Setting up your Python Environment for CompSci 101 Fall 2016
Mac Version

A UTA used these instructions to install the course software on Mac OS X El Capitan (10.11.2). There may be differences on your Mac, but it should be similar.

For developing programs in Compsci 101 at Duke you'll need:

- An Integrated Development Environment (IDE) called Eclipse
    - An IDE is a program that helps programmers write software. They include an array of features, such as syntax checking, automatic code formatting, and helpful organization.
- Java, a programming language used to run Eclipse, install Java 8
- Python, the programming language we use in Compsci 101
    - We use Python 2.7.
- Enthought Canopy, a set of Python libraries we'll use in Compsci 101
- PyDev, an Eclipse plugin for developing Python programs in Eclipse
- Ambient, a Duke plugin for Eclipse for downloading and uploading assignments

Detailed instructions with screenshots are shown below for each of these software artifacts.

Installing Java on a Mac

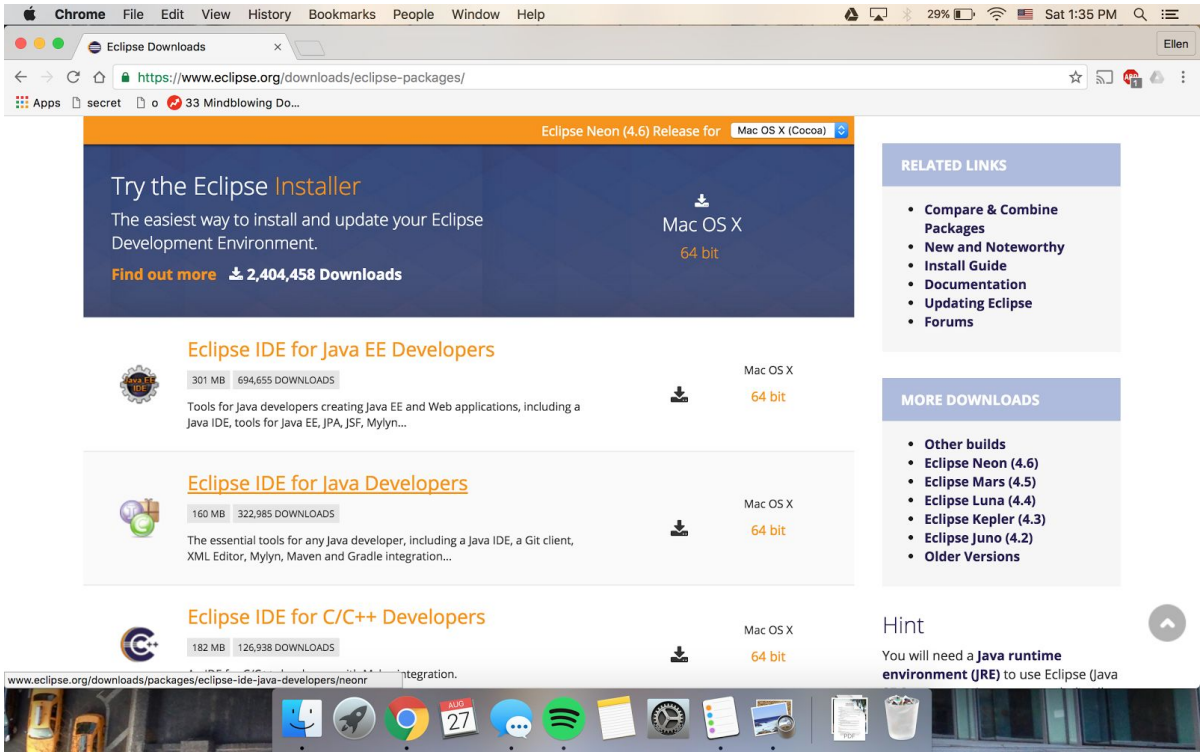
http://www.oracle.com/technetwork/java/javase/downloads/jdk8-downloads-2133151.html

The current version of Java is 8u102, click the accept license agreement and then download and install Java (find the Mac OS X verison). Accept everything and if you get a warning about "trusted", just trust it.

After accepting license agreement, download and install Java.

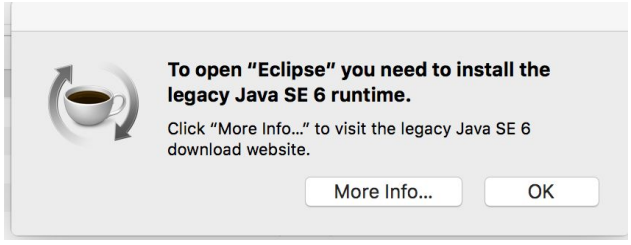
Eclipse

Eclipse is the free IDE we use in Compsci 101 and 201. You should visit https://www.eclipse.org/downloads/eclipse-packages to download Eclipse. Most likely Mac or Windows will be automatically recognized by your browser. Choose the **Eclipse IDE for Java Developers** to download.

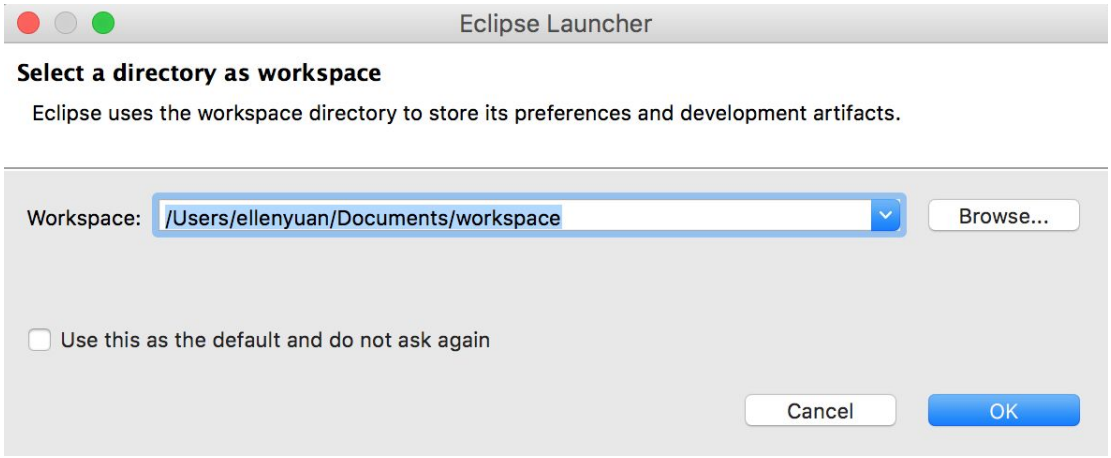


After you've downloaded the software, you should unpackage it and install it as an application, e.g., on a Mac, double click on the download and drag the Eclipse icon into your Applications folder/area. You should then launch Eclipse. If you get a message that says, ""Eclipse" is an application downloaded from the Internet. Are you sure you want to open it?" click OK.

When launching Eclipse (you should have installed Java 8 already), it may tell you that it cannot find Java and you need to install Java 6. If so, go ahead and select More Info... and install Java 6. Eclipse should run on Java 8 after doing this.



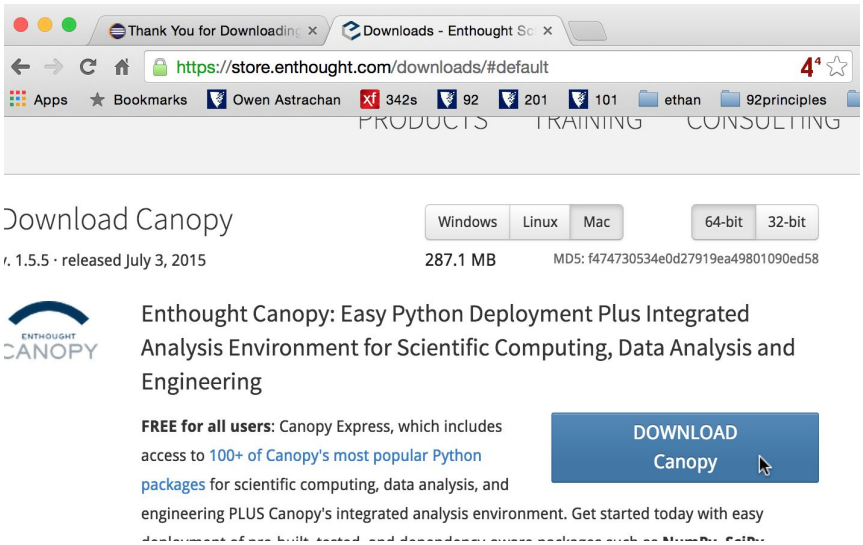
You will be brought to the following page, where you will download Java for OS X 2015-001. Proceed to finish installing Java by following the instructions that are prompted on your computer. When you launch Eclipse again, this window will pop up:



It is important that you take note of this file path. This is where all your programs that you write in this class will be located. This is called your "workspace". You should rename it to something descriptive, like "CS101_Workspace".

Click OK and proceed to the next steps in the installation process for Compsci 101.

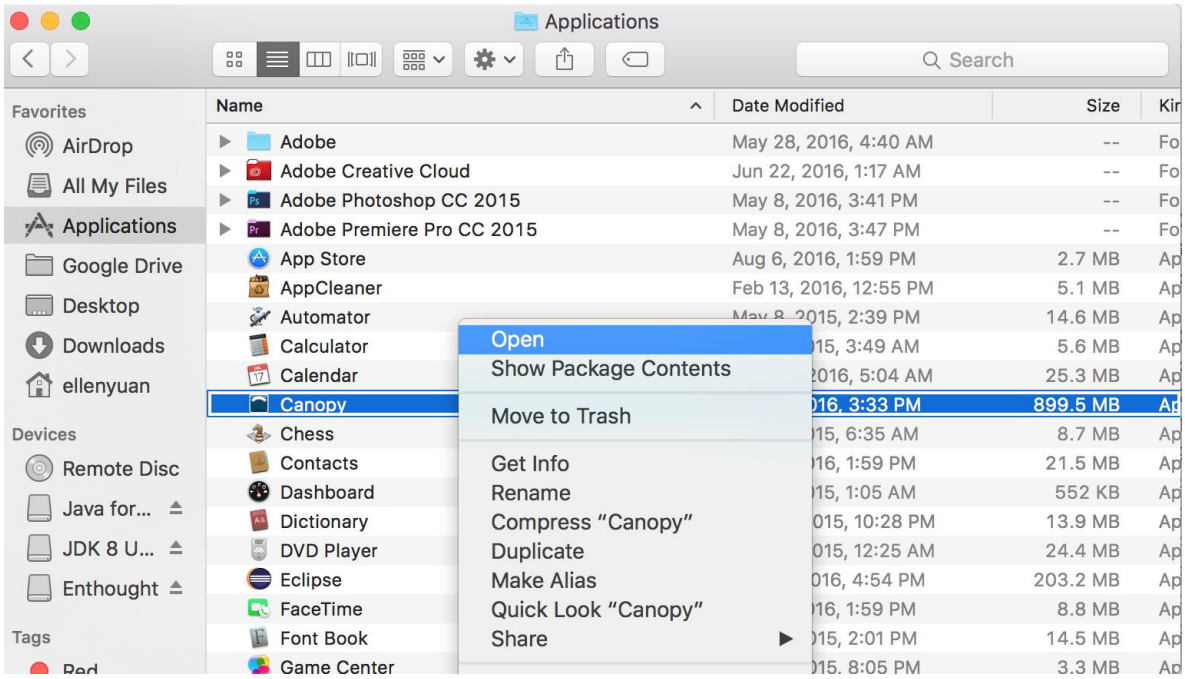
Enthought Canopy/Python



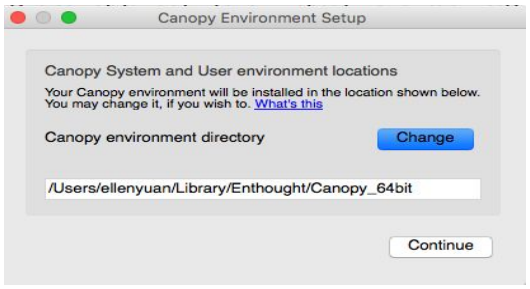
Enthought Canopy is a collection of Python code/libraries we'll use in CompSci 101. The software is free, find it at https://store.enthought.com/ and choose the free version for downloading that should take you to a website that looks like the screenshot here. You should download Canopy and perhaps indicate that you're eligible for the Academic License by filling out the form and indicating that you're at an academic institution and eligible for an Academic License. You don't have to do this, but it's a good idea.

After downloading Canopy be sure to launch it. If you're on a Mac you may have a security issue because Canopy was not downloaded from the App store, but over the Internet. If that is the case, right click on Canopy and manually select Open. You will get a message that says "Canopy is from an unidentified developer. Are you sure you want to open it?" Click Open. You'll

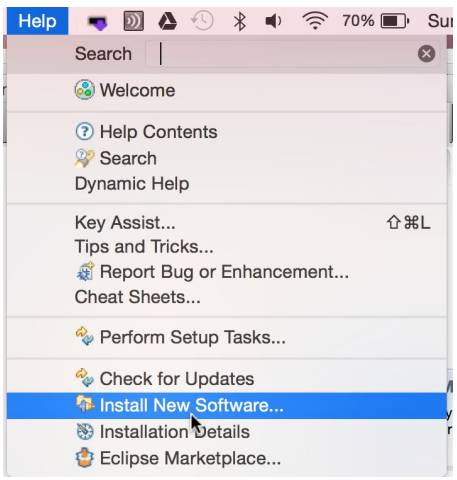
likely only need to launch Canopy once. Then you'll need to follow the steps below to install Python and connect Eclipse to Python and the Canopy libraries.



You will see a popup for Canopy Environment Setup, where you will see the path of your Canopy Environment. Copy this path, which we will use for later. Click continue and finish setting up, making it your recommended Python environment. and then you can close Canopy.

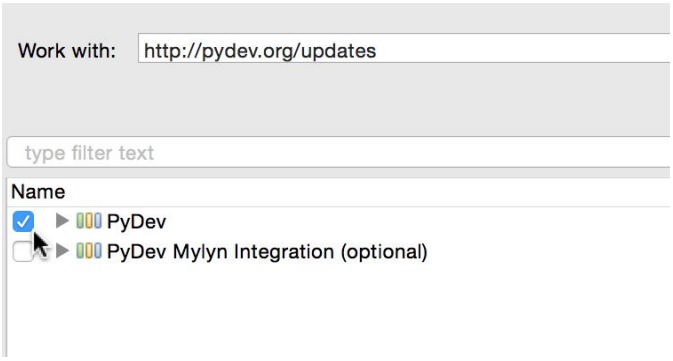


PyDev

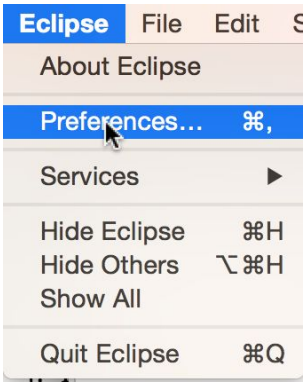


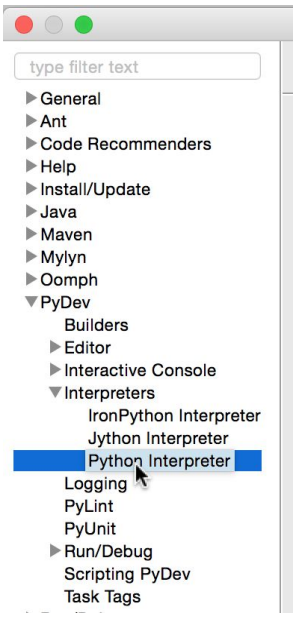
To install the PyDev plugin for Eclipse you'll use the Help>Install New Software menu as shown below on the left. Then you'll enter http://pydev.org/updates into the 'work with' textbox, wait for the 'Pending' notice to be replaced by the view on the right below where you'll selet just PyDev, **not** the PyDev Mylyn integration option and then go through the dialogs (next, next, finish, etc.).

You should agree to all the terms and conditions. **If you get a warning about 'unsigned content', check the checkbox for Brainwy Software, click 'ok', and proceed.** You'll need to restart Eclipse.

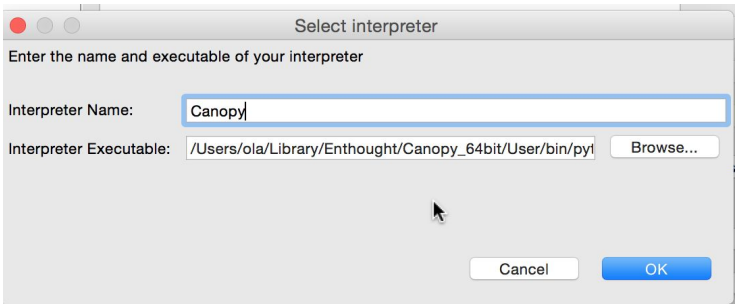


After you've installed PyDev, you'll need to configure Eclipse so that it associates PyDev with Canopy, which you downloaded earlier, to develop Python programs for Compsci 101. Choose Windows>Preferences on a Windows machine or Eclipse>Preferences on a Mac as shown on the left below. Then choose PyDev>Interpreters> Python Interpreter to configure PyDev, as shown on the right.





The steps below will allow you to configure Python/PyDev/Canopy with Eclipse.



- press the "New ..." button to tell Eclipse about Python
- in the resulting dialog box, for the "Interpreter Name" type "Canopy" and for the "Interpreter Executable" you should use the path that you copied from the Canopy installation (add "/User/bin/python" to the end). Or browse button to navigate to one of the following locations. Replace UUU with your user name on your machine and VVV

may be 64bit (see dialog above) or something else depending on what version of Canopy you installed.
    - *for Windows*: "C:\Users\UUU\AppData\Local\Enthought\Canopy\User\python.exe"
    - *for Mac*: "/Users/UUU/Library/Enthought/Canopy_VVV/User/bin/python"
- choose "Select All" and then click "OK" at the bottom of the resulting dialog box
- click "OK" at the bottom of the Preferences Box and wait for the changes to take effect when the dialog box to close (you do not need to restart Eclipse)
- **Last step**: change eclipse to python mode by selecting "Window" then "Open perspective" and then "other" and select PyDev.
- In the top right corner of eclipse you should see PyDev appear.
- You should now be ready to create a Python program

Ambient

You'll need to install Ambient, an Eclipse plugin (like PyDev) was, to be able to download labs and assignments and to submit them for Compsci 101 and other Duke classes. The first steps are similar to what you did in PyDev to install that plugin.

- open Eclipse and access the Help menu
- select "Install New Software..."
- in the "Work with:" text field, type "http://www.cs.duke.edu/csed/ambient/update" and press Enter
- you may need to wait a number of seconds until the "Pending..." is replaced by "Ambient" in the main selection area
- select "Ambient" and click "Next >" down at the bottom
- follow the next steps to finish the installation using the defaults and agreeing to the terms and conditions;
- if you receive a warning about unsigned content, proceed anyway
- at the end, agree to restart Eclipse for changes to take effect

In the first lab you'll use Ambient to download a program to see if the PyDev/Canopy libraries worked correctly.