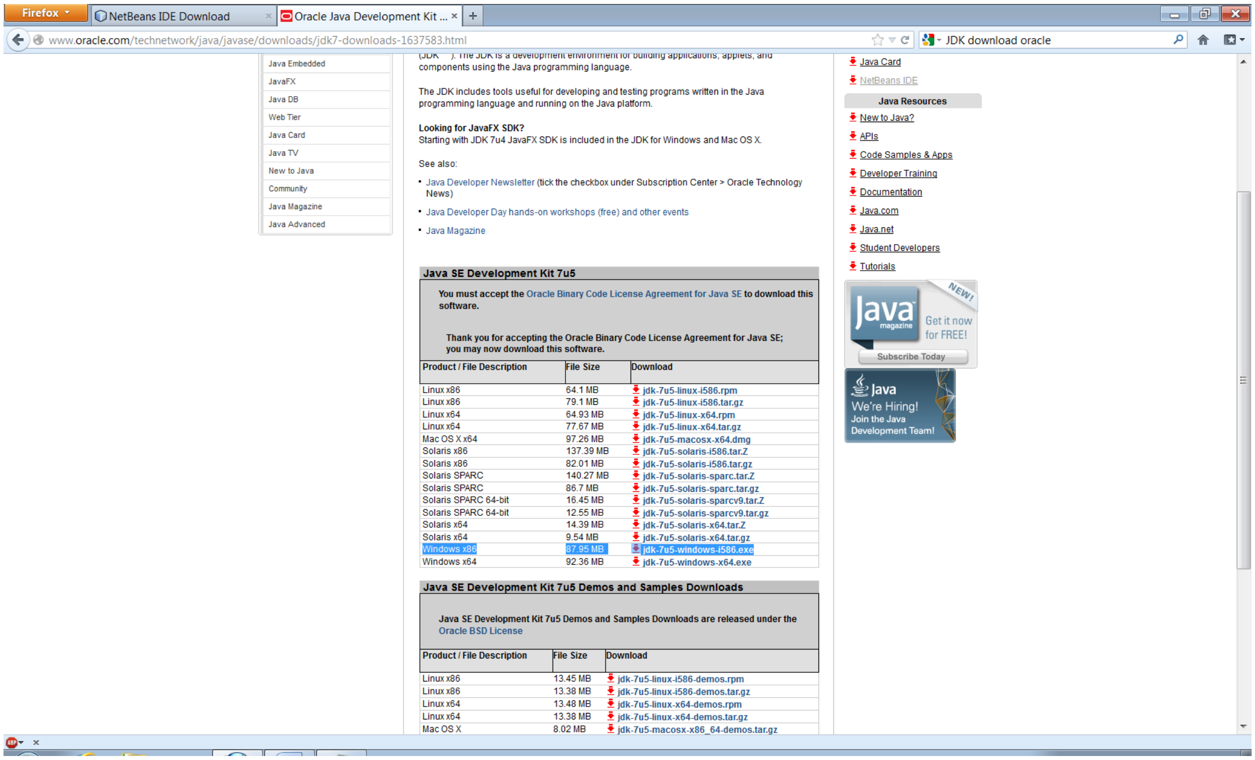
Rating:	1.0 Your Windows Experience Index needs to be refreshed
Processor:	Intel(R) Core(TM)2 Duo CPU T7500 @ 2.20GHz 2.20 GHz
Installed memory (RAM):	4.00 GB (3.00 GB usable)
System type:	32-bit Operating System
Pen and Touch:	No Pen or Touch Input is available for this Display

Computer name, domain, and workgroup settings

Computer name:	jim-PC	Change settings

c. Download the current Java version that best matches your system. In the case listed above, I selected Windows 32-bit version – (Windows x86,87.95 MB,jdk-7u5-windows-i586.exe)

Note: It is Ok to have multiple versions of the JDK installed on your machine. For example, having JDK6 and JDK7 installed in different directories is fine. Once you install the IDE, it will ask which version you want to use.



(JDK). The JDK is a development environment for building applications, applets, and components using the Java programming language.

The JDK includes tools useful for developing and testing programs written in the Java programming language and running on the Java platform.

Looking for JavaFX SDK?
Starting with JDK 7u4 JavaFX SDK is included in the JDK for Windows and Mac OS X.

See also:

- Java Developer Newsletter (tick the checkbox under Subscription Center > Oracle Technology News)
- Java Developer Day hands-on workshops (free) and other events
- Java Magazine

Java SE Development Kit 7u5

You must accept the Oracle Binary Code License Agreement for Java SE to download this software.

Thank you for accepting the Oracle Binary Code License Agreement for Java SE; you may now download this software.

Product / File Description	File Size	Download
Linux x86	64.1 MB	jdk-7u5-linux-i586.rpm
Linux x86	79.1 MB	jdk-7u5-linux-i586.tar.gz
Linux x64	64.93 MB	jdk-7u5-linux-x64.rpm
Linux x64	77.67 MB	jdk-7u5-linux-x64.tar.gz
Mac OS X x64	97.26 MB	jdk-7u5-macosx-x64.dmg
Solaris x86	137.39 MB	jdk-7u5-solaris-i586.tar.Z
Solaris x86	82.01 MB	jdk-7u5-solaris-i586.tar.gz
Solaris SPARC	140.27 MB	jdk-7u5-solaris-sparc.tar.Z
Solaris SPARC	86.7 MB	jdk-7u5-solaris-sparc.tar.gz
Solaris SPARC 64-bit	16.45 MB	jdk-7u5-solaris-sparcv9.tar.Z
Solaris SPARC 64-bit	12.55 MB	jdk-7u5-solaris-sparcv9.tar.gz
Solaris x64	14.39 MB	jdk-7u5-solaris-x64.tar.Z
Solaris x64	9.54 MB	jdk-7u5-solaris-x64.tar.gz
Windows x86	87.95 MB	jdk-7u5-windows-i586.exe
Windows x64	92.36 MB	jdk-7u5-windows-x64.exe

Java SE Development Kit 7u5 Demos and Samples Downloads

Java SE Development Kit 7u5 Demos and Samples Downloads are released under the Oracle BSD License

Product / File Description	File Size	Download
Linux x86	13.45 MB	jdk-7u5-linux-i586-demos.rpm
Linux x86	13.38 MB	jdk-7u5-linux-i586-demos.tar.gz
Linux x64	13.48 MB	jdk-7u5-linux-x64-demos.rpm
Linux x64	13.38 MB	jdk-7u5-linux-x64-demos.tar.gz
Mac OS X	8.02 MB	jdk-7u5-macosx-x86_64-demos.tar.gz

d. After downloading the executable, install Java on your system.

Notes:
1) The executable will ask install 3 specific software packages on your system: JDK, JRE (run time environment) and JavaFX. You don't really need JavaFX for this class but you are welcome to install it. You will definitely need the JDK and JRE.

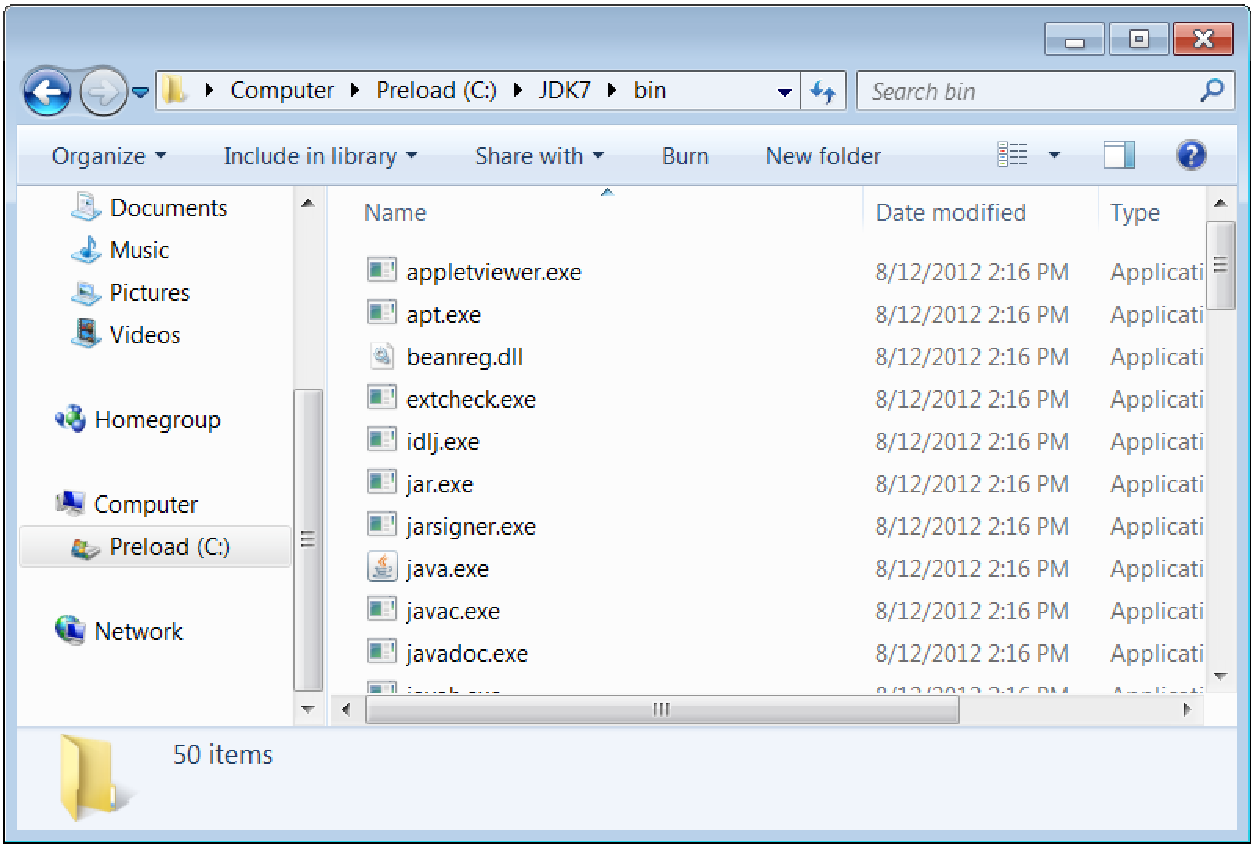
2) After successful installation, a registration option will most likely come up for you to consider. To register you actually need an Oracle account. It is all free, but you will get more email with Oracle offerings if you register. This isn't necessarily bad but registration is up to you.

e. If you need detailed instructions for installing the JDK see the links that contain installation instructions:
http://docs.oracle.com/javase/7/docs/webnotes/install/index.html

f. If you want to be able to compile directly from the command line (DOS prompt) in Windows, you will need to set the path in your windows control panel-> System-> Advanced to point to where bin directory where you installed your JDK. To do this follow these steps:

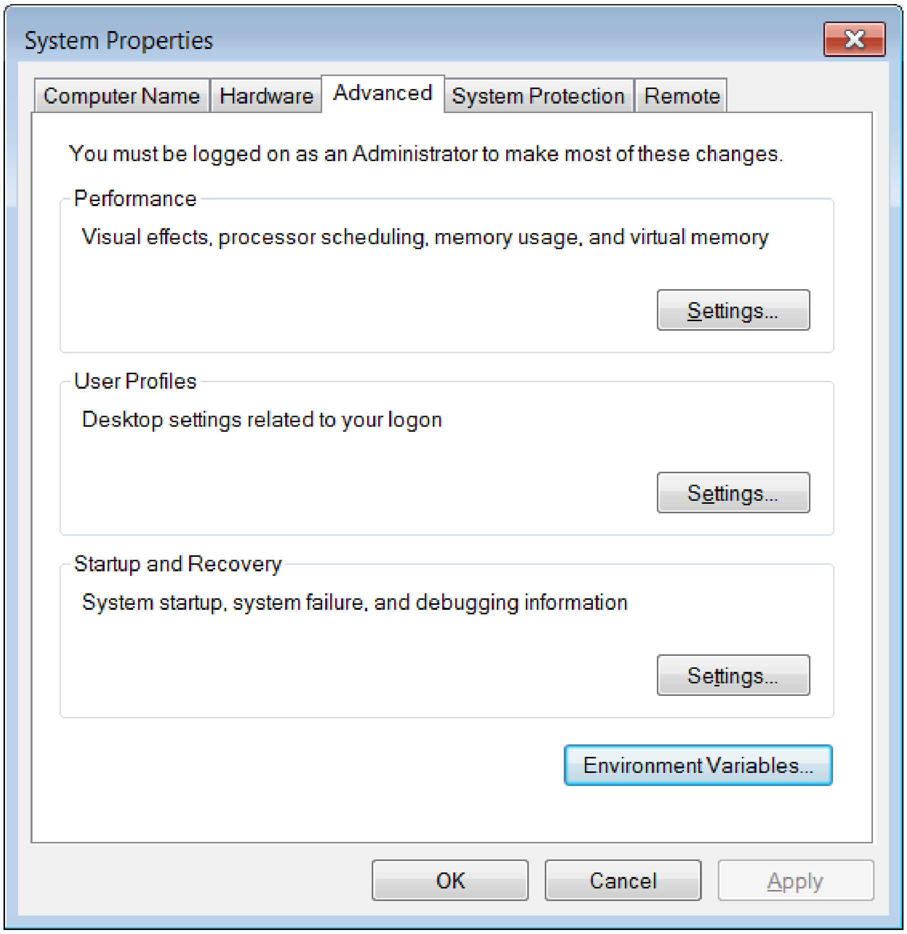
1) Locate where your JDK7/bin directory is on your system. For my install, it is here:

C:\JDK7\bin



Name	Date modified	Type
appletviewer.exe	8/12/2012 2:16 PM	Applicati
apt.exe	8/12/2012 2:16 PM	Applicati
beanreg.dll	8/12/2012 2:16 PM	Applicati
extcheck.exe	8/12/2012 2:16 PM	Applicati
idlj.exe	8/12/2012 2:16 PM	Applicati
jar.exe	8/12/2012 2:16 PM	Applicati
jarsigner.exe	8/12/2012 2:16 PM	Applicati
java.exe	8/12/2012 2:16 PM	Applicati
javac.exe	8/12/2012 2:16 PM	Applicati
javadoc.exe	8/12/2012 2:16 PM	Applicati

2) Open up your control panel -> System and Security->Advanced System Settings click on the “environment variables” button



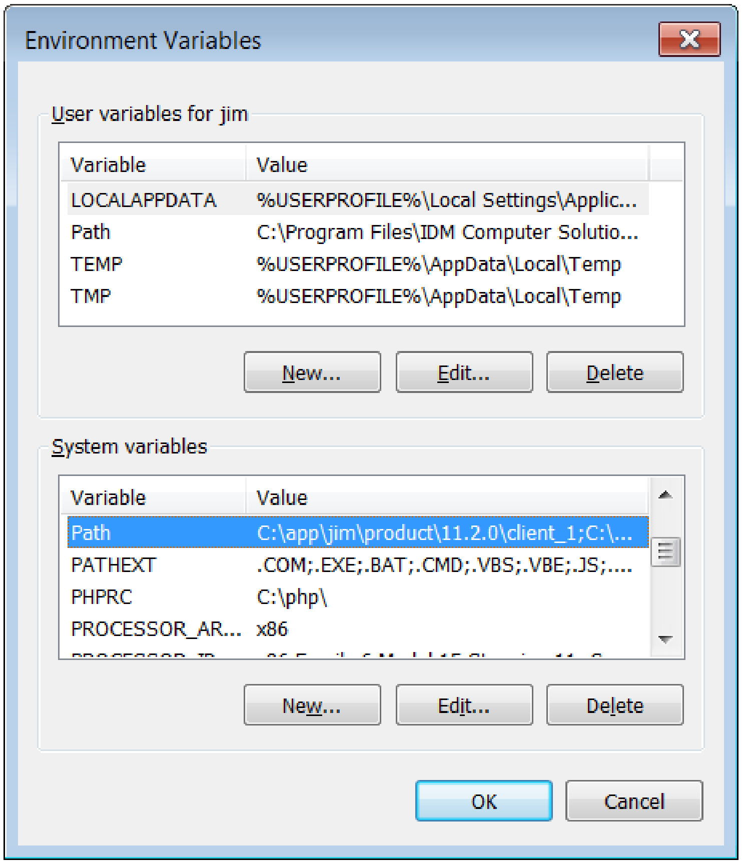
You must be logged on as an Administrator to make most of these changes.

Visual effects, processor scheduling, memory usage, and virtual memory

Desktop settings related to your logon

System startup, system failure, and debugging information

3) Under the System variables, click on Path and then select edit:



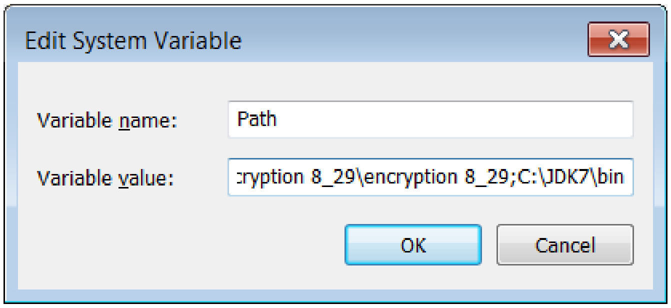
User variables for jim

Variable	Value
LOCALAPPDATA	%USERPROFILE%\Local Settings\Applic...
Path	C:\Program Files\IDM Computer Solutio...
TEMP	%USERPROFILE%\AppData\Local\Temp
TMP	%USERPROFILE%\AppData\Local\Temp

System variables

Variable	Value
Path	C:\app\jim\product\11.2.0\client_1;C:\...
PATHEXT	.COM;.EXE;.BAT;.CMD;.VBS;.VBE;.JS;....
PHPRC	C:\php\
PROCESSOR_AR...	x86

4) Add the Windows path that included your JDK\bin directory and click OK:

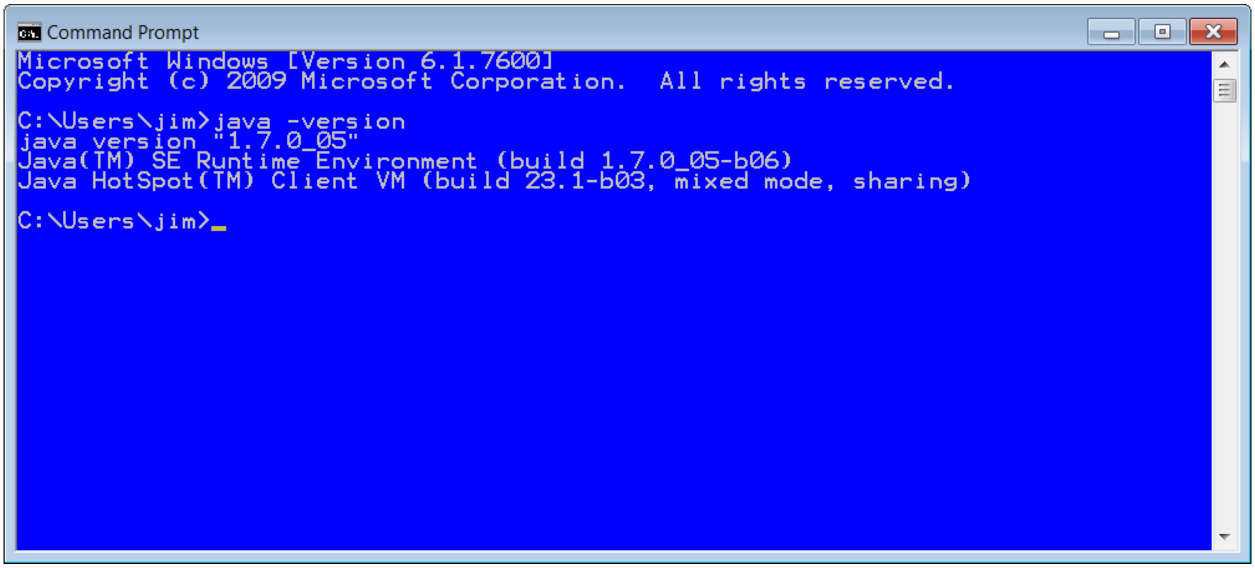


Variable name: Path

Variable value: cryption 8_29\encryption 8_29;C:\JDK7\bin

g. Finally, double check that your computer has the JDK properly installed. To do this, open a command prompt and type the following commands:

```
java –version
```

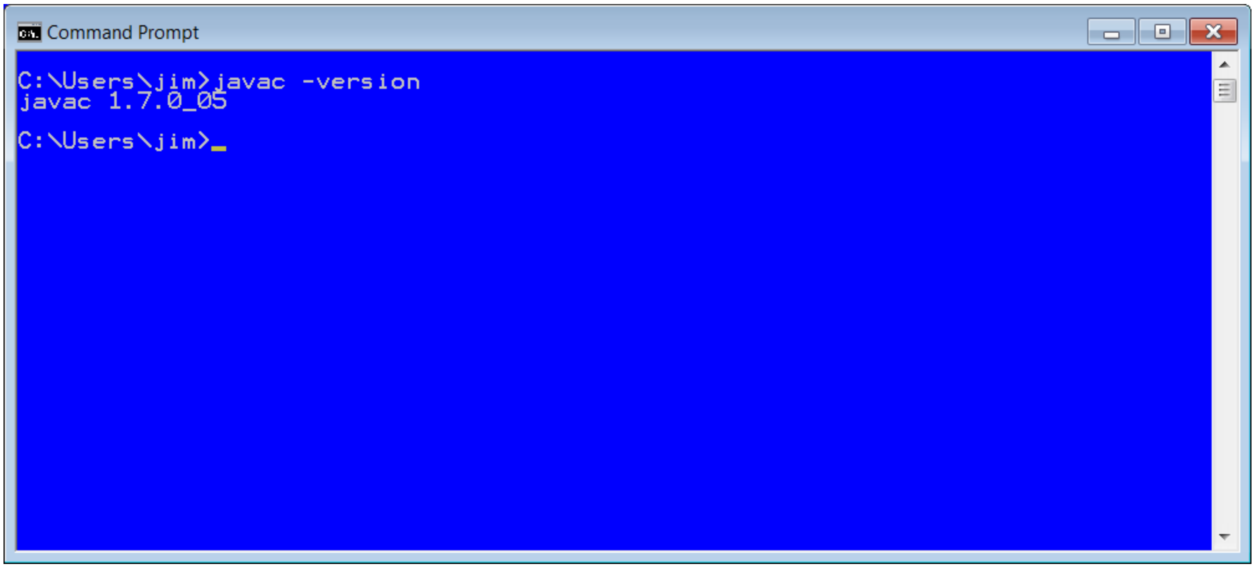


```
Microsoft Windows [Version 6.1.7600]
Copyright (c) 2009 Microsoft Corporation.  All rights reserved.

C:\Users\jim>java -version
java version "1.7.0_05"
Java(TM) SE Runtime Environment (build 1.7.0_05-b06)
Java HotSpot(TM) Client VM (build 23.1-b03, mixed mode, sharing)

C:\Users\jim>_
```

javac –version



```
C:\Users\jim>javac -version
javac 1.7.0_05

C:\Users\jim>_
```

h. If you were successful, you should see a response indicating the current versions of Java on your machine to be 1.7.x (where x may be slightly different depending of minor versioning)

Now, you can proceed to install Netbeans of Eclipse.

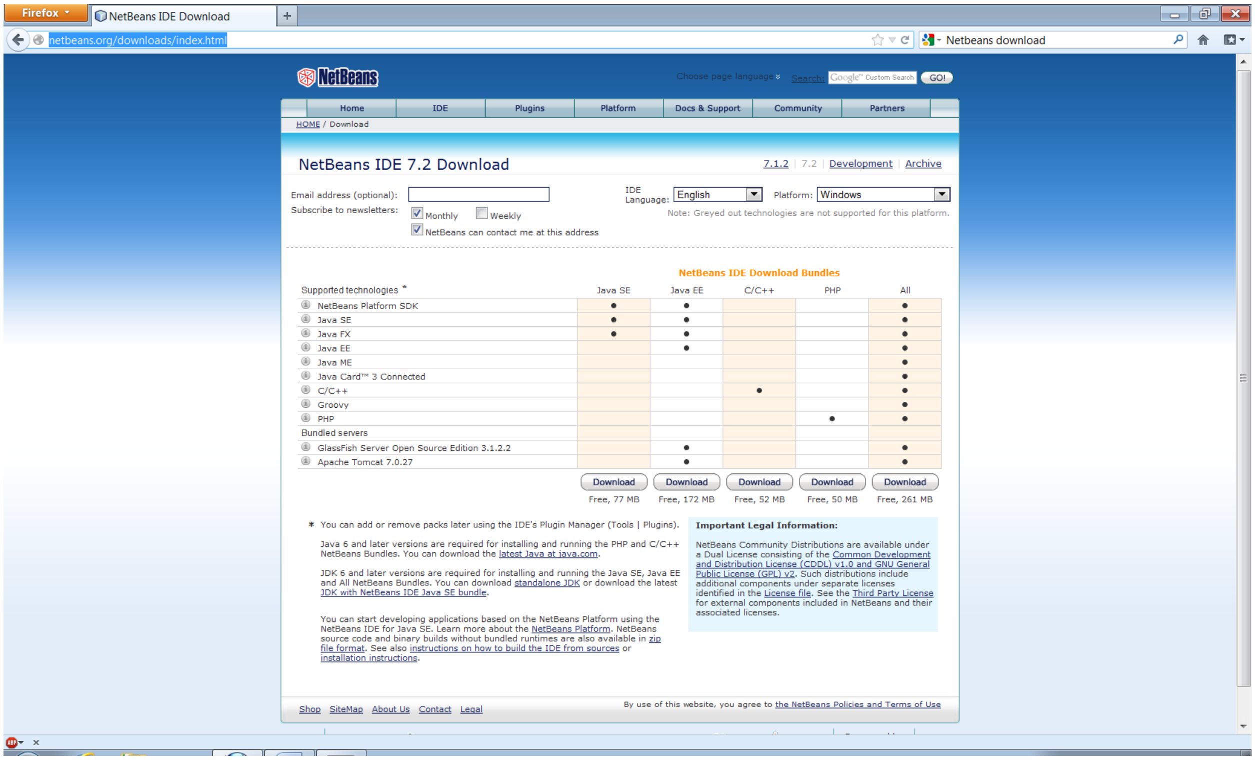
Note: you do not need both- one will suffice. If you are new to IDE's I would recommend Netbeans as the install is a bit less complicated)

Step 2. Installing and IDE (either Netbeans of Eclipse)

Installing Netbeans (Not needed if Eclipse is installed)

a. Go to Netbeans.org and download the Java SE (standard Edition) found at this URL: http://netbeans.org/downloads/index.html

Note: Be sure to select your platform in platform drop down menu as needed.



NetBeans IDE 7.2 Download

7.1.2 | 7.2 | Development | Archive

Email address (optional):

Subscribe to newsletters: ☑ Monthly ☐ Weekly

☑ NetBeans can contact me at this address

IDE Language: English

Platform: Windows

Note: Greyed out technologies are not supported for this platform.

NetBeans IDE Download Bundles

Supported technologies *	Java SE	Java EE	C/C++	PHP	All
NetBeans Platform SDK	●	●			●
Java SE	●	●			●
Java FX	●	●			●
Java EE		●			●
Java ME					●
Java Card™ 3 Connected					●
C/C++			●		●
Groovy					●
PHP				●	●
Bundled servers					
GlassFish Server Open Source Edition 3.1.2.2		●			●
Apache Tomcat 7.0.27		●			●
	Download	Download	Download	Download	Download
	Free, 77 MB	Free, 172 MB	Free, 52 MB	Free, 50 MB	Free, 261 MB

* You can add or remove packs later using the IDE's Plugin Manager (Tools | Plugins).

Java 6 and later versions are required for installing and running the PHP and C/C++ NetBeans Bundles. You can download the latest Java at java.com.

JDK 6 and later versions are required for installing and running the Java SE, Java EE and All NetBeans Bundles. You can download standalone JDK or download the latest JDK with NetBeans IDE Java SE bundle.

You can start developing applications based on the NetBeans Platform using the NetBeans IDE for Java SE. Learn more about the NetBeans Platform. NetBeans source code and binary builds without bundled runtimes are also available in zip file format. See also instructions on how to build the IDE from sources or installation instructions.

Important Legal Information:

NetBeans Community Distributions are available under a Dual License consisting of the Common Development and Distribution License (CDDL) v1.0 and GNU General Public License (GPL) v2. Such distributions include additional components under separate licenses identified in the License file. See the Third Party License for external components included in NetBeans and their associated licenses.

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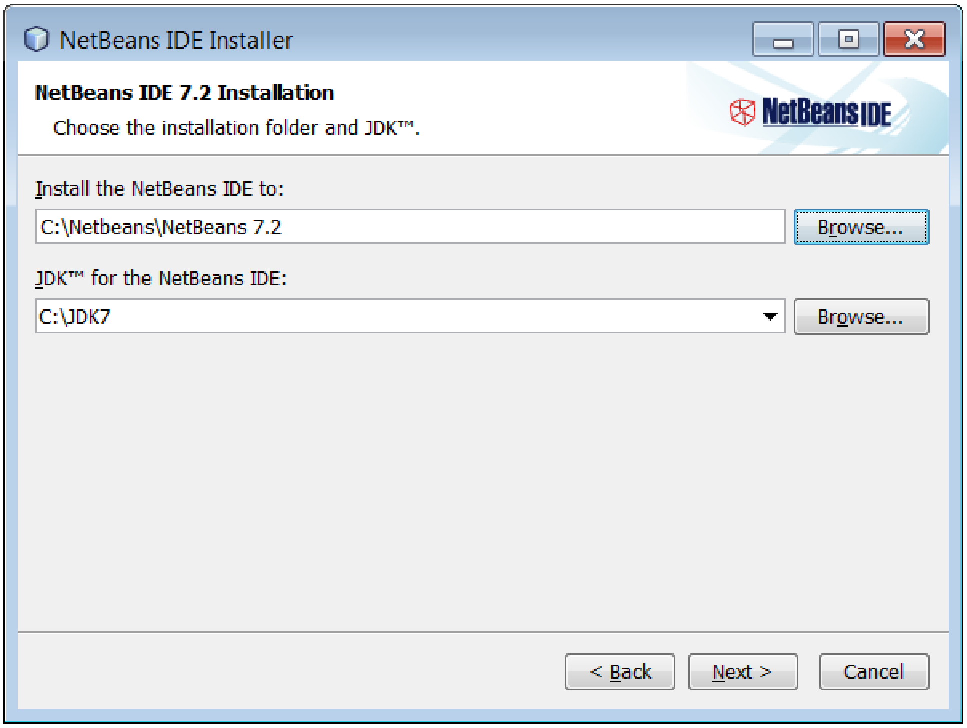
b. Once downloaded, install the software on your system. Specific installation instructions are found here if needed: http://netbeans.org/community/releases/72/install.html

Note: You will be asked for the location of the JDK you previously installed.



NetBeans IDE 7.2 Installation

Choose the installation folder and JDK™.

Install the NetBeans IDE to: C:\Netbeans\NetBeans 7.2

JDK™ for the NetBeans IDE: C:\JDK7

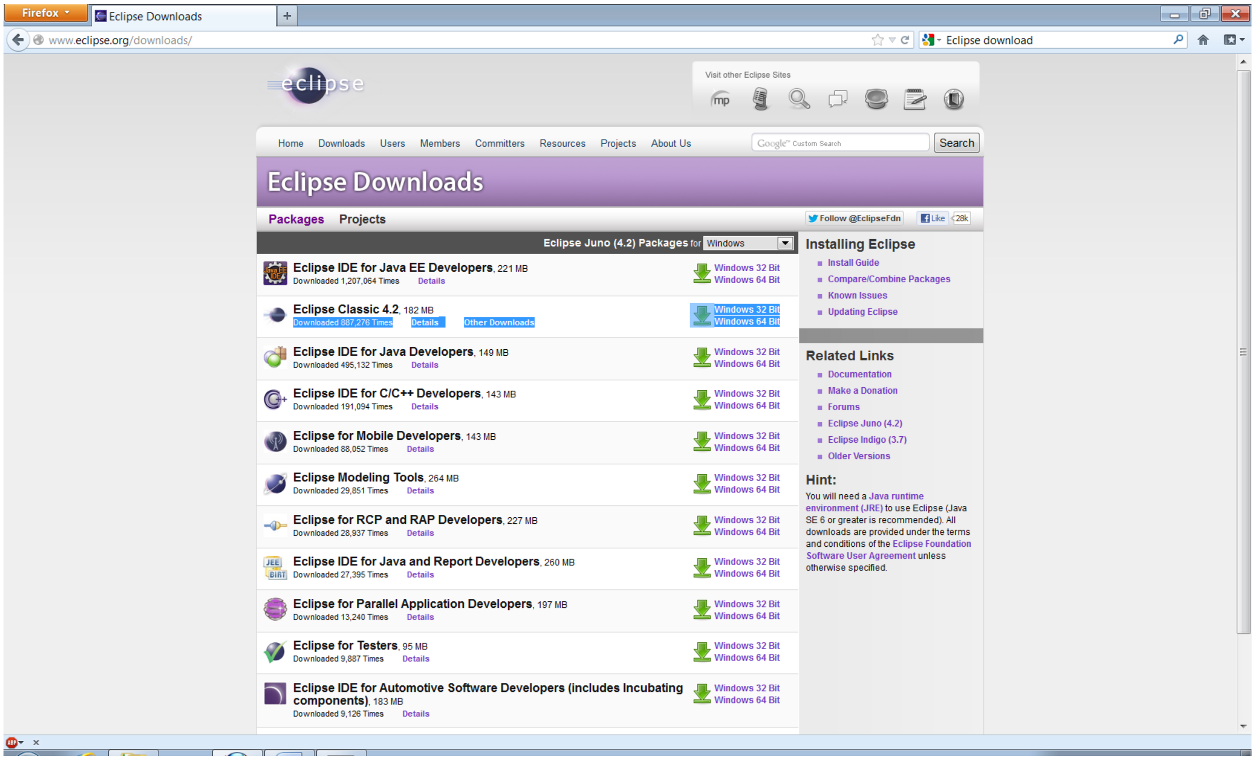
After you have provided your environment settings, Click next and continue the installation.

c. Netbeans will inform you once installation is complete.

Installing Eclipse (Not needed if Netbeans is Installed)

a. Go to Eclipse.org and download the Eclipse Classic found at this URL: http://www.eclipse.org/downloads/

Note: Be sure to select your platform in platform drop down menu as needed.



Eclipse Downloads

Eclipse Juno (4.2) Packages for Windows

Eclipse IDE for Java EE Developers, 221 MB Downloaded 1,207,064 Times Details	Windows 32 Bit Windows 64 Bit
Eclipse Classic 4.2, 182 MB Downloaded 887,276 Times Details Other Downloads	Windows 32 Bit Windows 64 Bit
Eclipse IDE for Java Developers, 149 MB Downloaded 495,132 Times Details	Windows 32 Bit Windows 64 Bit
Eclipse IDE for C/C++ Developers, 143 MB Downloaded 191,094 Times Details	Windows 32 Bit Windows 64 Bit
Eclipse for Mobile Developers, 143 MB Downloaded 88,052 Times Details	Windows 32 Bit Windows 64 Bit
Eclipse Modeling Tools, 264 MB Downloaded 29,851 Times Details	Windows 32 Bit Windows 64 Bit
Eclipse for RCP and RAP Developers, 227 MB Downloaded 28,937 Times Details	Windows 32 Bit Windows 64 Bit
Eclipse IDE for Java and Report Developers, 260 MB Downloaded 27,395 Times Details	Windows 32 Bit Windows 64 Bit
Eclipse for Parallel Application Developers, 197 MB Downloaded 13,240 Times Details	Windows 32 Bit Windows 64 Bit
Eclipse for Testers, 95 MB Downloaded 9,887 Times Details	Windows 32 Bit Windows 64 Bit
Eclipse IDE for Automotive Software Developers (includes Incubating components), 183 MB Downloaded 9,126 Times Details	Windows 32 Bit Windows 64 Bit

Installing Eclipse

- Install Guide
- Compare/Combine Packages
- Known Issues
- Updating Eclipse

Related Links

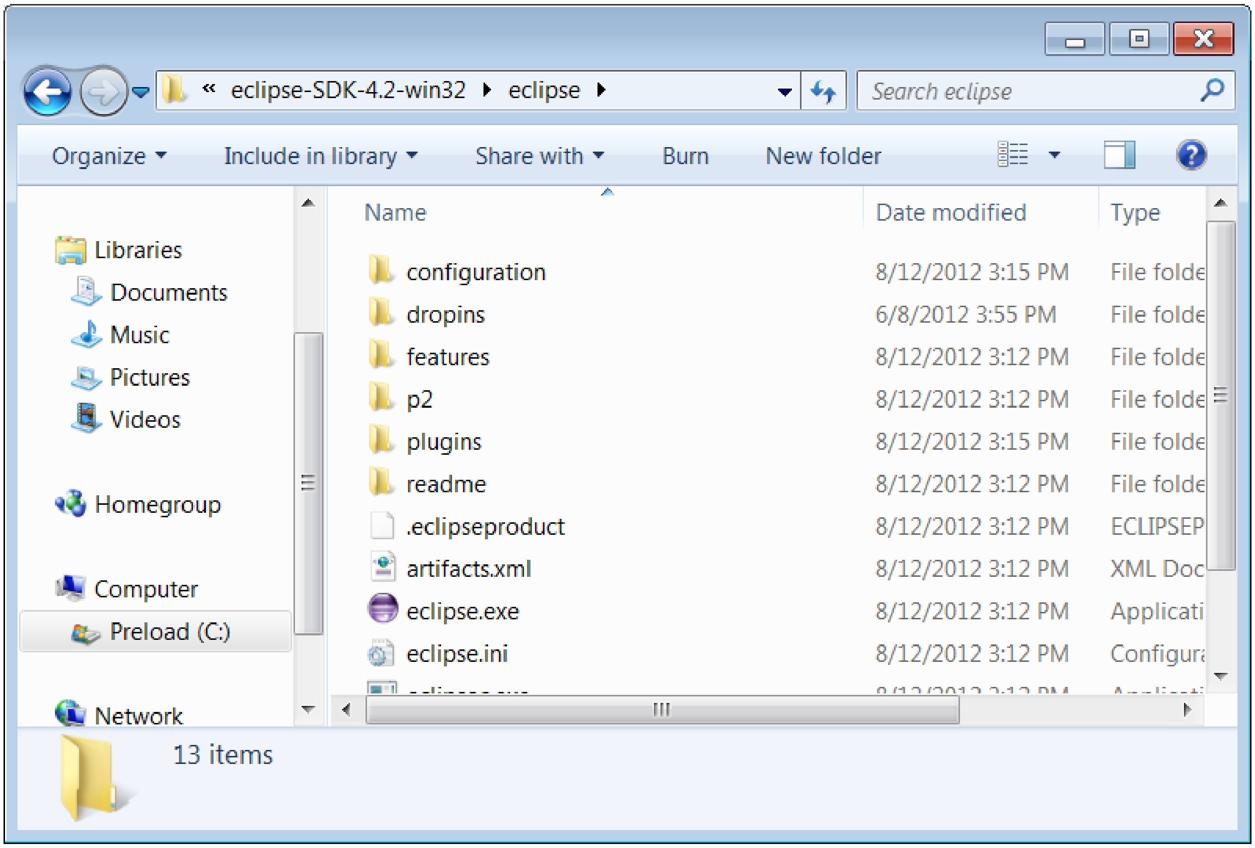
- Documentation
- Make a Donation
- Forums
- Eclipse Juno (4.2)
- Eclipse Indigo (3.7)
- Older Versions

Hint:

You will need a Java runtime environment (JRE) to use Eclipse (Java SE 6 or greater is recommended). All downloads are provided under the terms and conditions of the Eclipse Foundation Software User Agreement unless otherwise specified.

b. Once downloaded, install the software on your system. Specific installation instructions are found here if needed: http://wiki.eclipse.org/Eclipse/Installation
Note: To install Eclipse you essentially just unzip the file you downloaded.

c. Once installed, you will see the Eclipse executable in the directory where you unzipped the archived file:



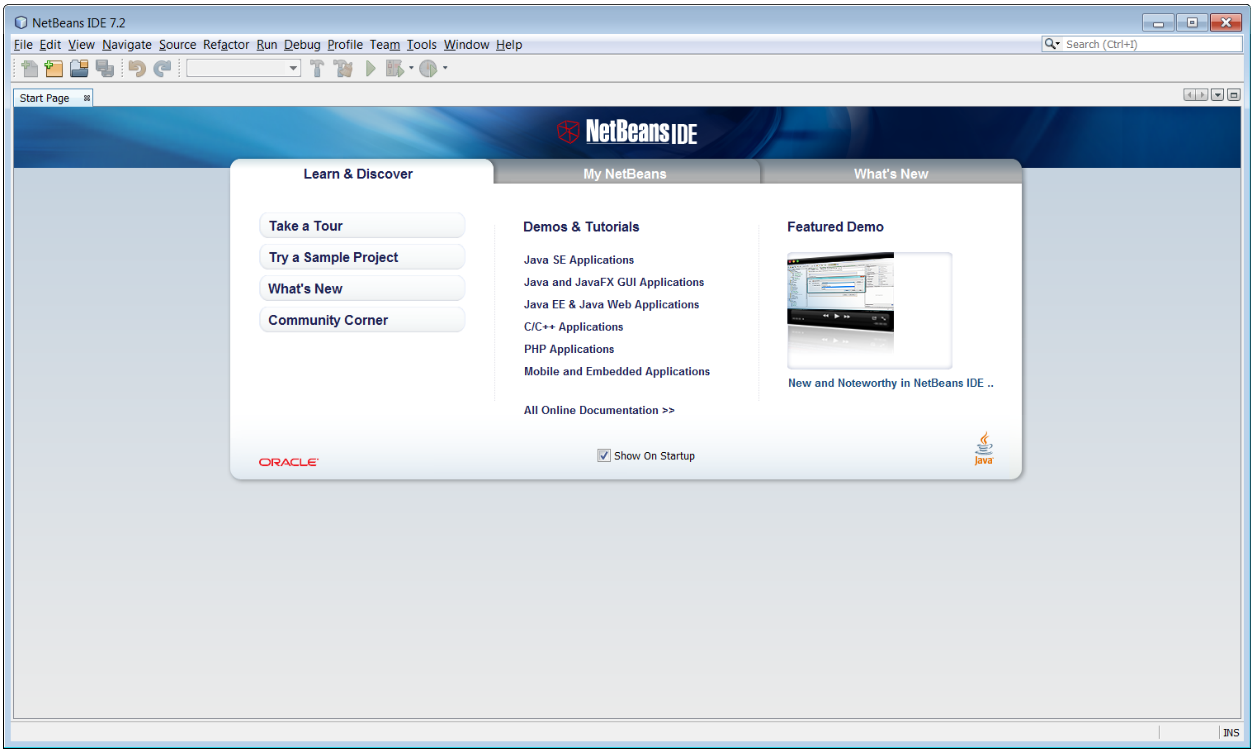
Name	Date modified	Type
configuration	8/12/2012 3:15 PM	File folde
dropins	6/8/2012 3:55 PM	File folde
features	8/12/2012 3:12 PM	File folde
p2	8/12/2012 3:12 PM	File folde
plugins	8/12/2012 3:15 PM	File folde
readme	8/12/2012 3:12 PM	File folde
.eclipseproduct	8/12/2012 3:12 PM	ECLIPSEP
artifacts.xml	8/12/2012 3:12 PM	XML Doc
eclipse.exe	8/12/2012 3:12 PM	Applicati
eclipse.ini	8/12/2012 3:12 PM	Configura
eclipsec.exe	8/12/2012 3:12 PM	Applicati

Step 3. Testing your environment to make sure it works

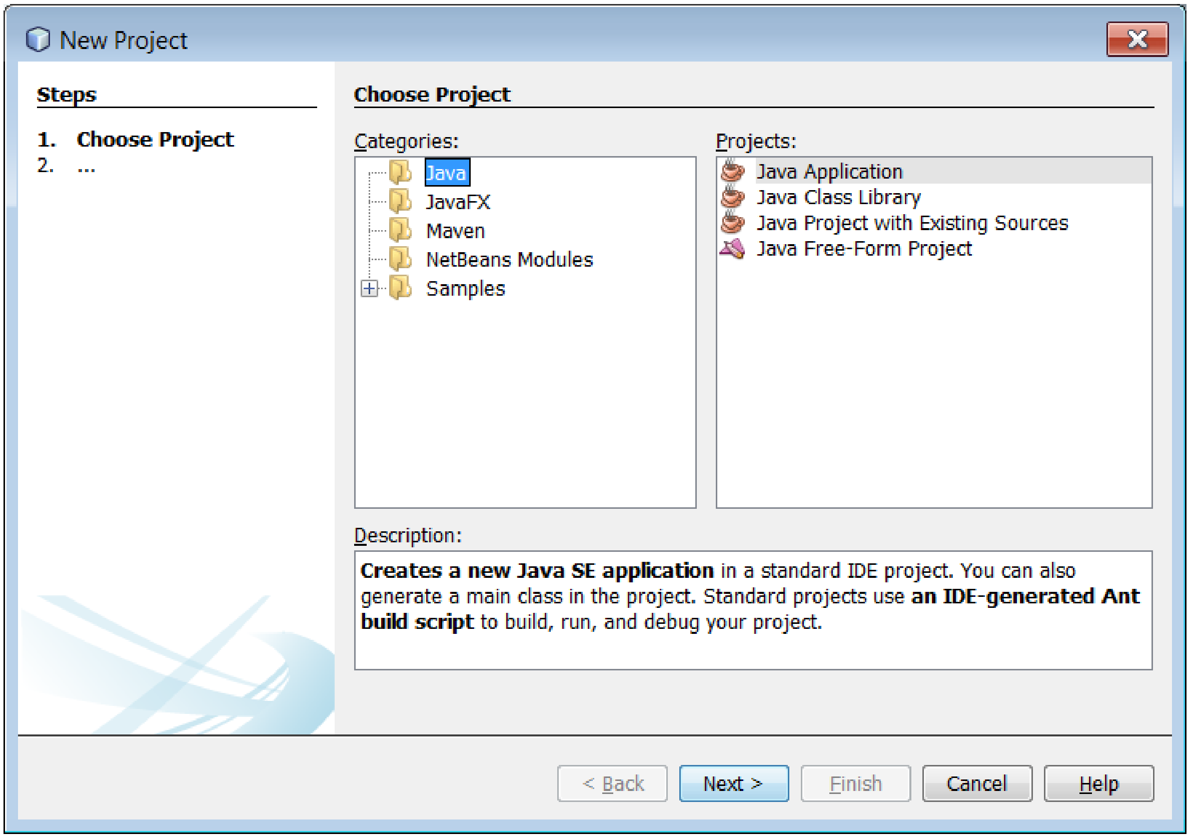
You can run the following steps to see if your IDE's are working properly. This code is a simple Hello, World Program that should work in all Java environments.

Netbeans steps:

1. Launch Netbeans by double-clicking the Netbeans icon on your desktop, or by selecting it in from your Applications



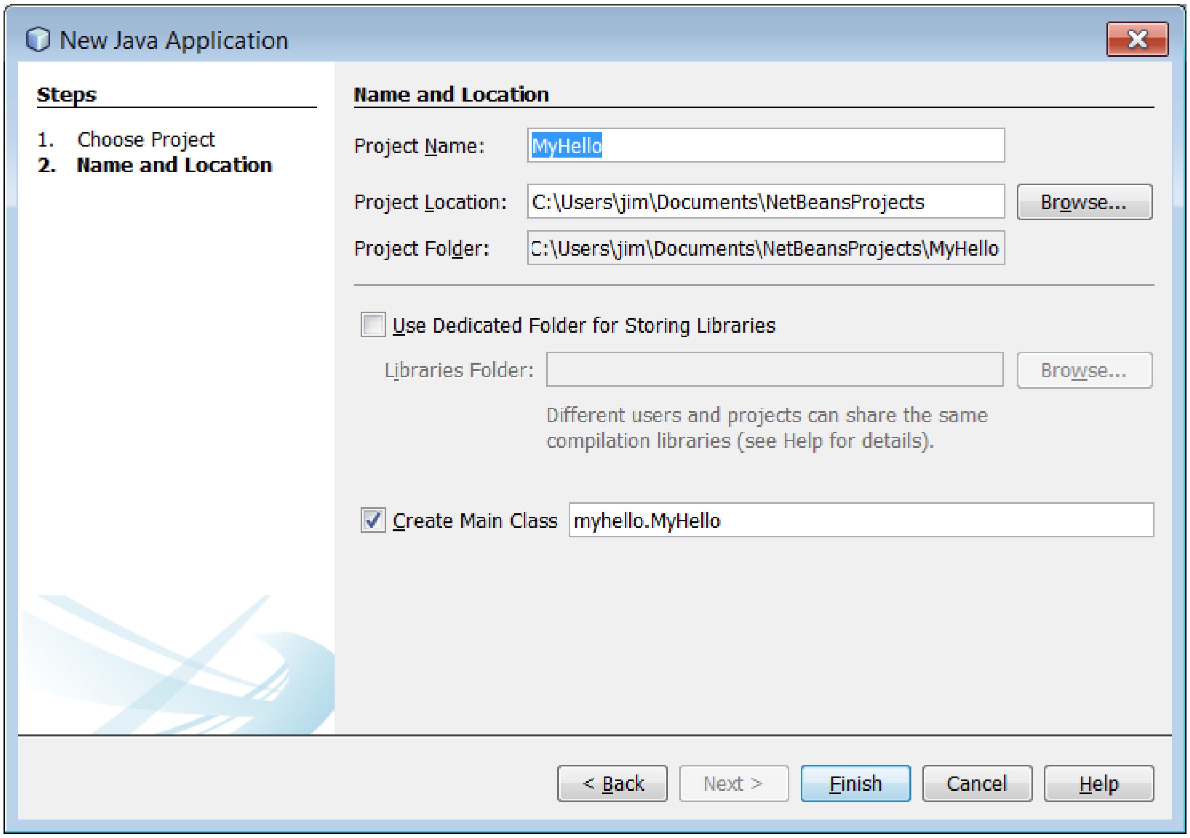
2. From the menu, select File->New project



Description:

Creates a new Java SE application in a standard IDE project. You can also generate a main class in the project. Standard projects use **an IDE-generated Ant build script** to build, run, and debug your project.

3. Select Java -> Java application and click Next.



New Java Application

Steps

1. Choose Project
2. **Name and Location**

Name and Location

Project Name: MyHello

Project Location: C:\Users\jim\Documents\NetBeansProjects

Project Folder: C:\Users\jim\Documents\NetBeansProjects\MyHello

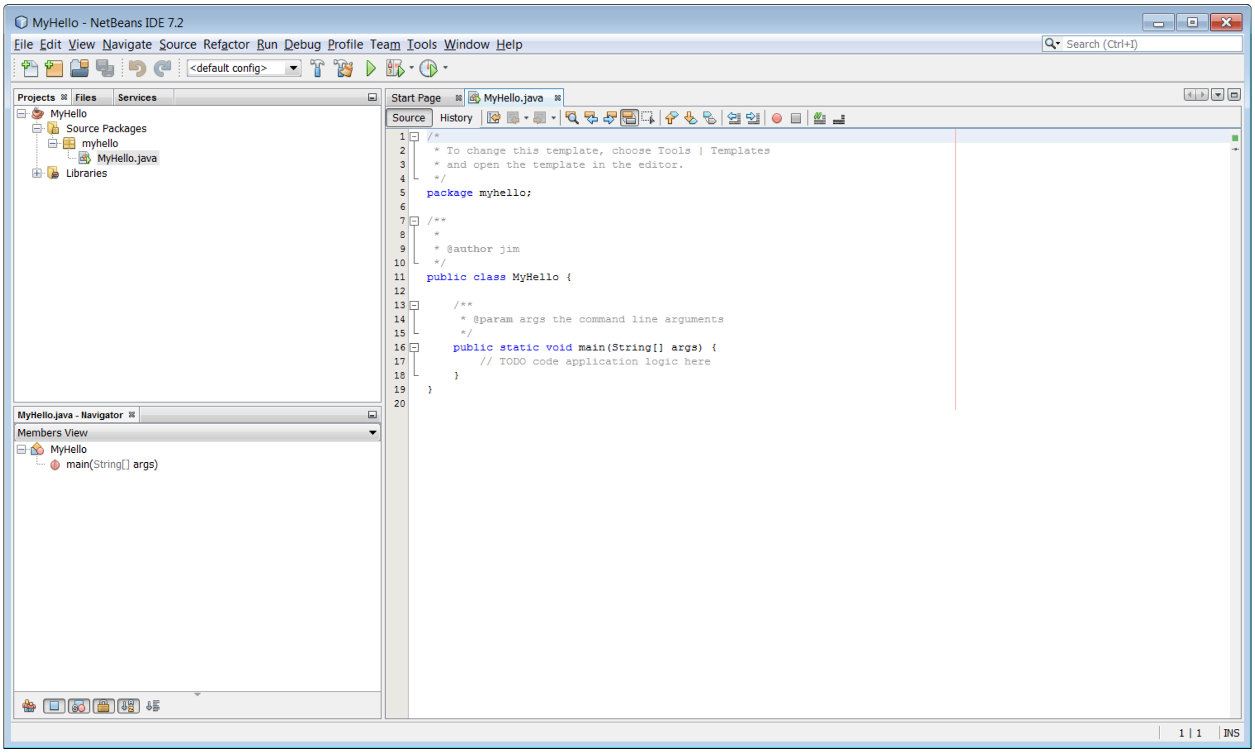
☐ Use Dedicated Folder for Storing Libraries

Libraries Folder:

Different users and projects can share the same compilation libraries (see Help for details).

☑ Create Main Class myhello.MyHello

4. Enter the Project Name as MyHello and click Finish. The project space will appear and the template code is provided.



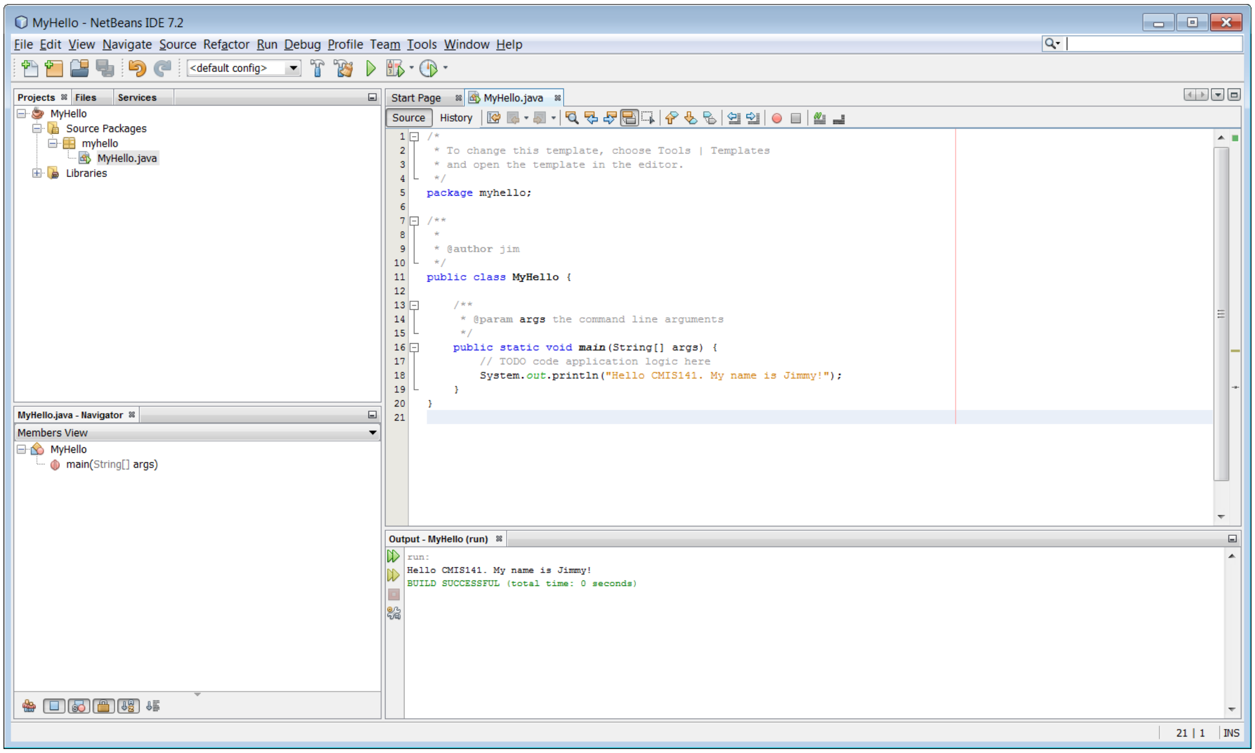
```java
/*
 * To change this template, choose Tools | Templates
 * and open the template in the editor.
 */
package myhello;

/**
 *
 * @author jim
 */
public class MyHello {

    /**
     * @param args the command line arguments
     */
    public static void main(String[] args) {
        // TODO code application logic here
    }
}
```

5. Under the //TODO line enter a line similar to the following:

System.out.println("Hello CMIS141. My name is Jimmy!");

6. Click the Green Arrow in the tool bar near top and watch as the code successfully compiles and runs.

Note: The output or results of running the code is shown at the bottom of the screen.



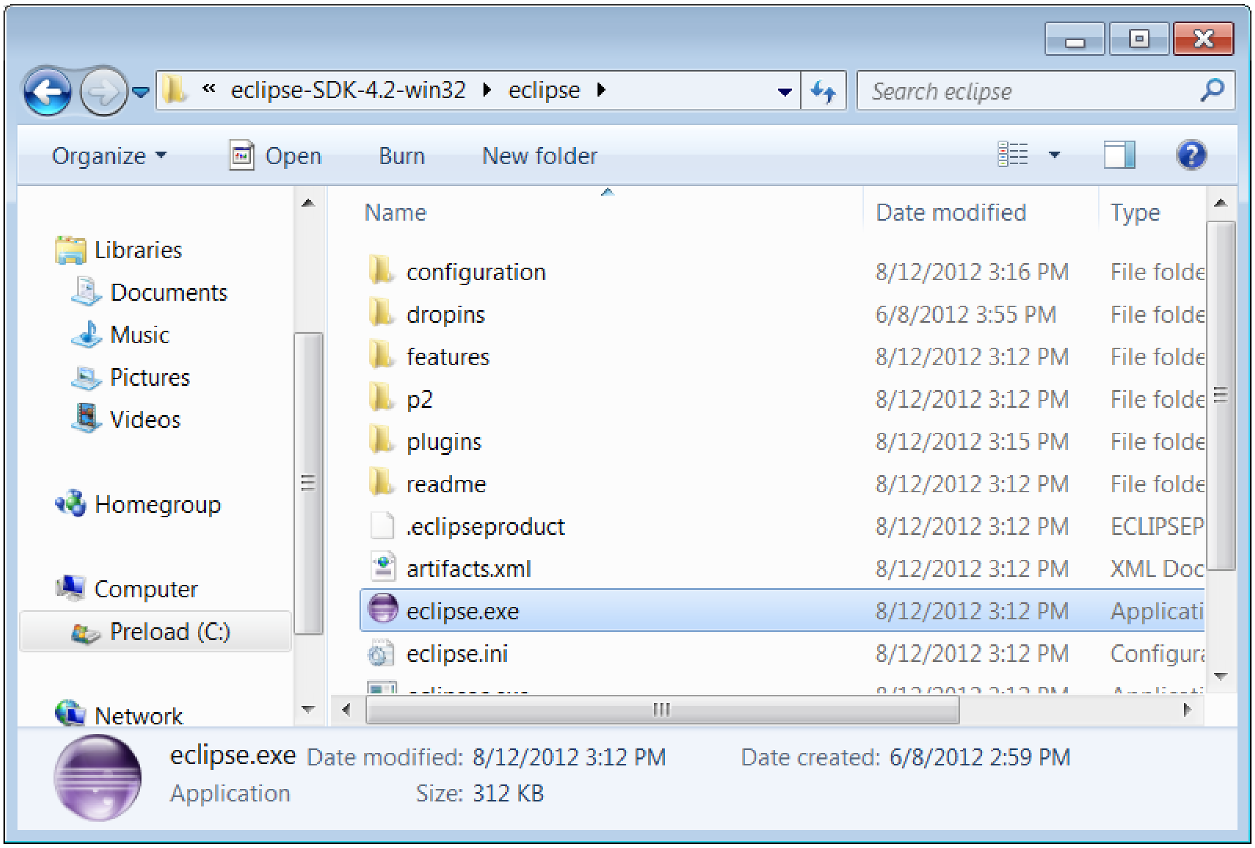
```java
/*
 * To change this template, choose Tools | Templates
 * and open the template in the editor.
 */
package myhello;

/**
 *
 * @author jim
 */
public class MyHello {

    /**
     * @param args the command line arguments
     */
    public static void main(String[] args) {
        // TODO code application logic here
        System.out.println("Hello CMIS141. My name is Jimmy!");
    }
}
```

```
run:
Hello CMIS141. My name is Jimmy!
BUILD SUCCESSFUL (total time: 0 seconds)
```

7. Feel free to experiment with changing the code to display other text. But the good news is your environment is successfully configured and you are ready to code in Java!

Eclipse steps (optional):

1. Launch Eclipse by double-clicking the Eclipse.exe program in your file system.

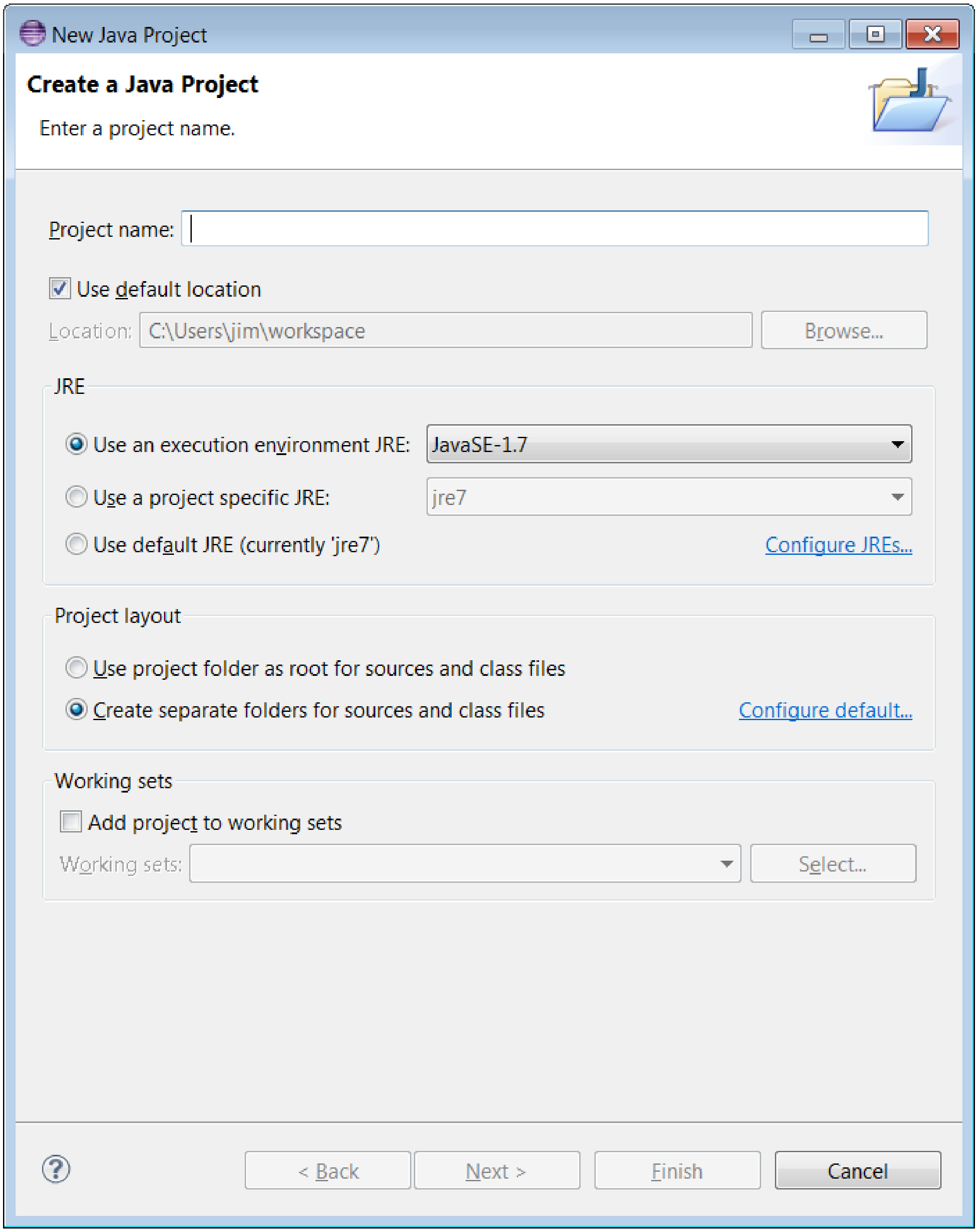


Name	Date modified	Type
configuration	8/12/2012 3:16 PM	File folde
dropins	6/8/2012 3:55 PM	File folde
features	8/12/2012 3:12 PM	File folde
p2	8/12/2012 3:12 PM	File folde
plugins	8/12/2012 3:15 PM	File folde
readme	8/12/2012 3:12 PM	File folde
.eclipseproduct	8/12/2012 3:12 PM	ECLIPSEP
artifacts.xml	8/12/2012 3:12 PM	XML Doc
eclipse.exe	8/12/2012 3:12 PM	Applicati
eclipse.ini	8/12/2012 3:12 PM	Configura

eclipse.exe Date modified: 8/12/2012 3:12 PM Date created: 6/8/2012 2:59 PM
Application Size: 312 KB

Note: When clicking on the eclipse.exe you may be prompted to run the application and then select the default workspace for your files.

2. From the menu, select File-> New -> Java project



New Java Project

Create a Java Project

Enter a project name.

Project name:

☑ Use default location

Location: C:\Users\jim\workspace

JRE

● Use an execution environment JRE: JavaSE-1.7

○ Use a project specific JRE: jre7

○ Use default JRE (currently 'jre7')

Project layout

○ Use project folder as root for sources and class files

● Create separate folders for sources and class files

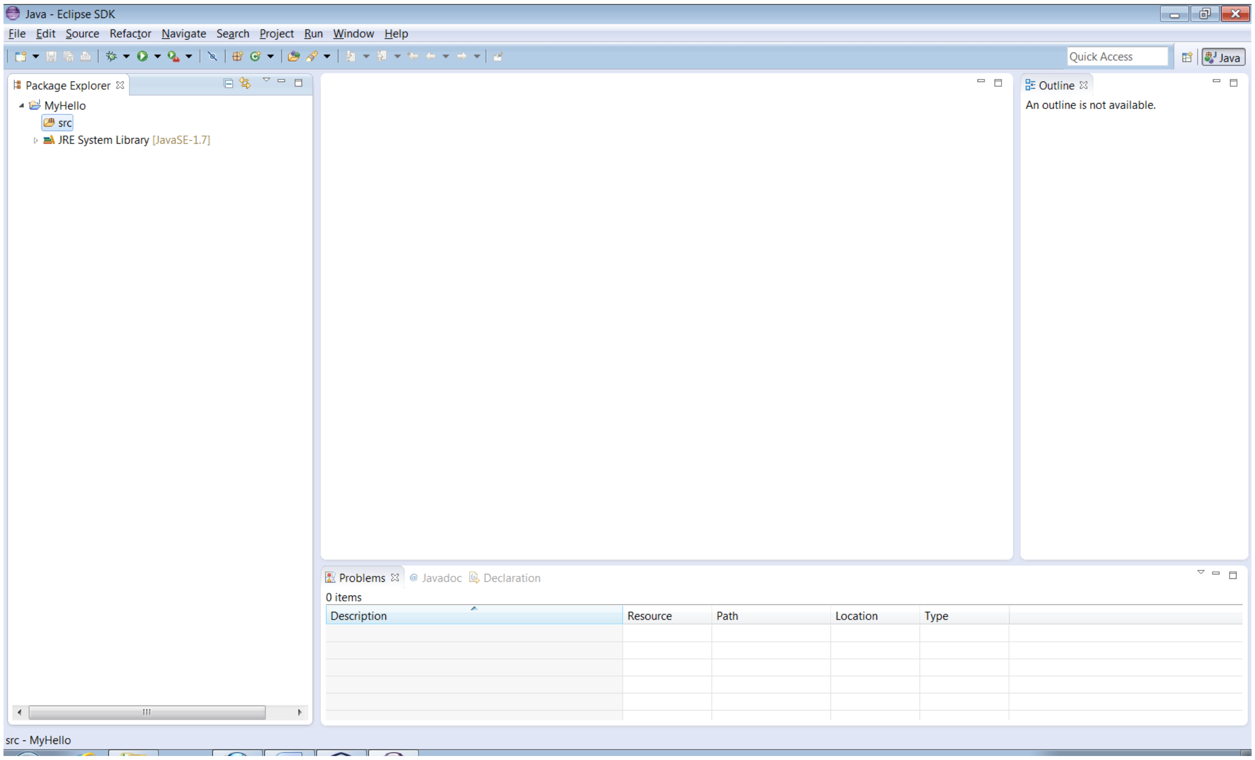
Working sets

□ Add project to working sets

Working sets:

3. Enter MyHello for the Project name and click Finish

4. Click on the Workbench icon in the upper right corner to display the workbench with your Project:

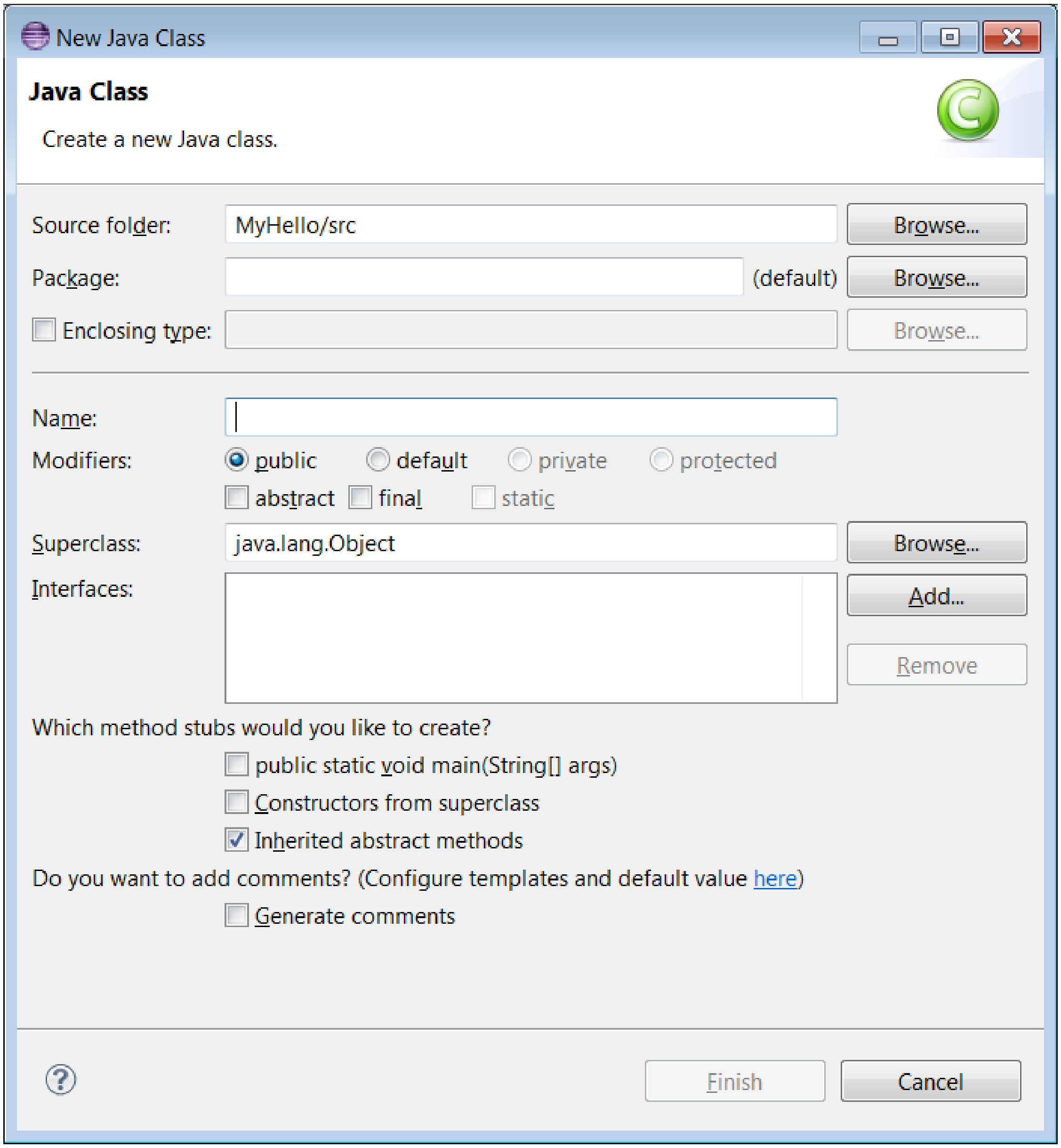


An outline is not available.

0 items

Description	Resource	Path	Location	Type

5. In the left hand, upper corner of the screen, right click on src and select new class



New Java Class

Java Class

Create a new Java class.

Source folder: MyHello/src

Package: (default)

□ Enclosing type:

Name:

Modifiers: ● public ○ default ○ private ○ protected

□ abstract □ final □ static

Superclass: java.lang.Object

Interfaces:

Which method stubs would you like to create?

□ public static void main(String[] args)

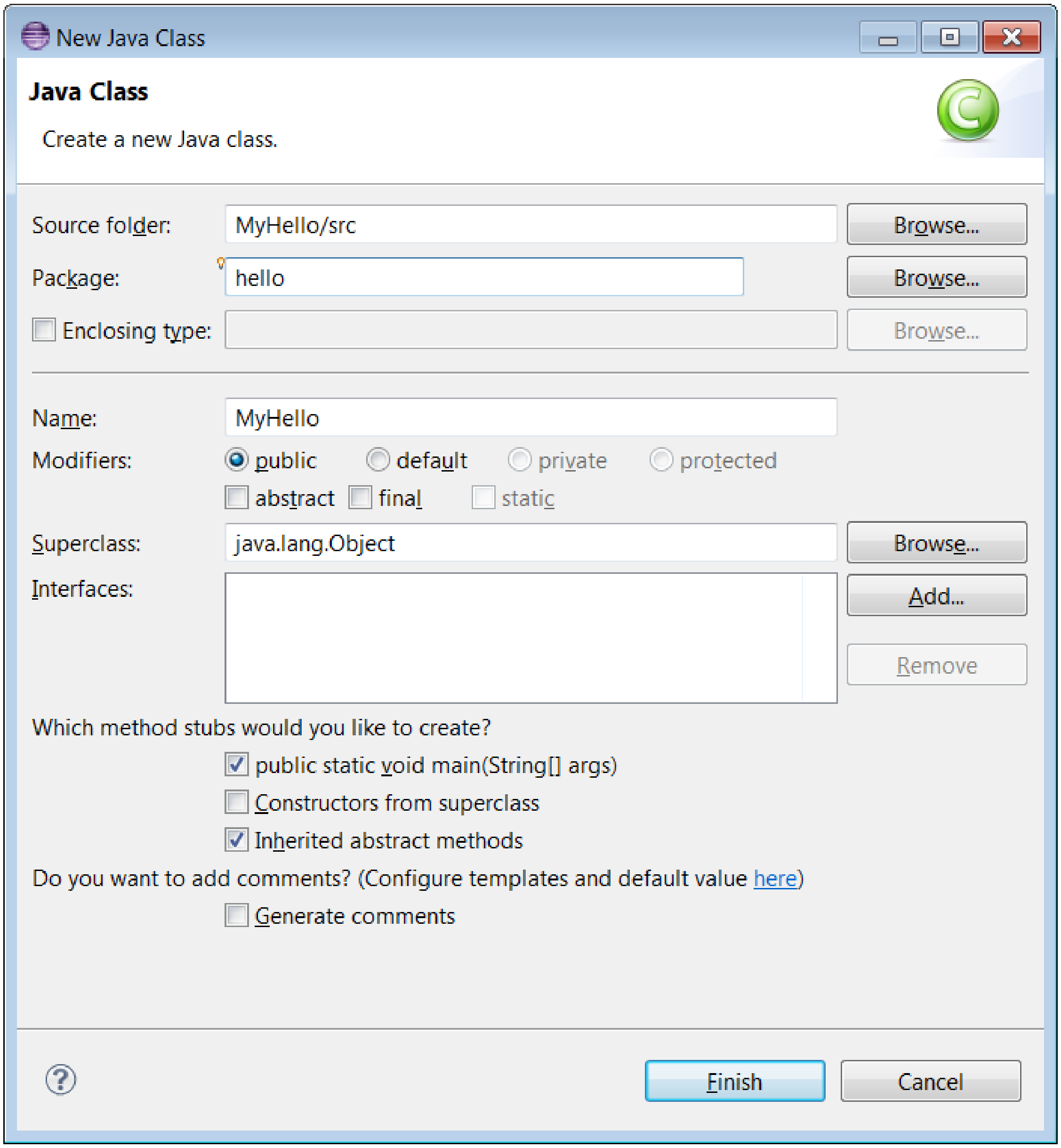
□ Constructors from superclass

☑ Inherited abstract methods

Do you want to add comments? (Configure templates and default value here)

□ Generate comments

6. Add MyHello to the Name and hello to the Package fields and check the public static void main (String[] args) and then click finish.



Java Class

Create a new Java class.

Source folder: MyHello/src

Package: hello

□ Enclosing type:

Name: MyHello

Modifiers: ● public ○ default ○ private ○ protected

□ abstract □ final □ static

Superclass: java.lang.Object

Interfaces:

Which method stubs would you like to create?

☑ public static void main(String[] args)

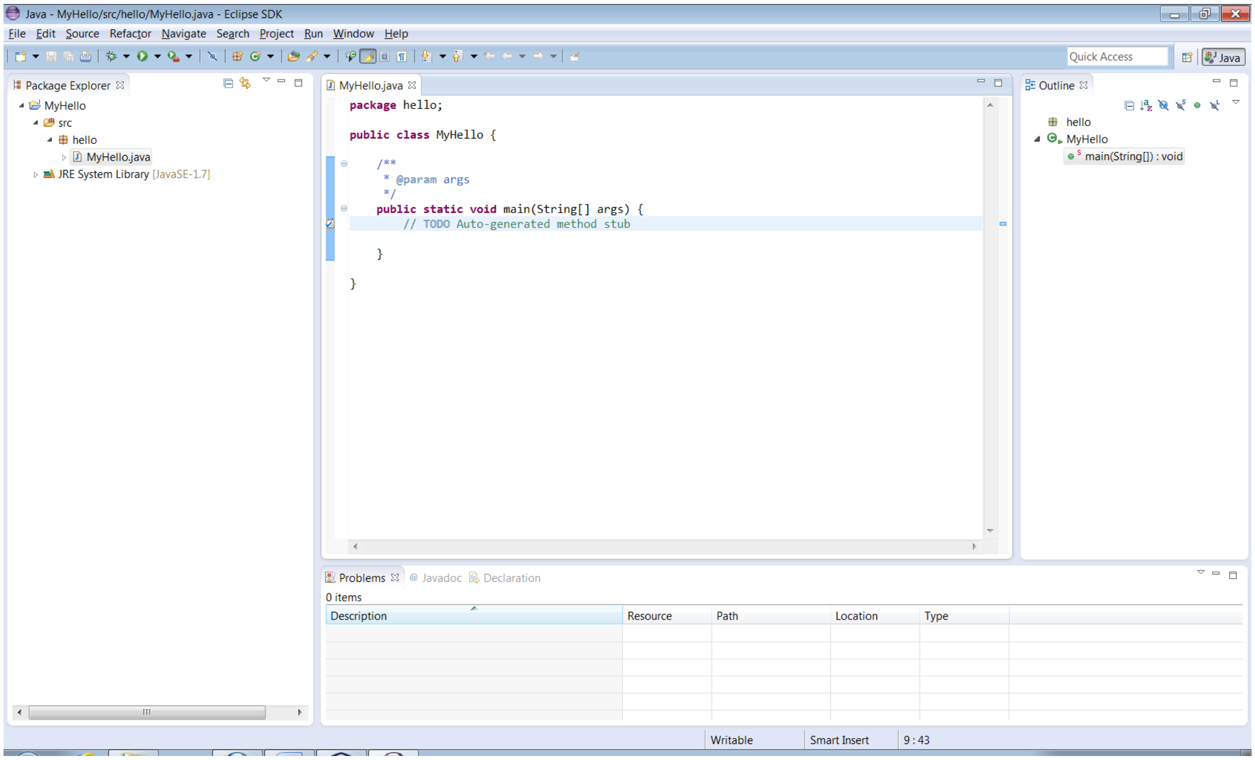
□ Constructors from superclass

☑ Inherited abstract methods

Do you want to add comments? (Configure templates and default value here)

□ Generate comments

7. The code template will appear:



```
package hello;

public class MyHello {

    /**
     * @param args
     */
    public static void main(String[] args) {
        // TODO Auto-generated method stub

    }

}
```

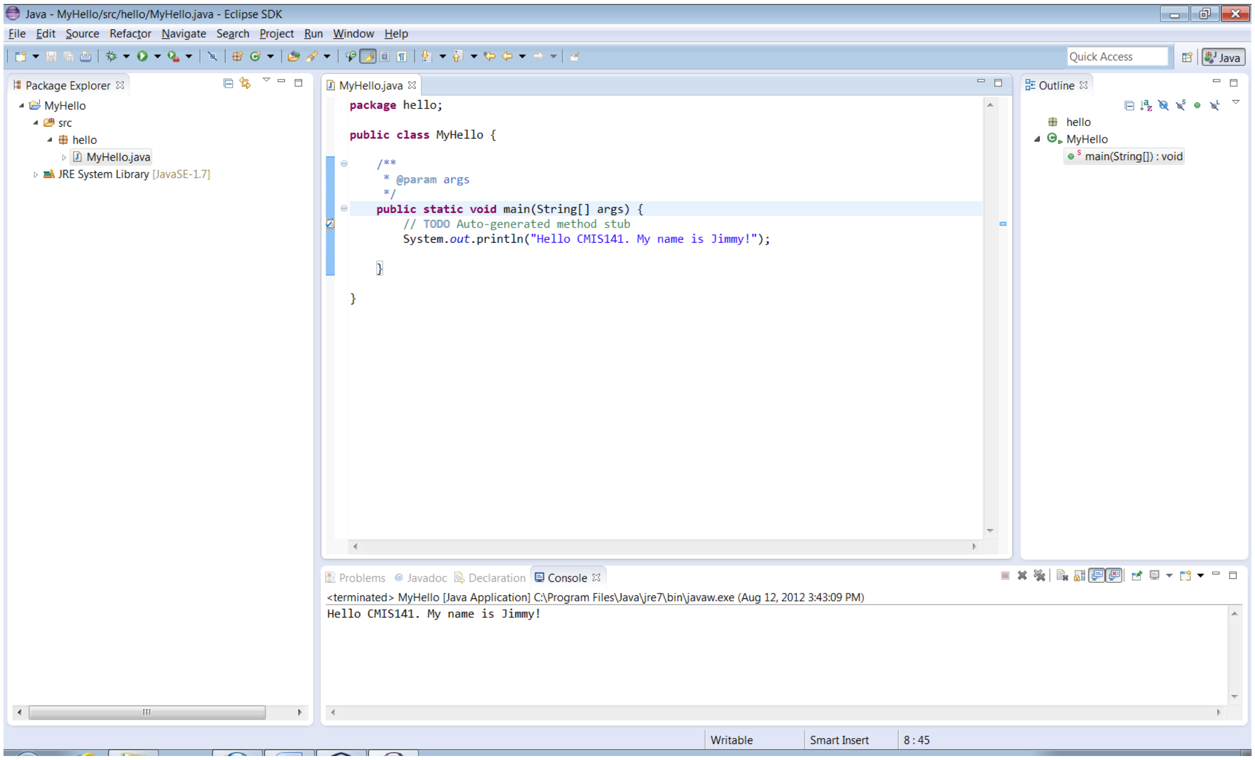
8. Under the //TODO line enter a line similar to the following:

System.out.println("Hello CMIS141. My name is Jimmy!");

9. Click the Green Arrow in the tool bar near top and watch as the code successfully compiles and runs.

Note(s):

1) The output or results of running the code is shown at the bottom of the screen.
2) The system may ask you to save the file before it compiles and runs.



```java
package hello;

public class MyHello {

    /**
     * @param args
     */
    public static void main(String[] args) {
        // TODO Auto-generated method stub
        System.out.println("Hello CMIS141. My name is Jimmy!");

    }

}
```

```
<terminated> MyHello [Java Application] C:\Program Files\Java\jre7\bin\javaw.exe (Aug 12, 2012 3:43:09 PM)
Hello CMIS141. My name is Jimmy!
```

10. Feel free to experiment with changing the code to display other text. But the good news is your environment is successfully configured and you are ready to code in Java!