# Installing/Configuring Java & Eclipse

If at any point during the installation/set-up process you are having difficulty, please post on Piazza. For something like this, we strongly encourage you to post publicly. Often times, an install problem that you are having is a problem another student might be having as well.

## Part 1: Install Java

- In order to use Java, you need to first install the **Java Development Kit (JDK)**
    - This is the package of tools for *developing* Java-based software
- You'll also need the **Java Runtime Environment (JRE)** which includes **the Java Virtual Machine (JVM)**
    - This is the environment for *running* Java applications
        - The **JVM** is what actually runs compiled Java bytecode
- Download and install the **JDK**, which includes the **JRE**: https://www.oracle.com/technetwork/java/javase/downloads/index.html
    - Download the latest version of the JDK for your OS

## Part 2: Install Eclipse

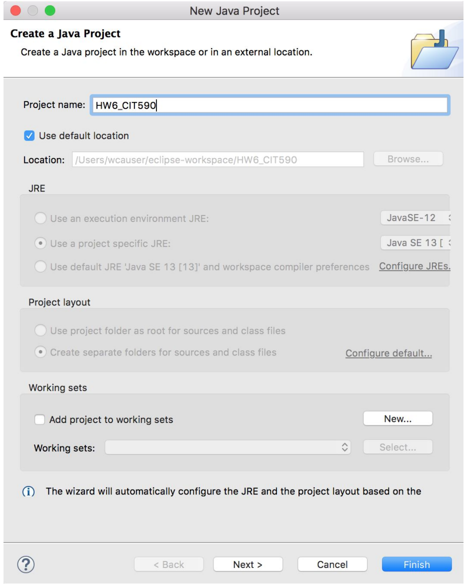
- Install Eclipse via https://www.eclipse.org/downloads/
    - Scroll down to locate and download the latest version of Eclipse.
    - Clicking on the link will take you to a final screen where you can download the actual file for installation.
- Once the file has finished downloading, extract the compressed files with the default software on your computer. This will probably happen automatically if you double click the downloaded file.
- Run the Eclipse Installer by double-clicking it or right-clicking and choosing "Open".
- You will be asked what you want to install. Choose "Eclipse IDE for Java Developers".
- Once the installation is complete, launch Eclipse.

- Please pick the default workspace option (unless you have a really strong need to change it and know what you're doing).
- If necessary, close the welcome screen.

## Part 3: Create a Project

If you closed Eclipse after Part 2, re-open it and if necessary, close the welcome screen.

- Create a new project: File → New → Java Project
- For example, name the project "HW6_CIT590"
- Use the default output folder.  Do not edit any of the other project settings in the New Java Project pop-up window -- confirm all of the options match below.



New Java Project

**Create a Java Project**

Create a Java project in the workspace or in an external location.

Project name: HW6_CIT590

☑ Use default location

Location: /Users/wcauser/eclipse-workspace/HW6_CIT590

JRE

○ Use an execution environment JRE: JavaSE-12

● Use a project specific JRE: Java SE 13 [

○ Use default JRE 'Java SE 13 [13]' and workspace compiler preferences

Project layout

○ Use project folder as root for sources and class files

● Create separate folders for sources and class files

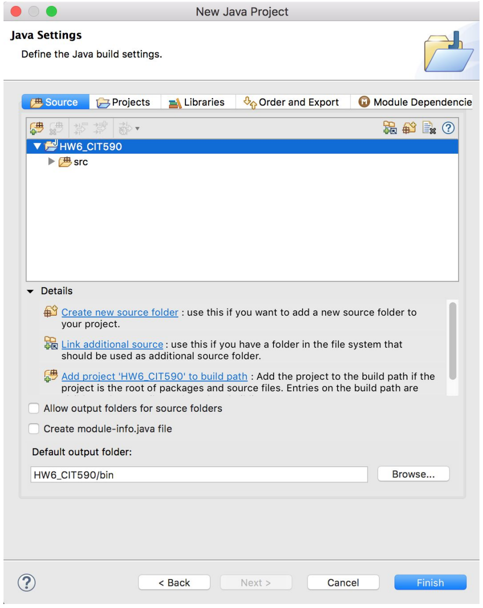
Working sets

□ Add project to working sets

Working sets:

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

- Click Next
- Uncheck "Create module-info.java file"



**Java Settings**

Define the Java build settings.

Create new source folder : use this if you want to add a new source folder to your project.

Link additional source : use this if you have a folder in the file system that should be used as additional source folder.

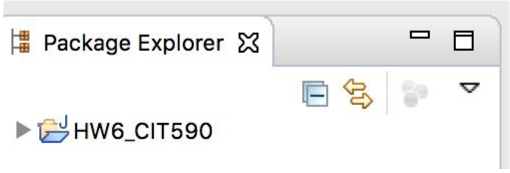
Add project 'HW6_CIT590' to build path : Add the project to the build path if the project is the root of packages and source files. Entries on the build path are

□ Allow output folders for source folders

□ Create module-info.java file

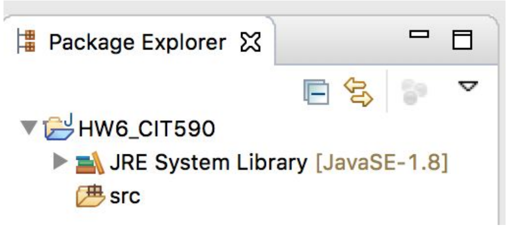
Default output folder: HW6_CIT590/bin Browse...

- Click Finish
- The project will appear in the Package Explorer on the left hand side:

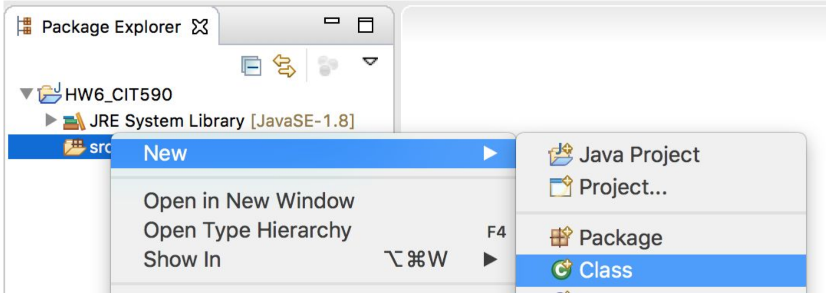


## Part 4: Create a Class

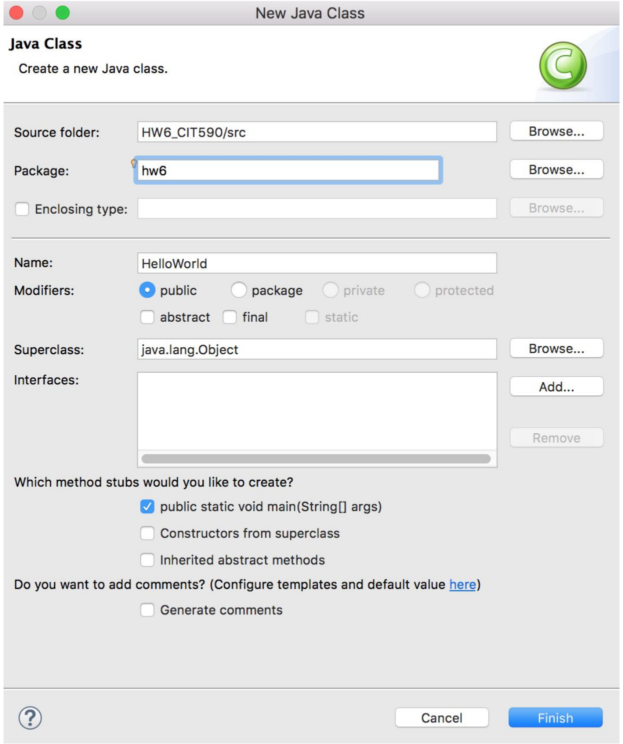
- Click the arrow on the left of the project name to open its contents.



- Right click on the src folder.  “src” is short for source.
- Select New → Class



- Create a new Class using the New Java Class pop-up window.
  - For example, name the class “HelloWorld”
  - For example, name the package “hw6”
    - Please enter the class name and package exactly as we have written them. If you change the capitalization or spelling, you will lose points.
  - Check the box that says “public static void main(String[] args)”
  - Uncheck the box that says “Inherited abstract methods”, if it is checked.
  - Confirm all of the options match below.



New Java Class

Java Class

Create a new Java class.

Source folder: HW6_CIT590/src Browse...

Package: hw6 Browse...

☐ Enclosing type: Browse...

Name: HelloWorld

Modifiers: ● public ○ package ○ private ○ protected

☐ abstract ☐ final ☐ static

Superclass: java.lang.Object Browse...

Interfaces: Add... Remove

Which method stubs would you like to create?

☑ public static void main(String[] args)

☐ Constructors from superclass

☐ Inherited abstract methods

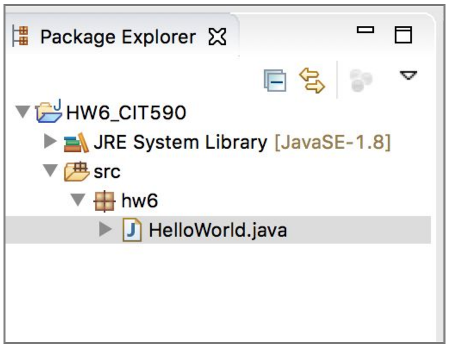
Do you want to add comments? (Configure templates and default value here)

☐ Generate comments

Cancel Finish

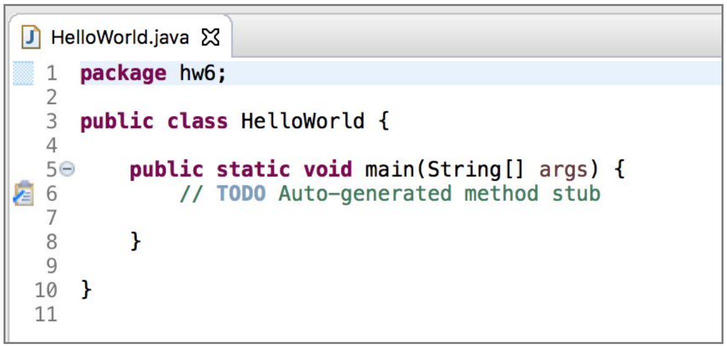
- Click Finish.

- Now, the Package Explorer should look like this:



```
HW6_CIT590
  JRE System Library [JavaSE-1.8]
  src
    hw6
      HelloWorld.java
```

- And there should be a file open, ready to edit, that looks like this:



```java
package hw6;

public class HelloWorld {

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

    }

}

```

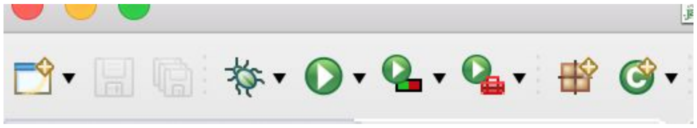
## Part 5: Writing Code in Java

- Inside the *main* method, remove the comment that says:
  // TODO Auto-generated method stub

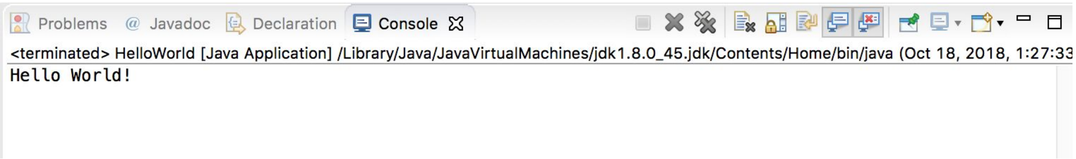
- Inside the *main* method, write the following line of code:
  System.out.println(“Hello, World!”);

- Save the file (using the Command-S or Ctrl-S shortcut should work fine).

- In the upper left hand corner, click Run. It’s the green circle with the play button.

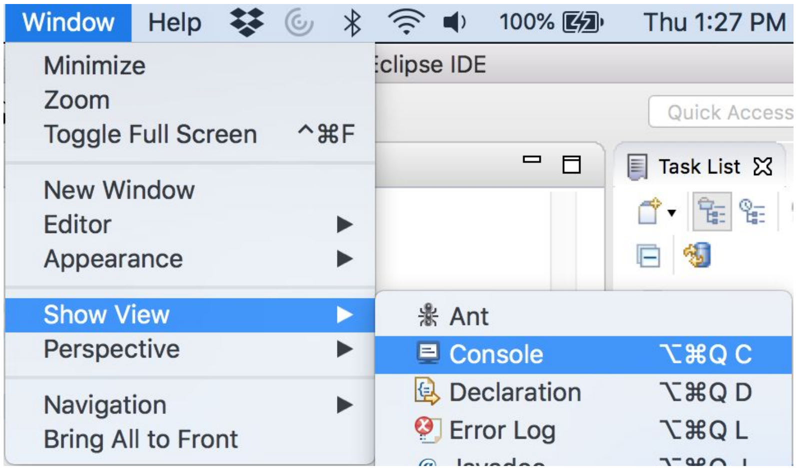


- The Console should appear in the bottom panel and Hello, World! should be printed there.



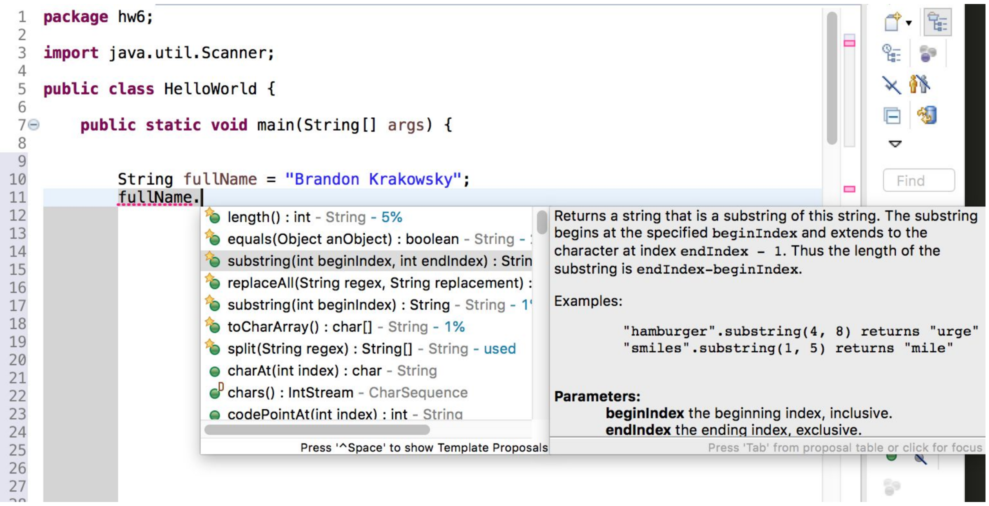
```
<terminated> HelloWorld [Java Application] /Library/Java/JavaVirtualMachines/jdk1.8.0_45.jdk/Contents/Home/bin/java (Oct 18, 2018, 1:27:33
Hello World!
```

  - If you don't see the console, go to Window  Show View  Console



## Getting Help

For some of the code, you may need to look up documentation. The best place to start is in Eclipse itself. If you're coding with a particular type of Object, you can start typing your code and utilize code assist to look up method documentation.



```
package hw6;

import java.util.Scanner;

public class HelloWorld {

    public static void main(String[] args) {


        String fullName = "Brandon Krakowsky";
        fullName.
```

length() : int - String - 5%
equals(Object anObject) : boolean - String - 
substring(int beginIndex, int endIndex) : Strin
replaceAll(String regex, String replacement) :
substring(int beginIndex) : String - String - 1
toCharArray() : char[] - String - 1%
split(String regex) : String[] - String - used
charAt(int index) : char - String
chars() : IntStream - CharSequence
codePointAt(int index) : int - String
Press '^Space' to show Template Proposals
Find
Press 'Tab' from proposal table or click for focus

Returns a string that is a substring of this string. The substring begins at the specified `beginIndex` and extends to the character at index `endIndex - 1`. Thus the length of the substring is `endIndex-beginIndex`.

Examples:

```
"hamburger".substring(4, 8) returns "urge"
"smiles".substring(1, 5) returns "mile"
```

**Parameters:**
**beginIndex** the beginning index, inclusive.
**endIndex** the ending index, exclusive.

You can also reference the online Java API Specification. For example, here's the documentation for the String class: https://docs.oracle.com/en/java/javase/13/docs/api/java.base/java/lang/String.html