



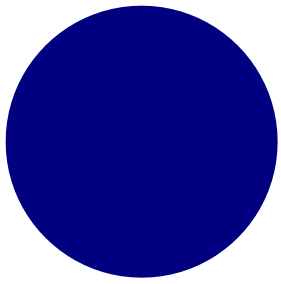
GEOG 178/258:

Conceptual Modeling and Programming for the Geo-Sciences

Week 1: March 31st, 2020

mike johnson



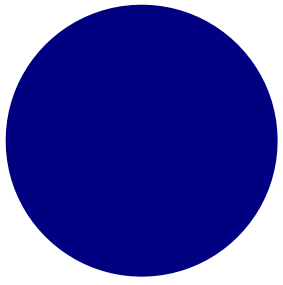


Week

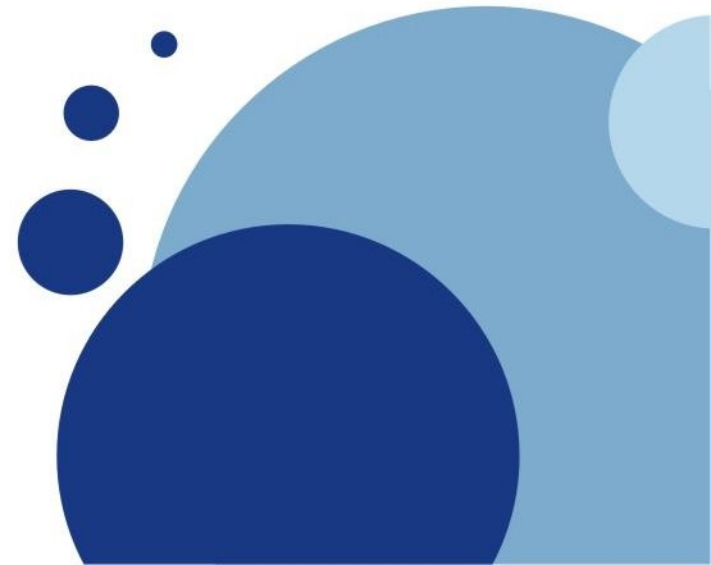
1

Logistics

- **Instructor:** Krzysztof Janowicz
 - Lecture/Lab: Friday 9:00 – 11:50
 - Office hours:
 - Monday 10:30am – 11:30am
 - jano@ucsb.edu
- **TA:** Mike Johnson
 - Section: Tuesday 11:00 – 12:50
 - Office hours:
 - TBD
 - jmj00@ucsb.edu
- **Section Website:**
 - <https://mikejohnson51.github.io/geog178>



1. Getting the Class Website on your machines...



Getting started with GitHub

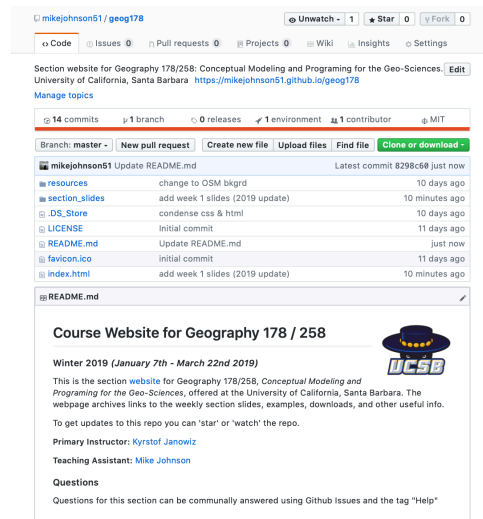
Week

1

Class Website Github

Section repository:

<https://github.com/mikejohnson51/geog178>



Course Website for Geography 178 / 258

Winter 2019 (January 7th - March 22nd 2019)

This is the section website for Geography 178/258, Conceptual Modeling and Programming for the Geo-Sciences, offered at the University of California, Santa Barbara. The webpage archives links to the weekly section slides, examples, downloads, and other useful info.

To get updates to this repo you can 'star' or 'watch' the repo.

Primary Instructor: [Kyrstof Janowiz](#)

Teaching Assistant: [Mike Johnson](#)

Questions

Questions for this section can be communally answered using Github issues and the tag "Help"

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

Week

1

Class Website
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

👁 Unwatch ▾ 1

★ Star 0

🍴 Fork 0

Getting started with Github

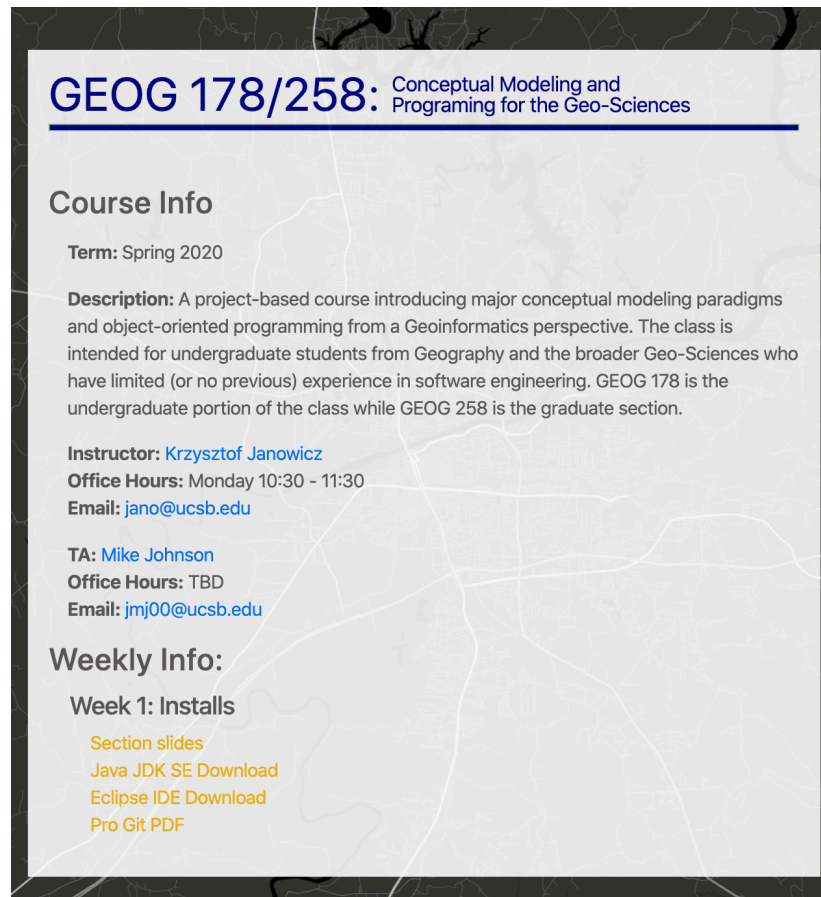
All GitHub repo's can host a static website...

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

Week

1

Class Website Github



GEOG 178/258: Conceptual Modeling and Programming for the Geo-Sciences

Course Info

Term: Spring 2020

Description: A project-based course introducing major conceptual modeling paradigms and object-oriented programming from a Geoinformatics perspective. The class is intended for undergraduate students from Geography and the broader Geo-Sciences who have limited (or no previous) experience in software engineering. GEOG 178 is the undergraduate portion of the class while GEOG 258 is the graduate section.

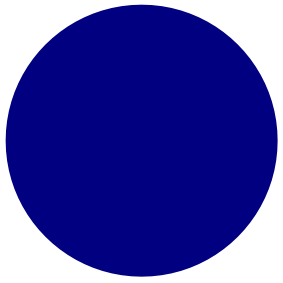
Instructor: [Krzysztof Janowicz](#)
Office Hours: Monday 10:30 - 11:30
Email: jano@ucsb.edu

TA: [Mike Johnson](#)
Office Hours: TBD
Email: jmj00@ucsb.edu

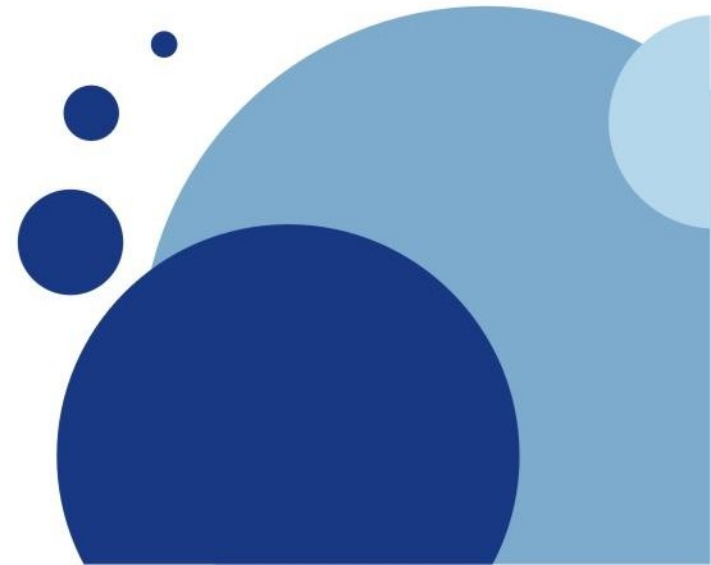
Weekly Info:

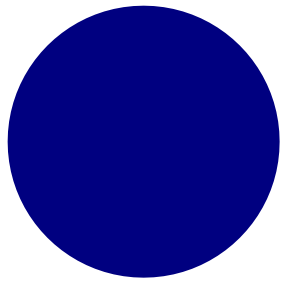
Week 1: Installs

- [Section slides](#)
- [Java JDK SE Download](#)
- [Eclipse IDE Download](#)
- [Pro Git PDF](#)



2. Getting Eclipse 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:

Weekly Info:

- Week 1: Installs
- [Section slides](#)
- [Java JDK SE Download](#)
- [Eclipse IDE Download](#)

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

Tool Platforms



Get **Eclipse IDE 2020-03**
Install your favorite desktop IDE packages.

[Download 64 bit](#)

[Download Packages](#) | [Need Help?](#)

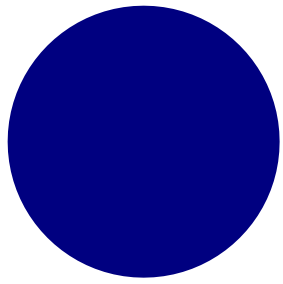


[Download](#)

Download from: Canada - Rafal Rzeczkowski (http)

File: [eclipse-inst-mac64.dmg](#) [SHA-512](#)

[>> Select Another Mirror](#)

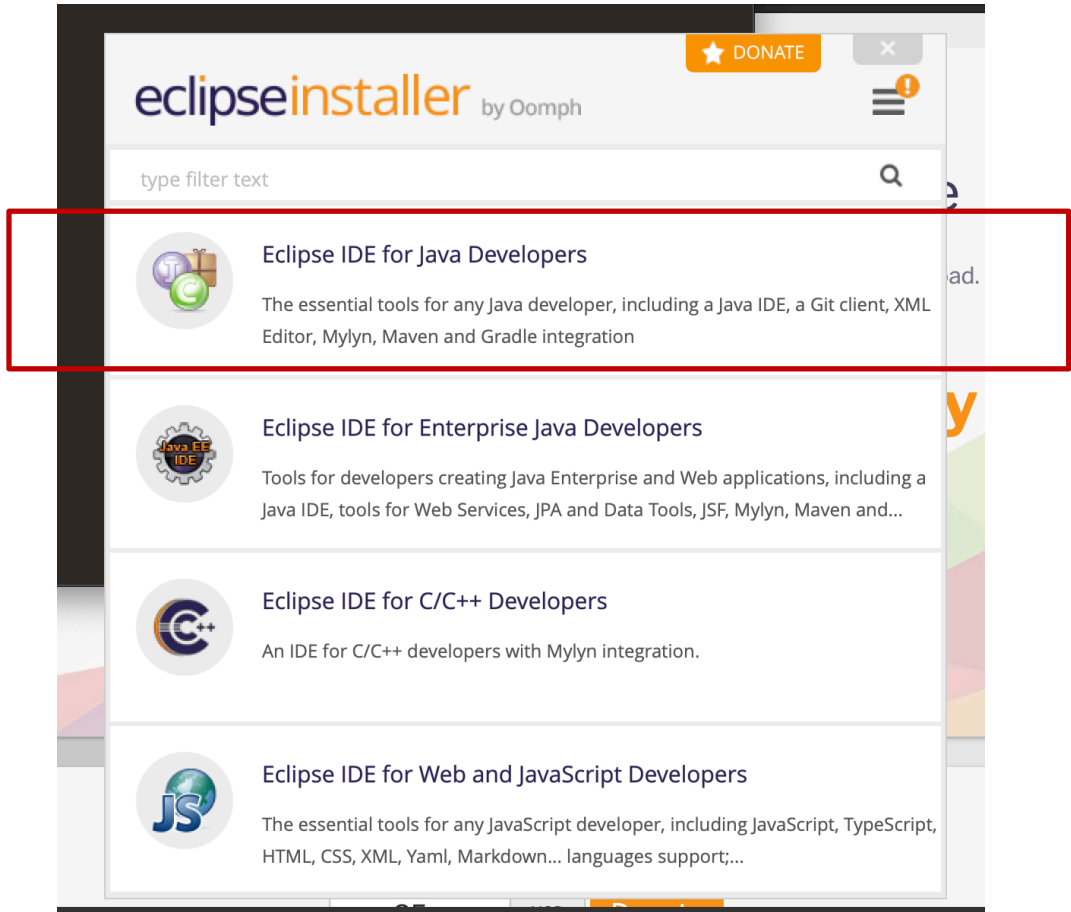


Eclipse “Flavor”:

Week

1

Getting Started with Eclipse



Installing

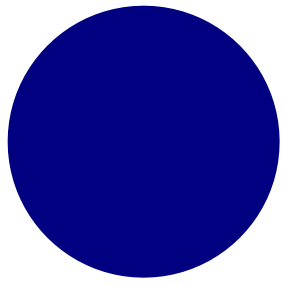
Week

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/java/technologies/javase-jdk8-downloads.html>

Or on the section webpage:

Weekly Info:

Week 1: Installs

- Section slides
- Java JDK SE Download
- Eclipse IDE Download

2. Select the needed program file from the list of options:

macOS.x64



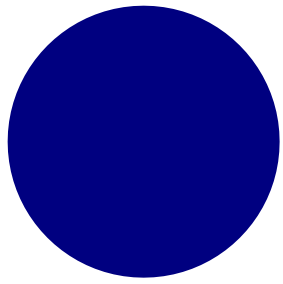
Windows.x64



Java SE Development Kit 8u241		
This software is licensed under the Oracle Technology Network License Agreement for Oracle Java SE		
Product / File Description	File Size	Download
Linux ARM 32 Hard Float ABI	72.94 MB	jdk-8u241-linux-arm32-vfp-hflt.tar.gz
Linux ARM 64 Hard Float ABI	69.83 MB	jdk-8u241-linux-arm64-vfp-hflt.tar.gz
Linux x86 RPM Package	171.28 MB	jdk-8u241-linux-i586.rpm
Linux x86 Compressed Archive	186.1 MB	jdk-8u241-linux-i586.tar.gz
Linux x64 RPM Package	170.65 MB	jdk-8u241-linux-x64.rpm
Linux x64 Compressed Archive	185.53 MB	jdk-8u241-linux-x64.tar.gz
macOS x64	254.06 MB	jdk-8u241-macosx-x64.dmg
Solaris SPARC 64-bit (SVR4 package)	133.01 MB	jdk-8u241-solaris-sparcv9tar.Z
Solaris SPARC 64-bit	94.24 MB	jdk-8u241-solaris-sparcv9tar.gz
Solaris x64 (SVR4 package)	133.8 MB	jdk-8u241-solaris-x64tar.Z
Solaris x64	92.01 MB	jdk-8u241-solaris-x64tar.gz
Windows x86	200.86 MB	jdk-8u241-windows-i586.exe
Windows x64	210.92 MB	jdk-8u241-windows-x64.exe

3. You will need to make an Oracle account, and sign in to start the download

4. Unzip the downloaded zip, follow all instructions, and try to install Eclipse ...



Launch Eclipse !!

Find the application on your machine and launch it. You should see som

ec

- Eclipse
/Users/mikejohnson/eclipse/java-2020-03/Eclipse.app
- eclipse
~/eclipse
- eclipse-workspace
~/eclipse-workspace
- eclipse-inst-mac64.dmg
~/Downloads/eclipse-inst-mac64.dmg
- cdo_eca.pdf
~/Documents/WRF_Hydro/cdo-1.9.5/doc/cdo_eca.pdf

Alfred Update Available

Eclipse File Edit Source Refactor Navigate Search Project Run View Help

Package Explorer x

- hello_world
 - JRE System Library (JavaSE-1.8)
 - src

Task List x

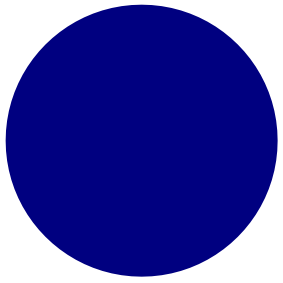
Find All Activate...

Outline x

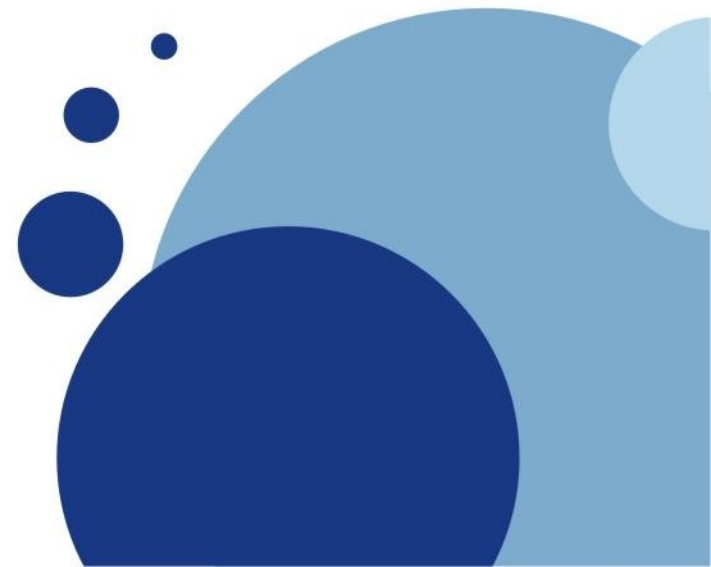
There is no active editor that provides an outline.

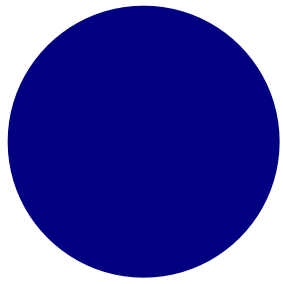
8:49 PM mikejohnson

SUCCESS



3. 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. Remember (loosely **source code** is what you write, source code is **compiled**, your machine executes compiled code)
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 **computer** create a new folder called

GEOG178

Think of this folder as a default working directory...

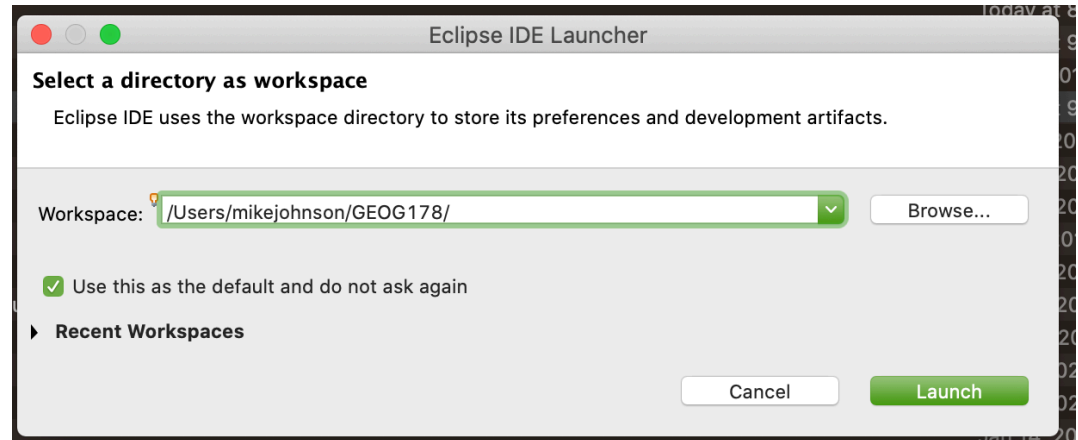
Starting a New Project:

Week

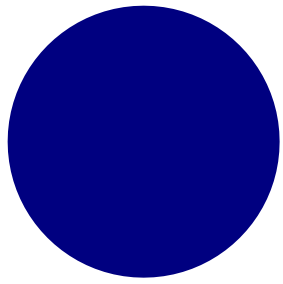
1

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 GEOG178 using the '*Browse...*' button



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



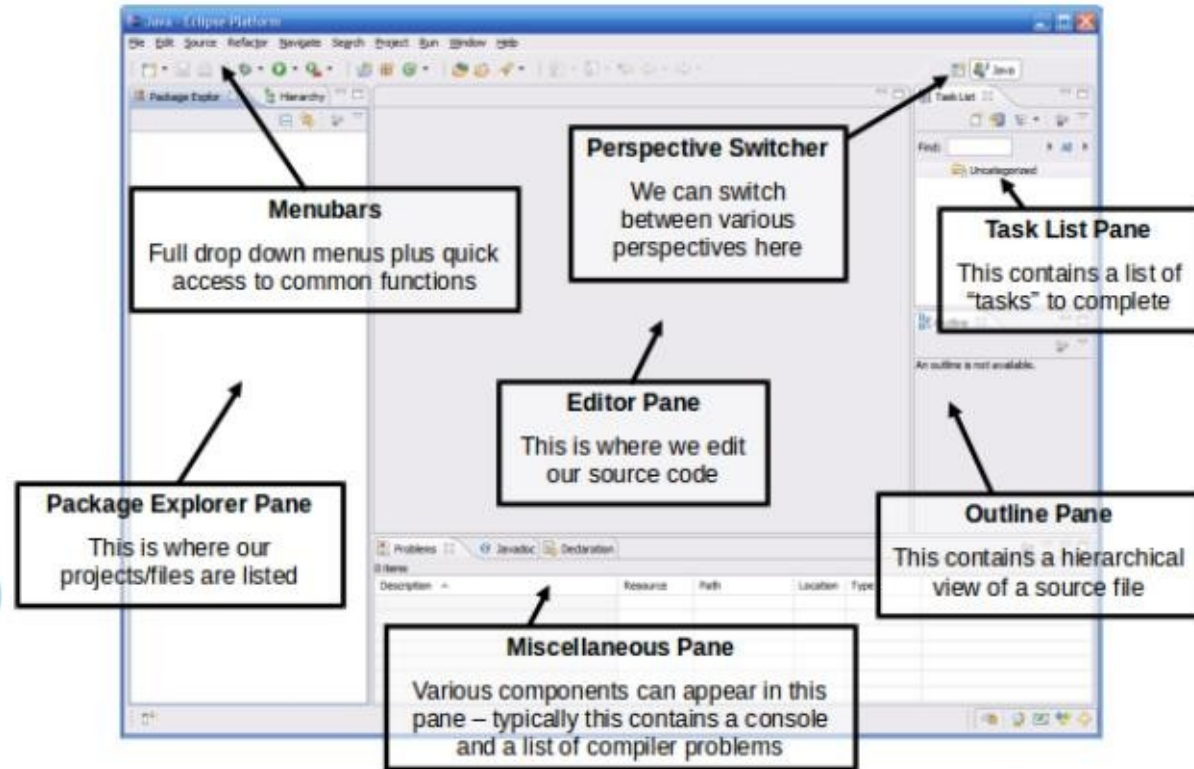
IDE Components:

Week

1

Getting Started with Eclipse

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



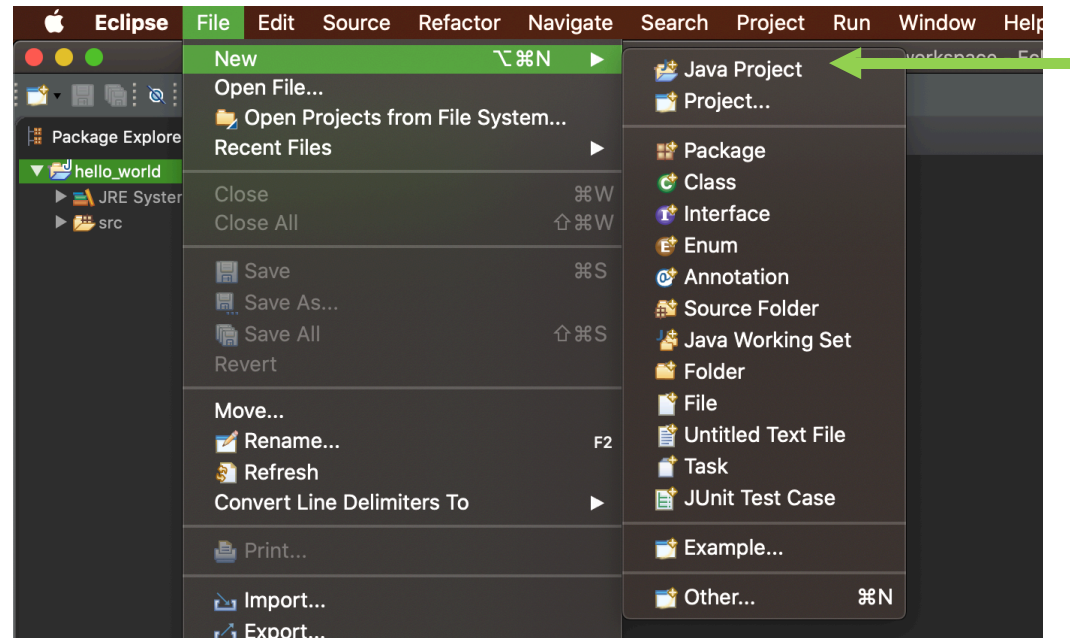
Create a new project

Week

1

Getting Started with Eclipse

- All code in Eclipse needs to live under a **project**, remember that **projects** live in **workspaces**
- To create a project: File → New → Java Project



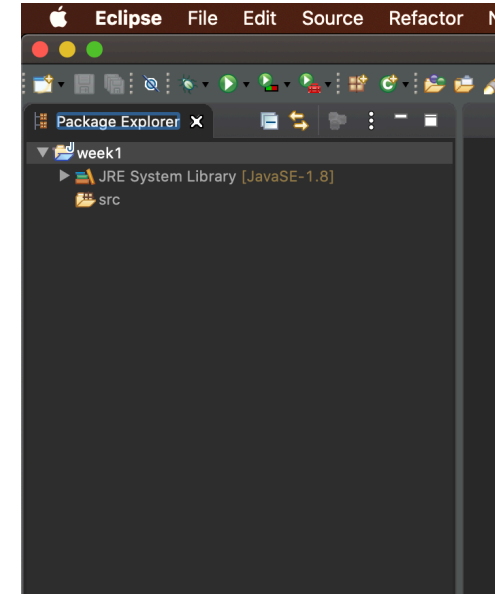
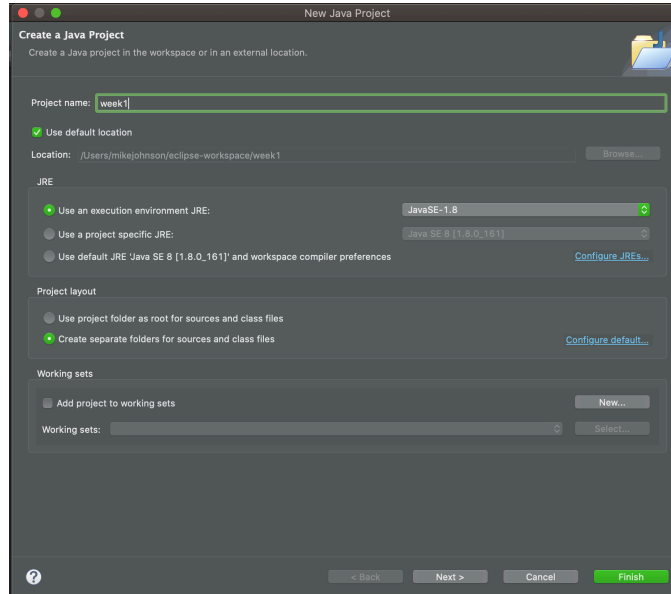
Create a new project

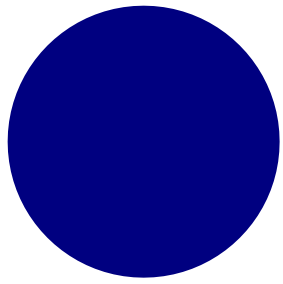
Week

1

Getting Started with Eclipse

- Enter a Name for the Project (**week1**)
- Click “*Finish*”
- The new Project will appear in the **Package Explorer**
- The **src** (source) folder is where all your scripts will live before they are compiled!





Workspace and Projects (Think of your file paths!)

Week

1

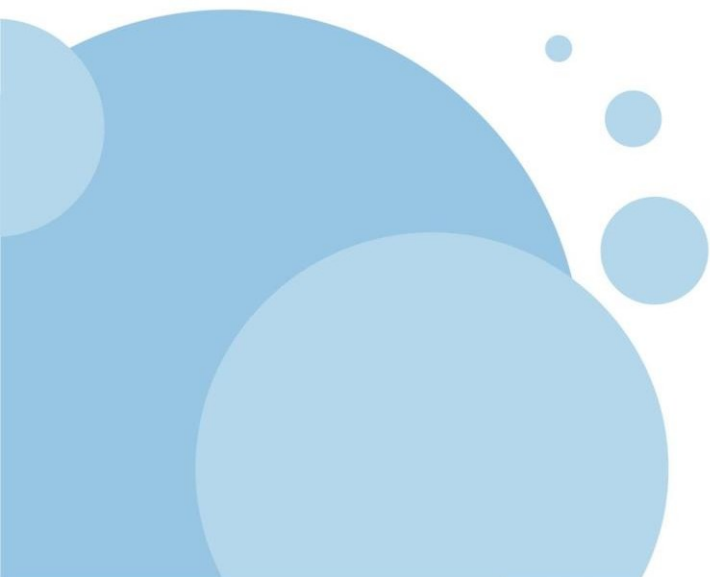
Getting Started with Eclipse

Workspace

`/Users/mikejohnson/eclipse-workspace/week1/`



Project



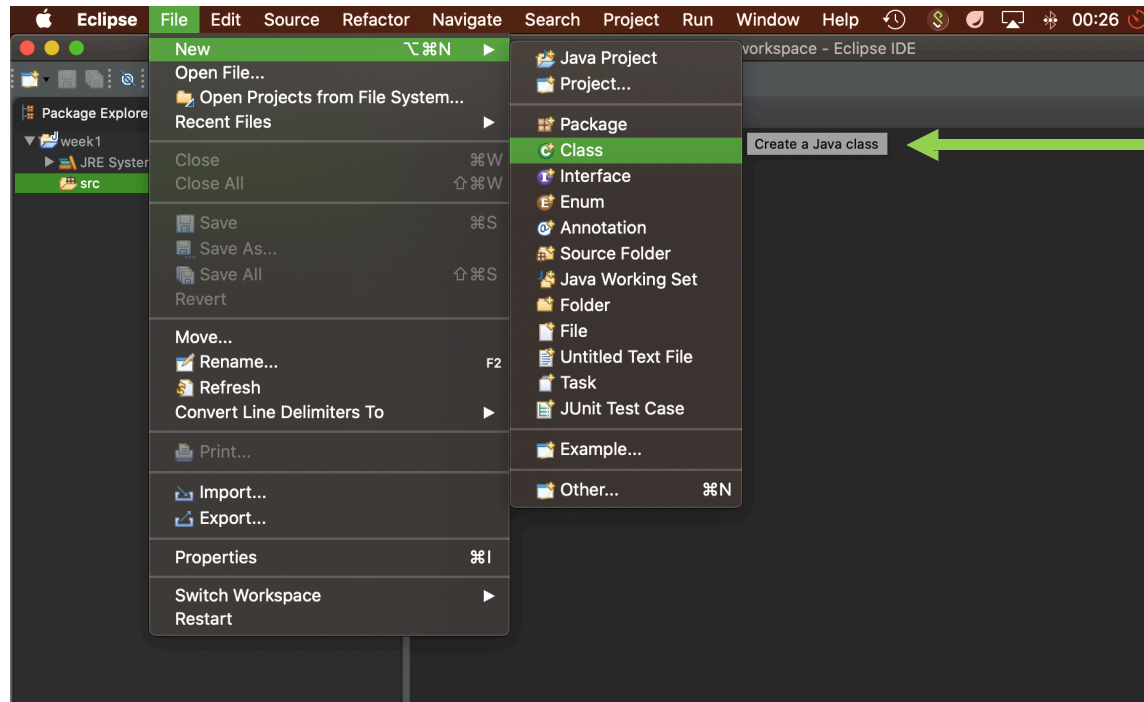
Create a new class

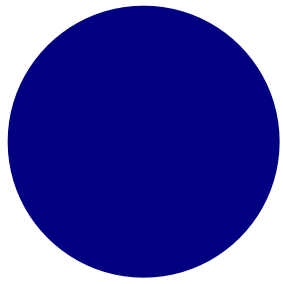
- You will now create your first **class** within the Java **Project** (that lives in your **workspace**)

Week

1

Getting Started with Eclipse





Create a new Class

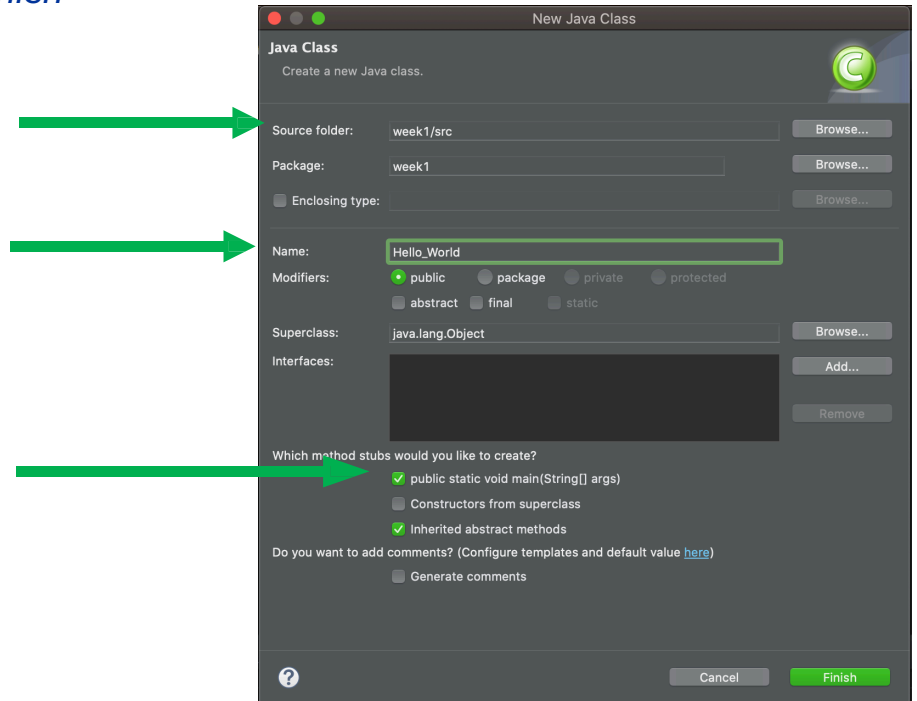
Week

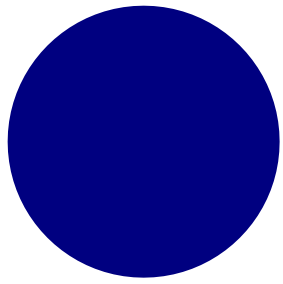
1

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 as seen below
- Click *“Finish”*

Ignore these for now...





Interface:

- You should see the following

Week

1

Getting Started with Eclipse

The screenshot shows the Eclipse IDE interface with several annotations:

- Package Explorer:** A red box highlights the project structure: `week1` (package) containing `src` (directory) containing `week1` (package) containing `Hello_World.java` (file).
- Editor Panel:** A red box highlights the source code of the `Hello_World` class, which is already stubbed out with a `main` method. A callout box above it states: "Source of the 'Hello_World' class is loaded into the editor panel, already stubbed out".
- Console:** A red box highlights the console area at the bottom, with a callout box above it stating: "Output will appear here".
- Outline View:** A red box highlights the Outline view on the right, showing the class `week1` containing `Hello_World` with a `main(String[]) : void` method. A callout box below it states: "Source is displayed in hierarchical fashion listing each method name".

Be sure to always have your file name match the public class name! (in this case `hello_world == hello_world.java`)

Enter Basic Command

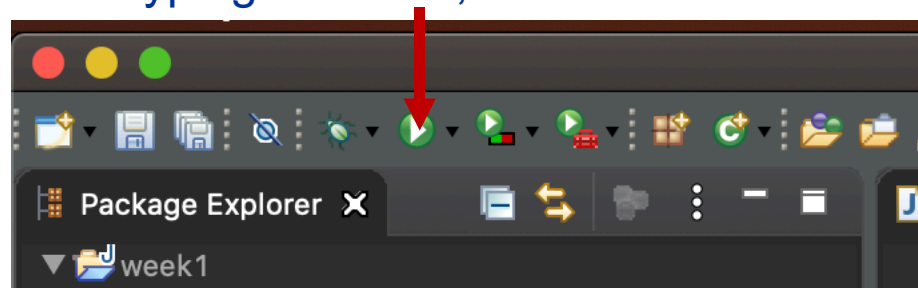
- In your program type the command

`System.out.println("Hello, Welcome to GEOG 178!");`

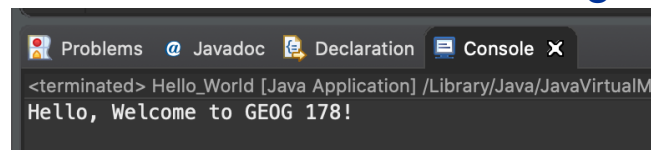
- It should look like this:

```
*Hello_World.java x
1 package week1;
2
3 public class Hello_World {
4
5     public static void main(String[] args) {
6         // TODO Auto-generated method stub
7         System.out.println("Hello, Welcome to GEOG 178!");
8
9     }
10
11 }
12
```

- After typing the code, hit the 'run' button:

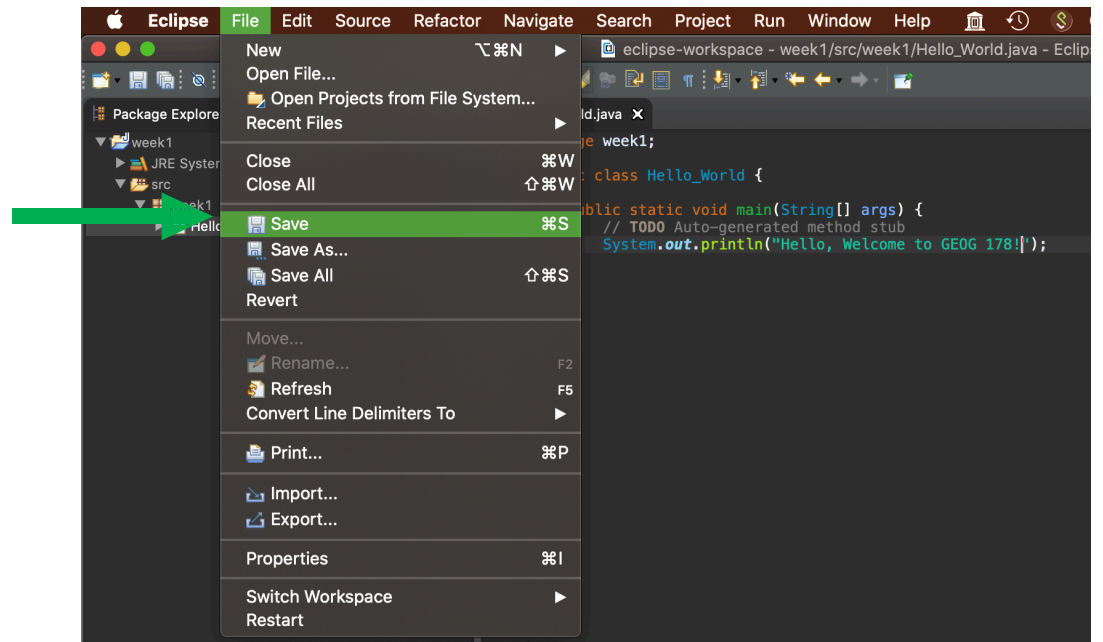


- You should see the following output!



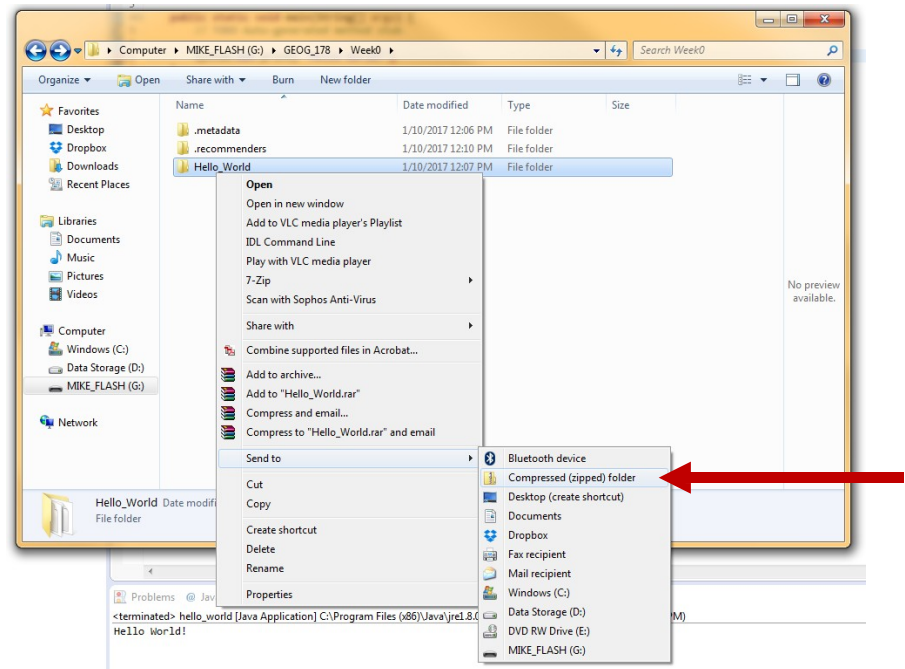
Saving your Program

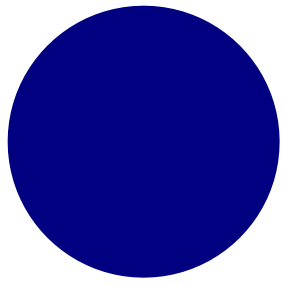
- Running your program will automatically save it
- In cases where you want to save manually go:
- File → Save



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 GEOG178
 - Right Click on the Folder 'Week1'
 - Click 'Compress'
- You now have a zipped folder that will be easier to share with others!
- For lab turn in, you will be able to send me zip files OR share links to a Github repository

Bonus

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

<https://www.vogella.com/tutorials/EclipseGit/article.html>

Check out GitHub Desktop for a GUI interface:

<https://desktop.github.com>



See you Friday at 9:00 am!