GEOG 178/258:

Conceptual Modeling and Programming for the Geo-Sciences

Week 1: January 8th, 2019

mike johnson

Week 1

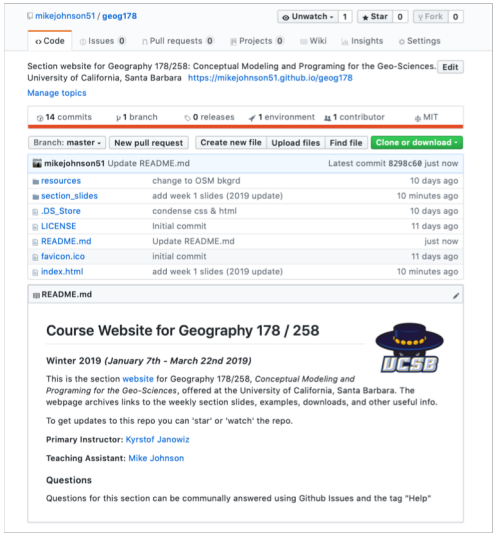
Logistics

- **Instructor:** Krzysztof Janowicz
  - Lecture/Lab: Thursdays 12:00 – 2:50
    - Ellison 3620
  - Office hours:
    - Ellison 4830
    - Monday 10:30am – 11:30am
    - jano@ucsb.edu
- **TA:** Mike Johnson
  - Section: Tuesday 2:00 – 3:50
    - Ellison 3620
  - Office hours:
    - Ellison 1715
    - Thursday 3:00-5:00 pm
    - jmj00@ucsb.edu
- Section Website:
  - https://mikejohnson51.github.io/geog178

Getting started with GitHub

Section repository:

https://github.com/mikejohnson51/geog178



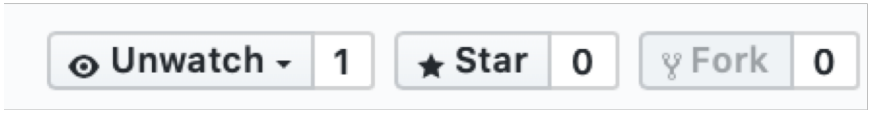
Reasons for this:

* build familiarity (for you as developing programmers),
* force getting started with version control, open coding
* host a class community,
* longevity of material,
* improve group work in second half of class,

Getting started with GitHub

This is all optional and not needed to complete the class but will hopefully make your life easier in the long run…

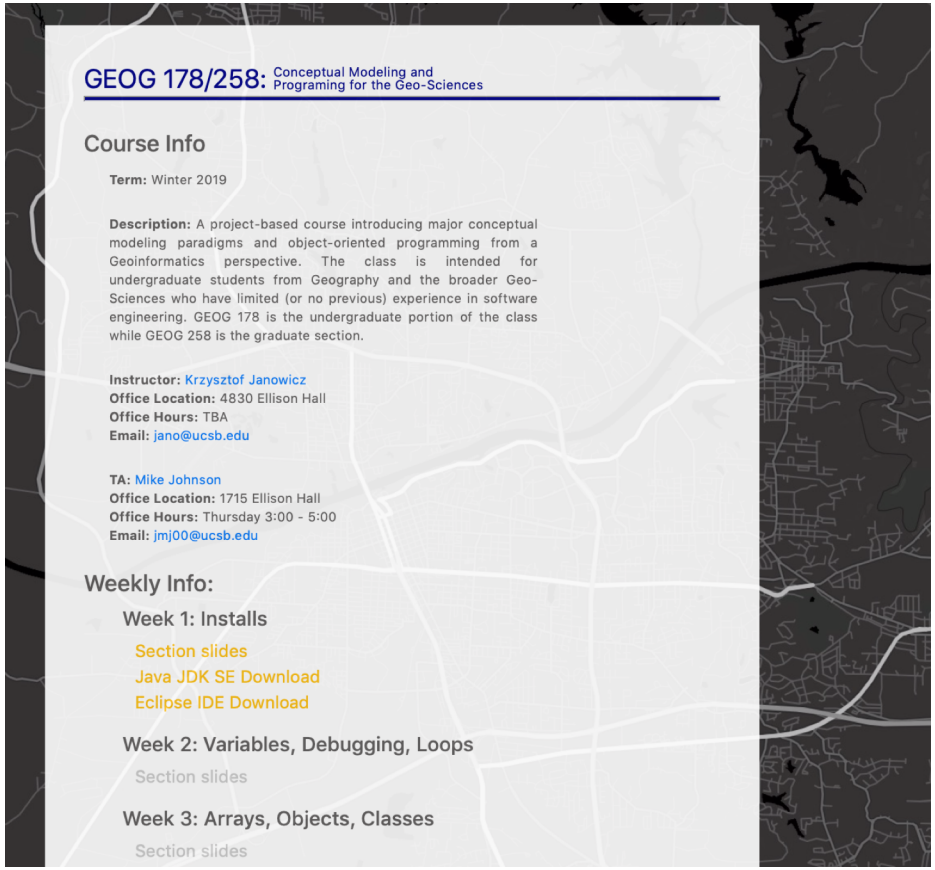
1. Make a GitHub account at: https://github.com
2. Find the class repository searching for ‘geog178’
3. ‘**Star**’ to be easily found and to easily find the repo
4. **‘Watch’** to be notified of changes such as new issues, new content, ect.
5. ‘**Fork**’ to make a copy of the repo in your own account



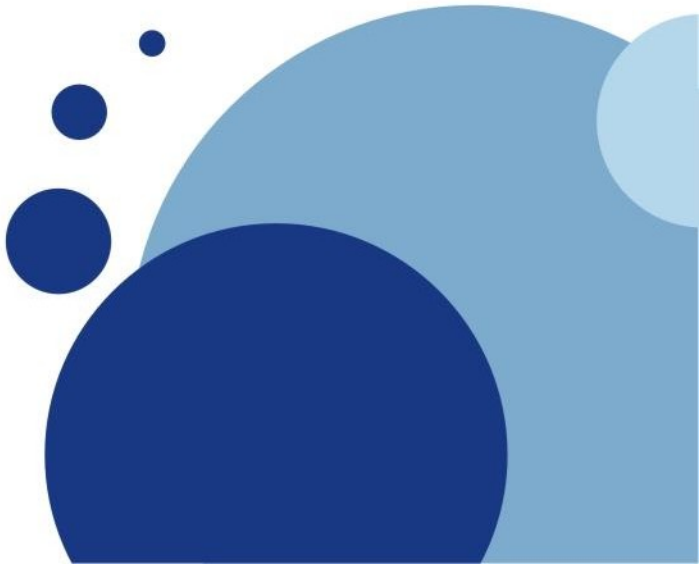
Getting started with Github

All GitHub repo's can host a static website…

Ours is here: https://mikejohnson51.github.io/geog178



1. Introduction to the Eclipse IDE…



Writing, compiling and executing a Program

Week 1

Getting Started with Eclipse

- There are two methods for compiling and running a Java Program

1. Using a text editor such as Atom or Notepad, and your Terminal (Mac) / Powershell (Windows)
   - This is the approach the textbook takes
2. Using a dedicated platform such as Eclipse
   - That is the approach we will use in this class
   - This is a IDE which stands for an **I**ntegrated **D**evelopment **E**nvironment
   - IDE's provide tools for coding, building, running and debugging applications

Setting up a Workspace

Week 1

Getting Started with Eclipse

Suggestions:

- On your **flash drive** create a new folder called

  GEOG_178

- In that folder create a sub-folder called

  Week0

- And one another called

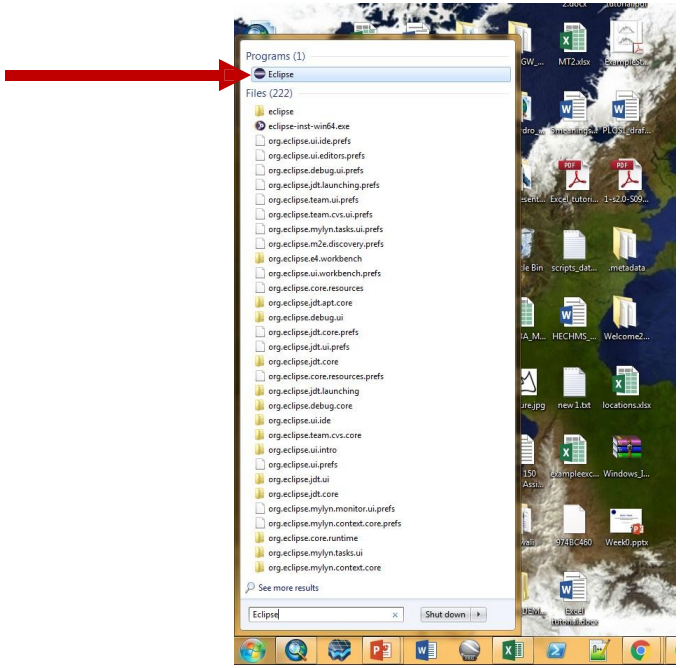
  Week1

Opening Eclipse in the Lab

Week 1

Getting Started with Eclipse

- On the lab machines, hit the home button 
- Type ‘Eclipse’ in the search bar
- Click on the Eclipse Program File

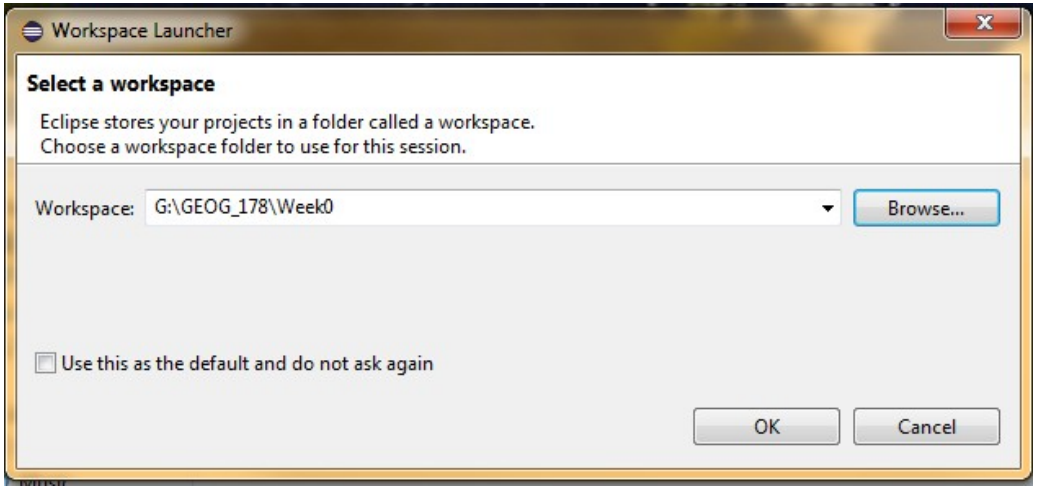


Starting a New Project:

Week 1

Getting Started with Eclipse

- When you launch Eclipse it will ask you to define a **workspace**.
- A **workspace** is where your source code and output will be stored
- Direct your workspace to Week0 using the '*Browse…*' button



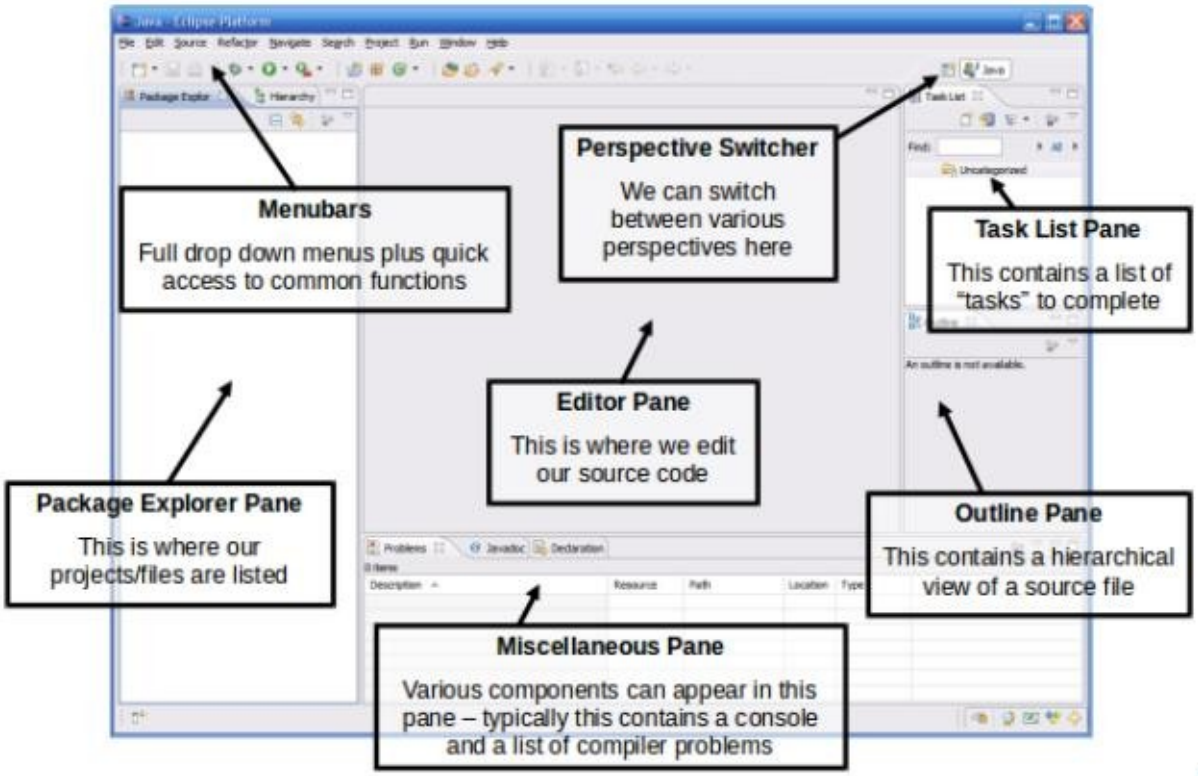
- Hit '*OK*' when you are done.

IDE Components:

Week 1

Getting Started with Eclipse

- When your workspace is loaded, you will be presented with the following interface:

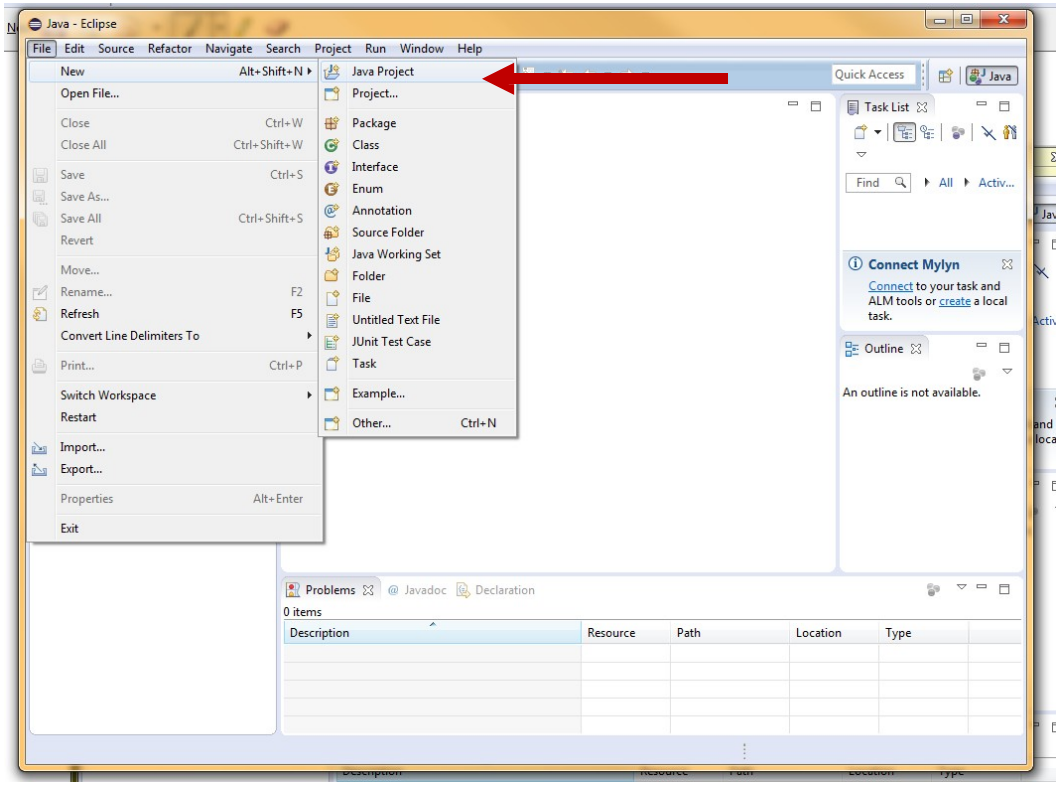


Create a new project

- All code in Eclipse needs to live under a project
- To create a project: File → New → Java Project

Week 1

Getting Started with Eclipse

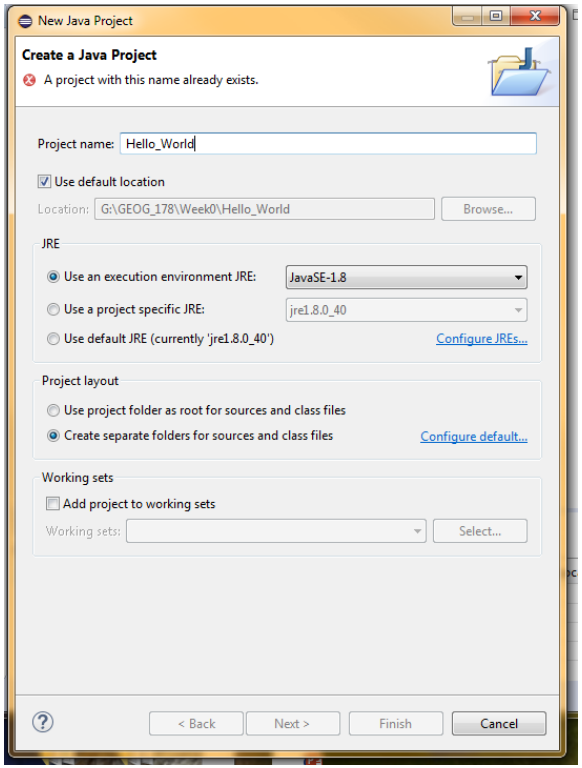


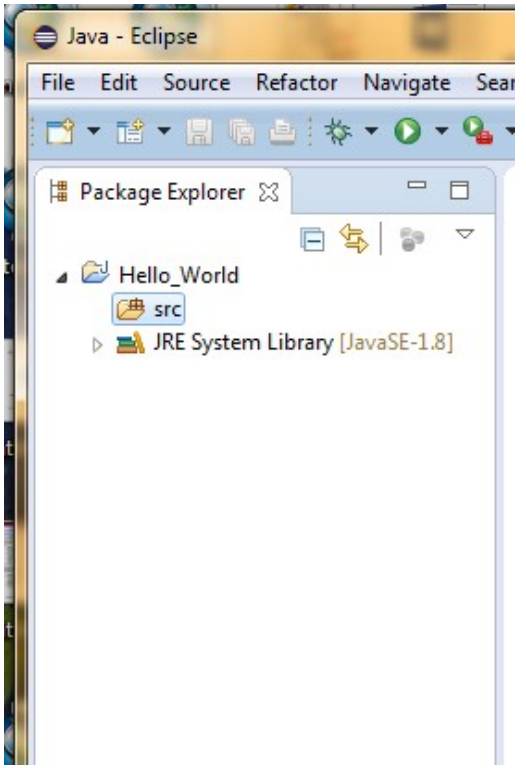
Create a new project

Week 1

Getting Started with Eclipse

- Enter a Name for the Project (Hello_World)
- Click "*Finish*"
- The new Project will appear in the **Package Explorer**



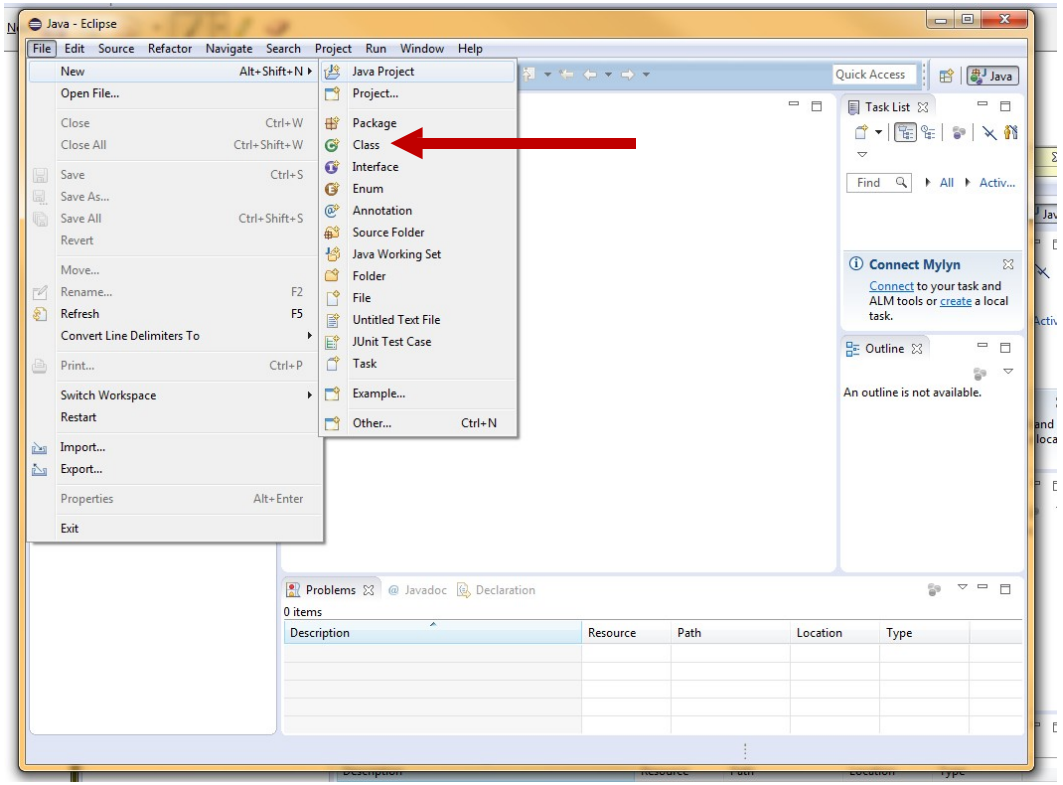


Create a new class

Week 1

Getting Started with Eclipse

- You will now create your first class within the Java Project

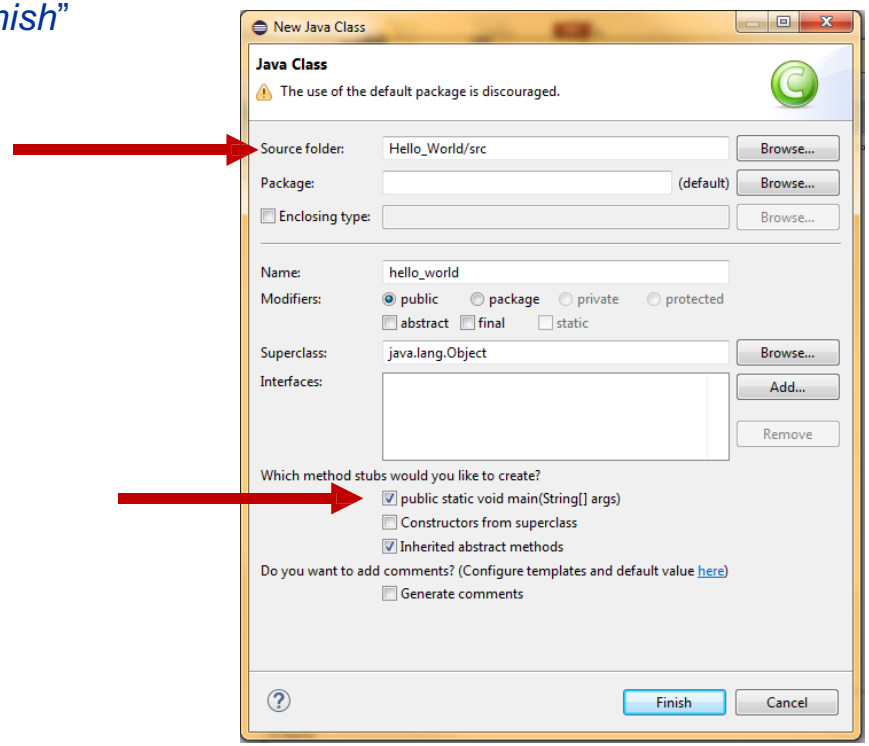


Create a new Class

Week 1

Getting Started with Eclipse

- Enter a Name for the class (hello_world)
- You can also specify:
  - package
  - Superclass
  - Whether or not to include a main
  - Etc..
- Fill in necessary information
- Click "*Finish*"

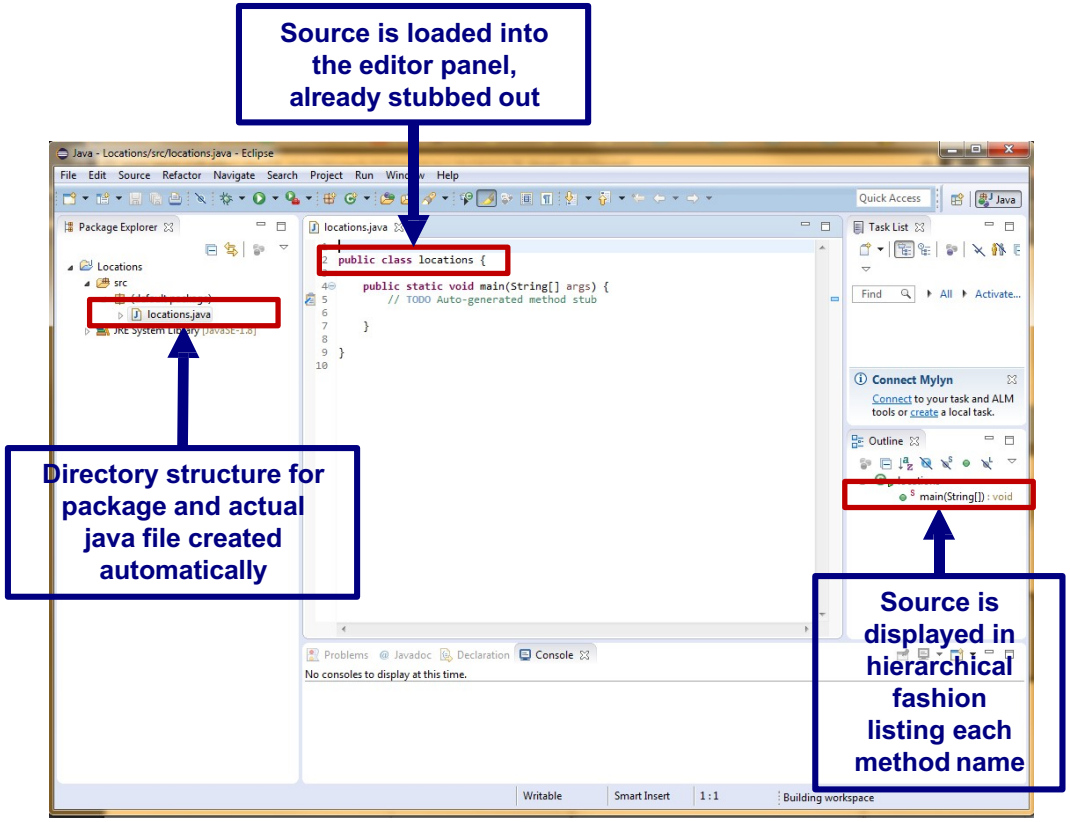


Interface:

Week 1

Getting Started with Eclipse

- You should see the following



- *Be sure to always have your file name match the public class name!*

Enter Basic Command

- In your program type the command

  System.out.print(“Hello World!”);

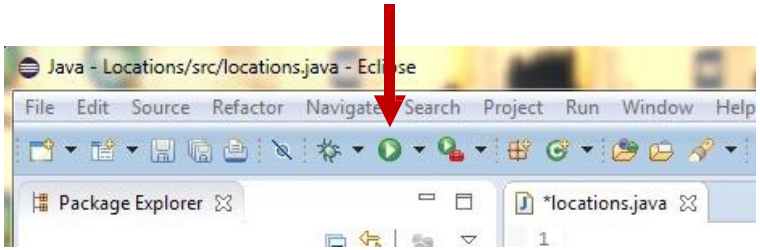
- It should look like this:

```
public class hello_world {

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

        System.out.print( "Hello World!");
    }
}
```

- After typing the code, hit the ‘run’ button:

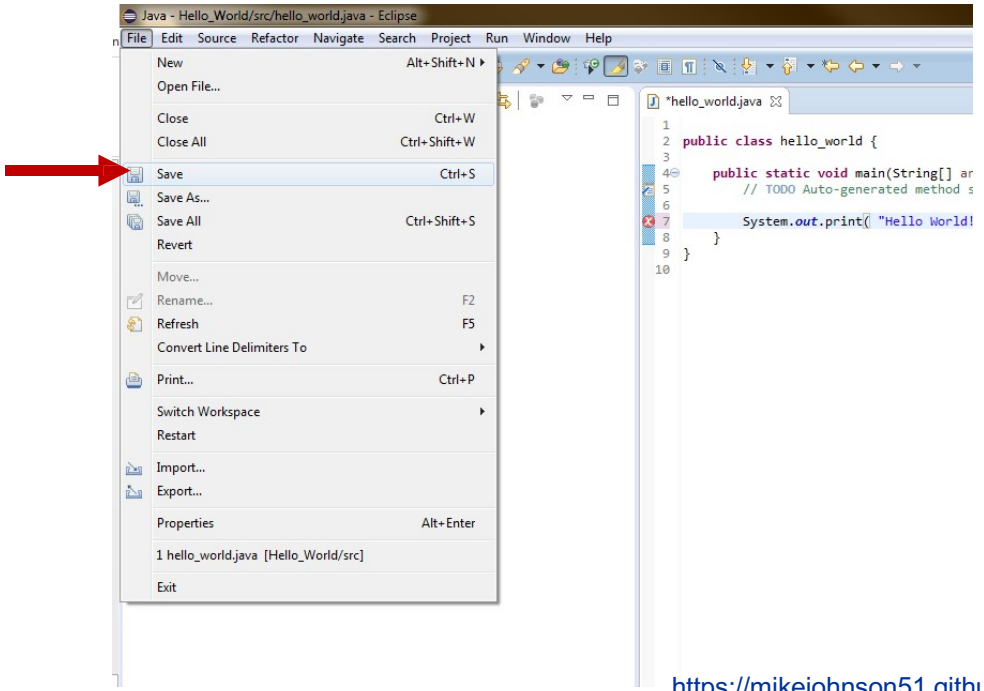


- You should see the following output!

```
<terminated> hello_world [Java Application] C:\Program Files (x86)\Java\jre1.8.0_40\bin\javaw.exe (Jan 10, 2017, 12:14:17 PM)
Hello World!
```

Saving your Program

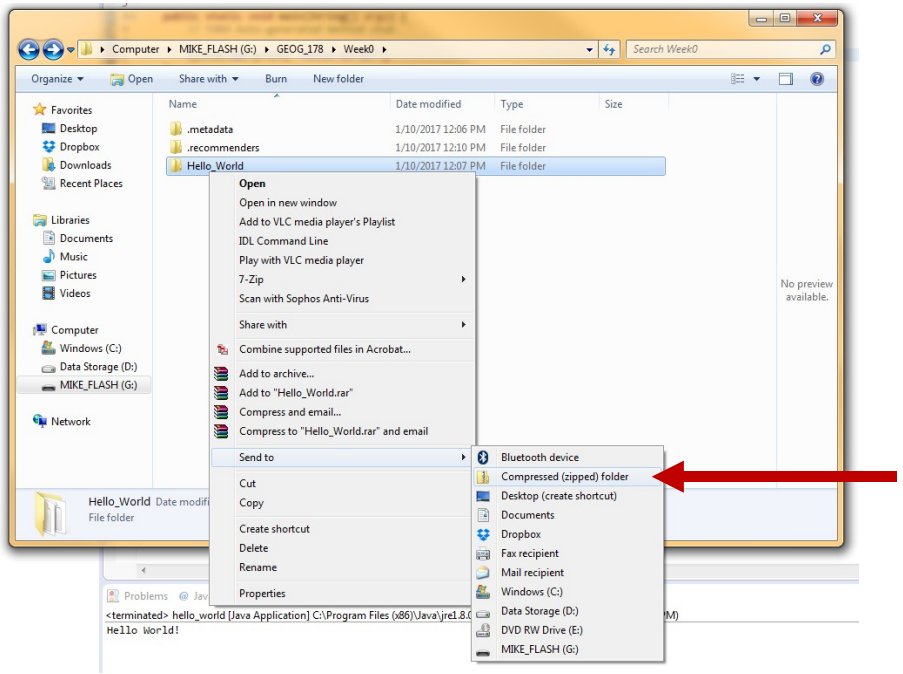
- Running your program will automatically save it
- In cases where you want to save manually go:
- File → Save



Zip Program Folder

- Program files can be zipped to make them smaller and easier to share!

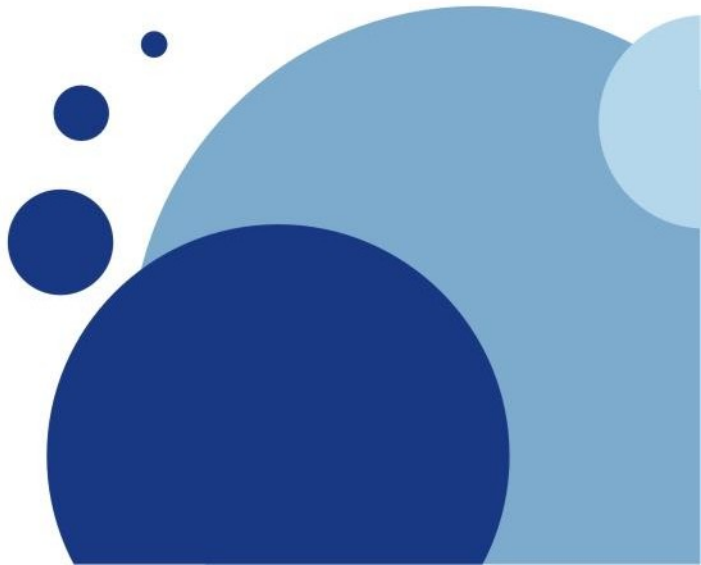
- ON WINDOWS:
  - Go to your flash drive → GEOG_178 → Week0
  - Right Click on the Folder ‘Hello_World’
  - Click ‘Send To’ → ‘Compressed (zipped) folder



Zip Program Folder

- ON MAC:
  - Go to your flash drive → GEOG_178 → Week0
  - Right Click on the Folder ‘Hello_World’
  - Click ‘Compress “Hello_World”
- You now have a zipped folder that will be easier to share with others!

2. Getting set up on your machines…



Necessary Downloads:

Week 1

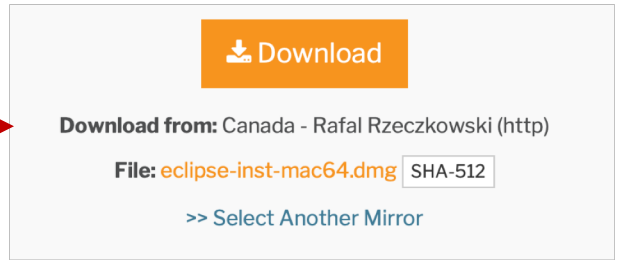
Getting Started with Eclipse

1. To get set up on a personal machine, you need the Eclipse Program files. They can be found here:

https://www.eclipse.org/downloads/

Or through the section website:

2. From the Eclipse main page download the zip file from the series of download buttons:



Installing

Week 1

Getting Started with Eclipse

- From the unzipped download folder try and install Eclipse
  - On Windows → select the 'eclipse-inst-win64.exe' file
  - On Mac → select the 'eclipse-inst-mac64.tar.gz' file
- Follow all instructions
- ***…. Does it Error Out???***
- Eclipse is written in Java so you may need to download the **Java SE JDK**** if it is not already on your machine

**JDK: Java Development Toolkit which includes JRE (Java Runtime Environment), an interpreter/loader (java), a compiler (javac), an archiver (jar) and a documentation generator (javadoc)

Installing Java JDK

Week 1

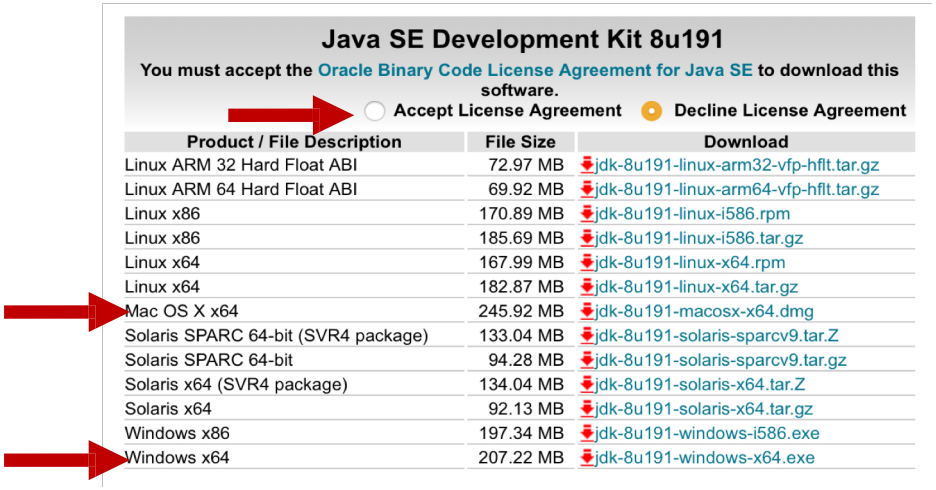
Getting Started with Eclipse

1. The Java SE JDK download can be found here:

https://www.oracle.com/technetwork/java/javase/downloads/jdk8-downloads-2133151.html

Or on the section webpage:

2. Be sure to accept the License Agreement and download:



Java SE Development Kit 8u191

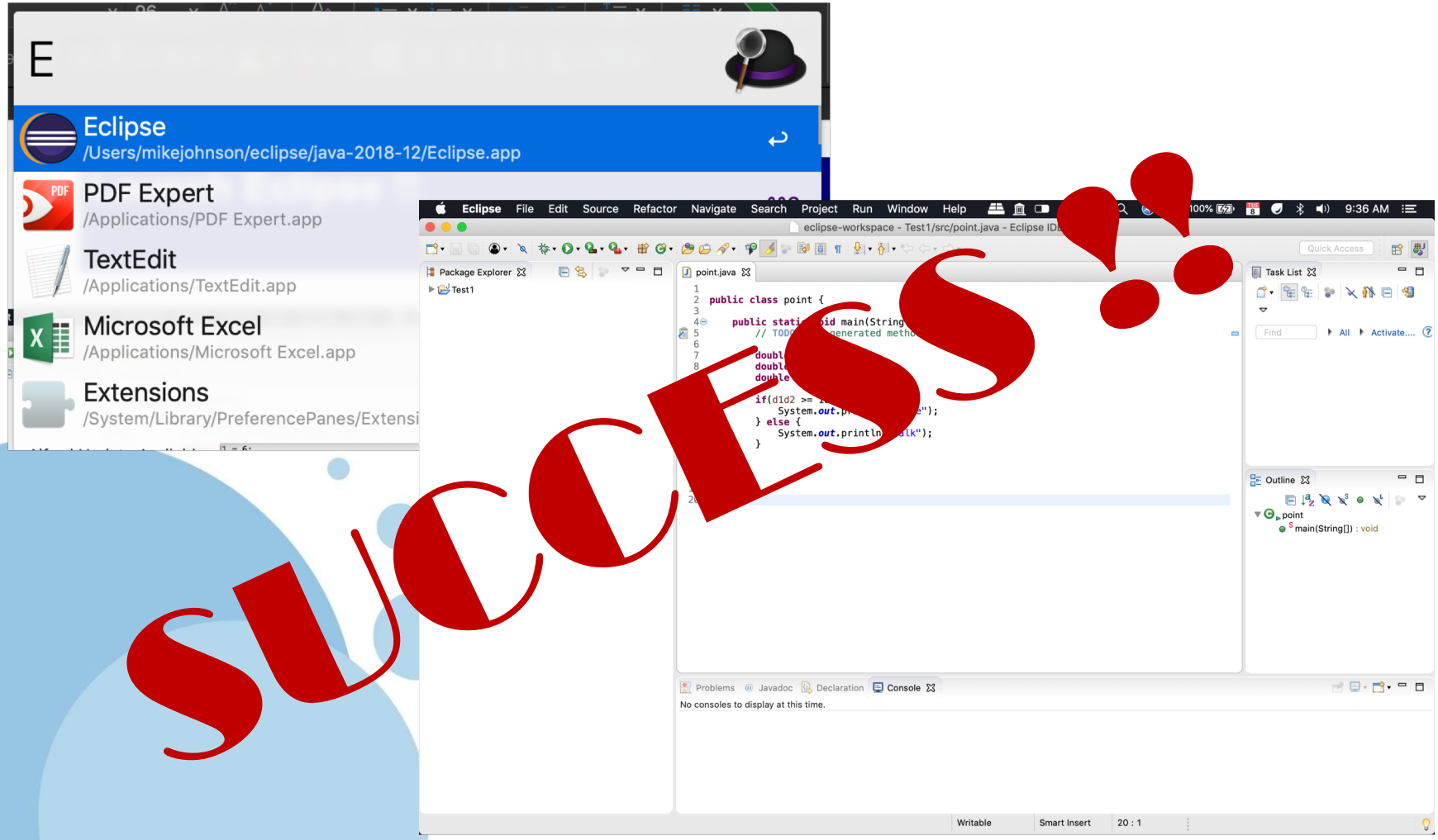
You must accept the Oracle Binary Code License Agreement for Java SE to download this software.

Accept License Agreement Decline License Agreement

Product / File Description	File Size	Download
Linux ARM 32 Hard Float ABI	72.97 MB	jdk-8u191-linux-arm32-vfp-hflt.tar.gz
Linux ARM 64 Hard Float ABI	69.92 MB	jdk-8u191-linux-arm64-vfp-hflt.tar.gz
Linux x86	170.89 MB	jdk-8u191-linux-i586.rpm
Linux x86	185.69 MB	jdk-8u191-linux-i586.tar.gz
Linux x64	167.99 MB	jdk-8u191-linux-x64.rpm
Linux x64	182.87 MB	jdk-8u191-linux-x64.tar.gz
Mac OS X x64	245.92 MB	jdk-8u191-macosx-x64.dmg
Solaris SPARC 64-bit (SVR4 package)	133.04 MB	jdk-8u191-solaris-sparcv9.tar.Z
Solaris SPARC 64-bit	94.28 MB	jdk-8u191-solaris-sparcv9.tar.gz
Solaris x64 (SVR4 package)	134.04 MB	jdk-8u191-solaris-x64.tar.Z
Solaris x64	92.13 MB	jdk-8u191-solaris-x64.tar.gz
Windows x86	197.34 MB	jdk-8u191-windows-i586.exe
Windows x64	207.22 MB	jdk-8u191-windows-x64.exe

3. Unzip, follow all instructions, and then install Eclipse again …

Launch Eclipse !!



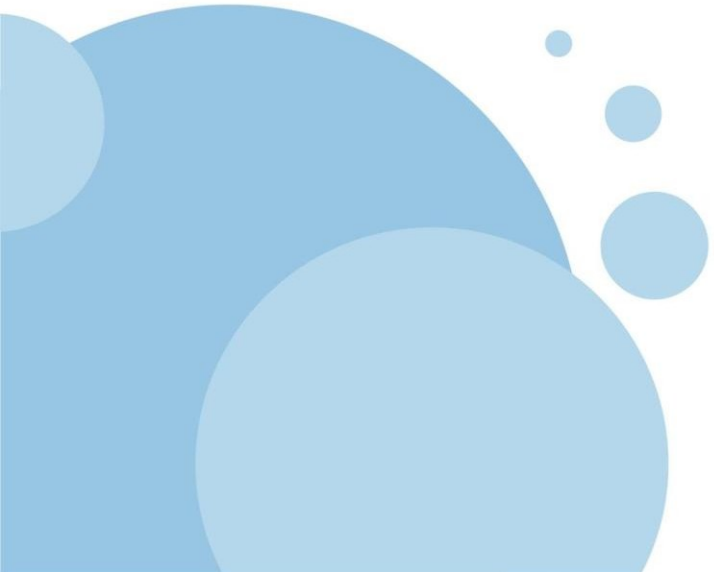
Bonus

Read here to learn how to connect a GitHub account/repo to Eclipse:

https://stackoverflow.com/questions/21473308/integrating-eclipse-and-github

https://www.youtube.com/watch?v=ptK9-CNms98

Check out GitHub Desktop for a GUI interface: https://desktop.github.com



See you Thursday at 12:00 noon!