Installing Python and Eclipse on your PC

Your first task for the course: get your computer up and running with Python!

Some installation instructions for both MacOS and Windows follow below if you need them. If you're running Linux, you don't want instructions ☺. We will be coding in Python 3 for this course – unless you're already a Python 2 whiz or feel a strong desire to confuse yourself and your instructors, make sure you're working with this version (any 3.x.x should be fine – most recent is 3.7.3 as of June). Similarly, the strongly suggested development environment for this course is Eclipse, but if you prefer another IDE or text editor based on your previous experience, that's your business.

Having difficulties installing with these instructions? **Rule #1: try troubleshooting yourself first!**
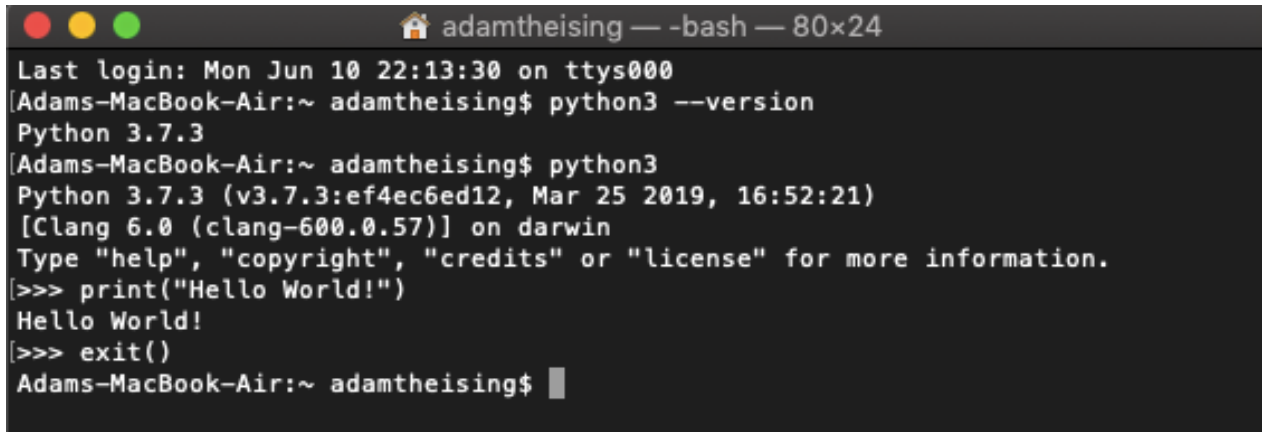
As you probably know, learning to diagnose problems and track down others' solutions on Google, StackExchange or other online coding forums is a very valuable learning process. This kind of abstract problem solving is the main job description for many coders/analysts/data scientists!

Of course, if you're still having issues after giving it your very best try, feel free to send an email and we'll help you get set up!

A. Python installation on MacOS:

Mac OS X has Python version 2.7 "out of the box," but we will use Python 3 in this course. To download it, start at this website: https://www.python.org/downloads/.

1. Click on the Mac OS X download link for Python 3.7.3.

2. Once downloaded, run the package **Installer**. Click **Continue** through all screens, accepting licenses agreements as required. Finally, click **Install.**

3. That's it! Python 3 should be functional. If you want to test this:

   a. Open Mac OS's Terminal and issue the command ***python3 --version***, as shown below. If the return is *Python 3.7.3*, your computer recognizes the new version.

   b. Next type ***python3*** to open a Python3 shell.

   c. When the shell is open, type ***print("Hello World!")***. If the terminal's return is *Hello World,* you're good to go (and as always you should appreciate that your computer is talking to you :))

   d. To exit the Python shell in terminal, type **exit()**.

```
●●●                    🏠 adamtheising — -bash — 80×24
Last login: Mon Jun 10 22:13:30 on ttys000
[Adams-MacBook-Air:~ adamtheising$ python3 --version
Python 3.7.3
[Adams-MacBook-Air:~ adamtheising$ python3
Python 3.7.3 (v3.7.3:ef4ec6ed12, Mar 25 2019, 16:52:21)
[Clang 6.0 (clang-600.0.57)] on darwin
Type "help", "copyright", "credits" or "license" for more information.
[>>> print("Hello World!")
Hello World!
[>>> exit()
Adams-MacBook-Air:~ adamtheising$ ▮
```

B. Installing Python on Windows:

Windows does not typically come with Python 3 included, so we will download and install it. To download, to https://www.python.org/downloads/release/python-373/.

1. You should know whether your computer is running 32- or 64- bit version of Windows. If you don't know this, you can figure out by following the directions given at this website.

    i. If you're running 64-bit, on the Python webpage, click on the link to **Download Windows x86-64 executable installer**.

    ii. If you're running 32-bit, on the Python webpage, click on the link to **Download Windows x86 executable installer.**

2. Double-click the downloaded .exe file. You should be at a screen that looks like the one below.

    i. Take careful note of the file address listed below the link to **Install Now**. This is where your computer will store Python 3. <u>You will need to know this file address to integrate Python and Eclipse (or other IDEs).</u>

    ii. Check the box next to **Add Python 3.7 to PATH**, then click **Install Now**. If a follow up control window asks you to allow changes to the computer, click **Yes**.

    iii. We will install Python with default settings, so no need to change anything else right now.
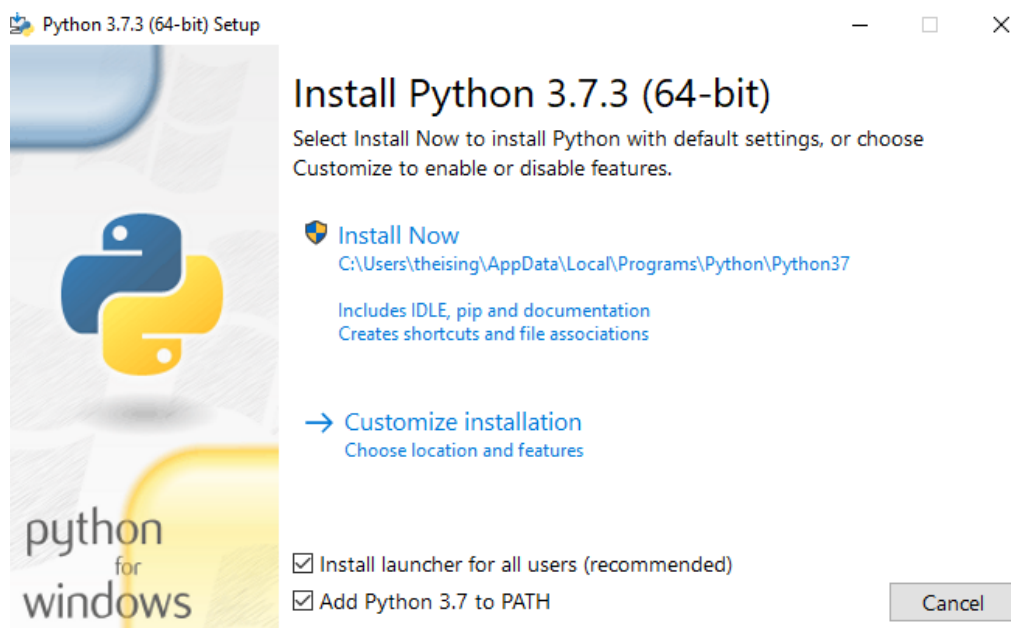
3. Wait for the program to install. If all goes well, a window should pop up and tell you **Setup was successful.** Python was installed.
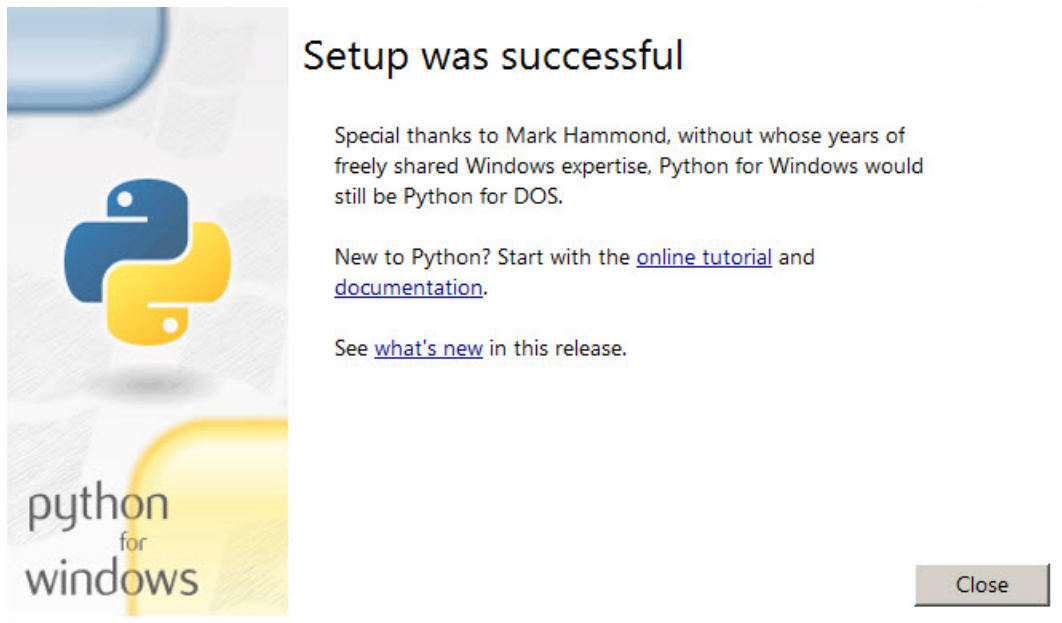
4. To test this, open your **Command Prompt** from your Start menu**.** Type **python3 -- version** into the initial command line (>). If the result comes back *Python 3.7.3*, you have the most recent version.

5. Next, type python into the command line. Once Python is opened in the prompt, try typing some mathematical expressions into the **(>>>)** command line (i.e. something like 3*5 or 5876+23). If the computer's response comes back correctly, Python is installed and ready to go. Type exit() into the command line to close Python.

C. Installing Eclipse (similar for Mac and Windows)

To obtain the Eclipse desktop platform, start at this website:
https://www.eclipse.org/downloads/packages/installer

There are some instructions for installation on the Eclipse website, but here are some more detailed highlights:

1. Download the Eclipse Installer file that is appropriate for your operating system.

2. Unzip the file (if needed) and start the Installer once it is available.

3. If you get a message saying "To use Java command-line tools, you need to install a JDK", you can download the most recent Java Development Kit (JDK) at this website. Install the JDK (choosing one appropriate to your OS), then return to this step.

4. Once you've started the Installer, you should get to an initial list of install options that looks like the window below. (Note that it is also possible to be taken directly to a window that looks like the one below for Step 5. If so, skip to step 5.)


5. Click on the drop-down menu icon in the top-right corner and select "ADVANCED MODE". You should be taken to a new installation product package menu. From this menu, unless you want to add development packages for other coding languages (Java, C/C++, etc.), select "**Eclipse Platform**", as highlighted below.
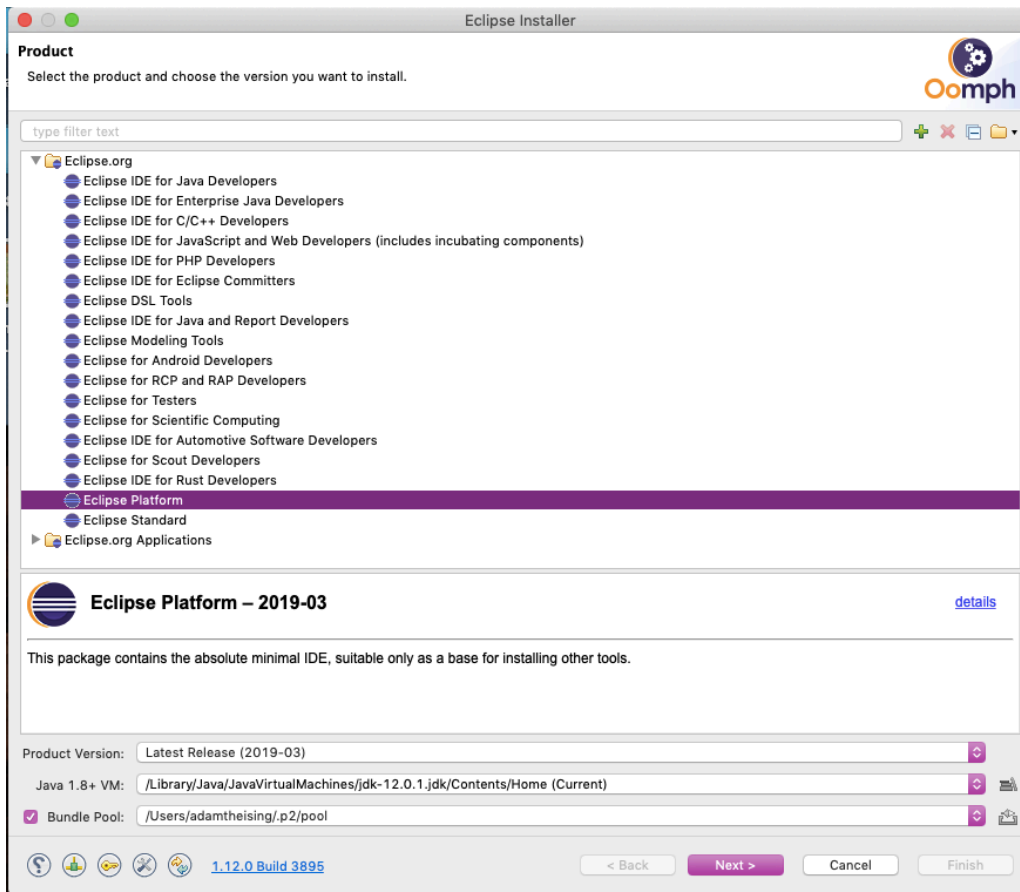
6. Once "**Eclipse Platform**" is selected, keep clicking **Next>** until you can select **Finish.**
(Then click **Finish**). You should be taken to a progress box that looks roughly like this:
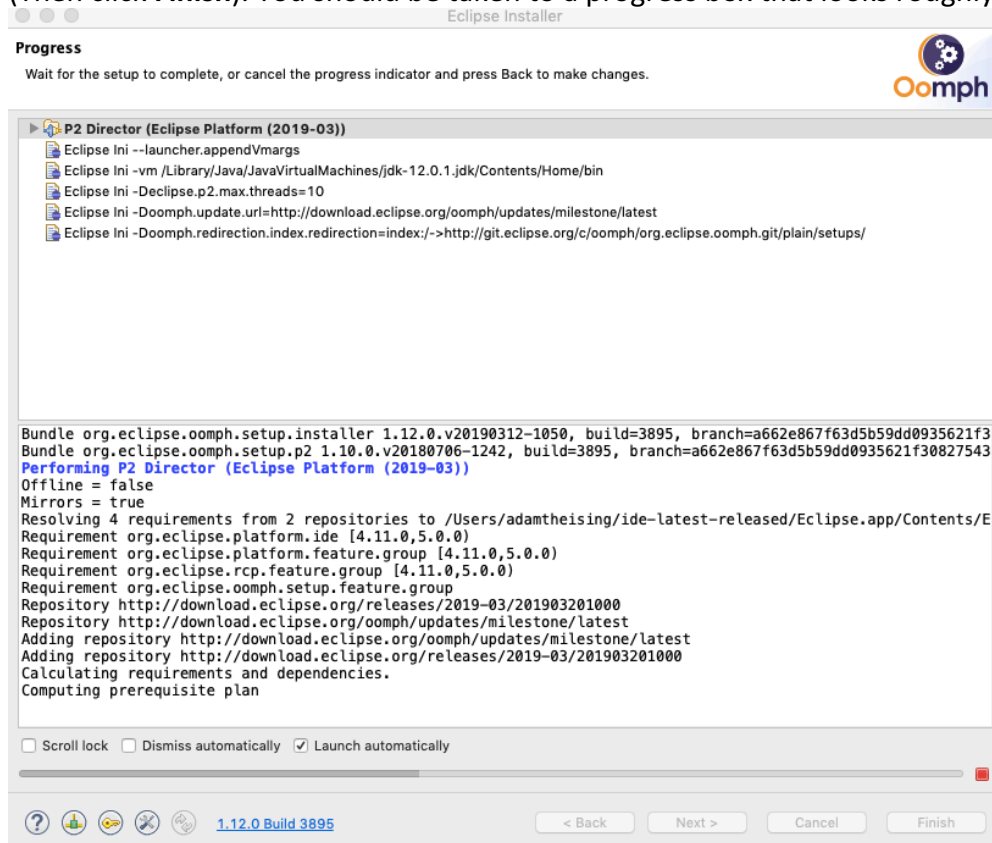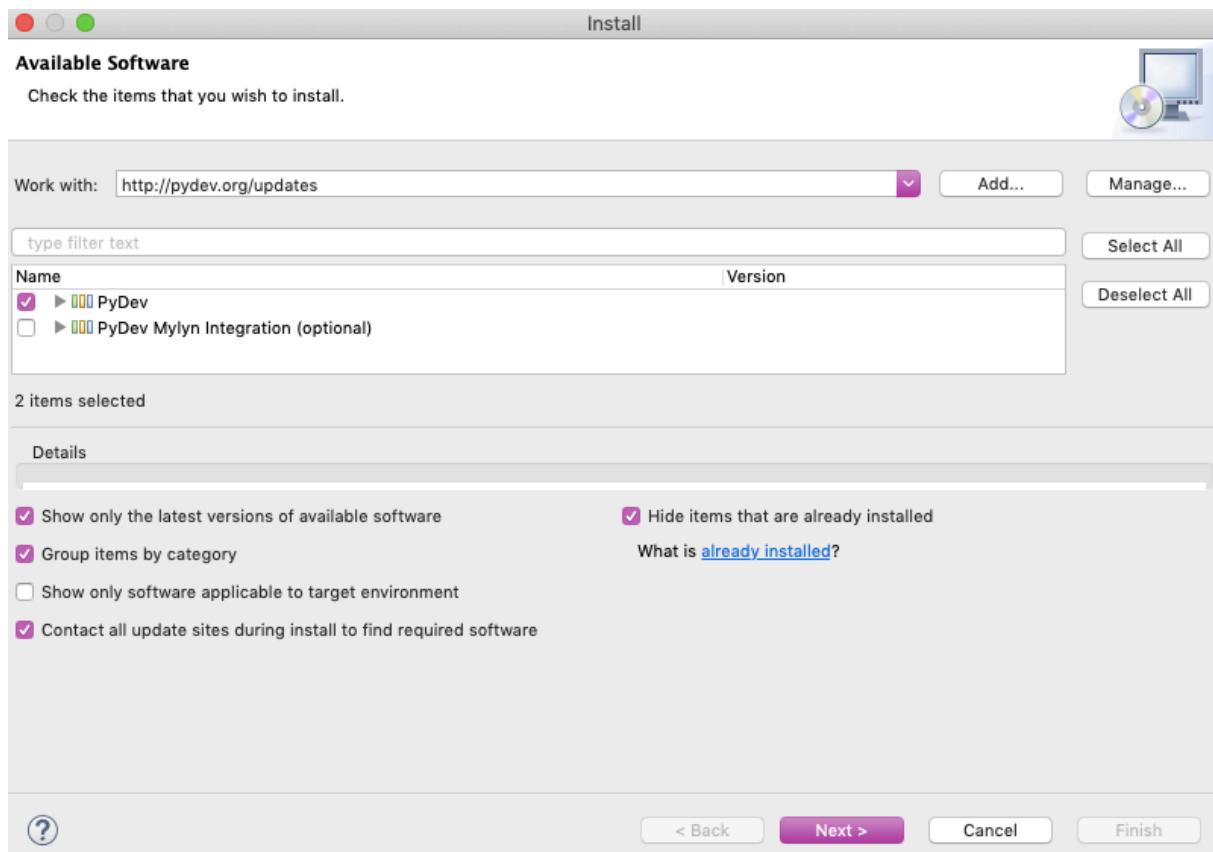
7. Accept license agreements as needed during setup. If there are no installation problems, the software should open itself upon setup completion.

8. You may get a dialog box asking you to select a directory for your workspace (see image below). Set this directory somewhere that you will be able to find later – it will be the default location for saving your preferences, projects, code work, etc.
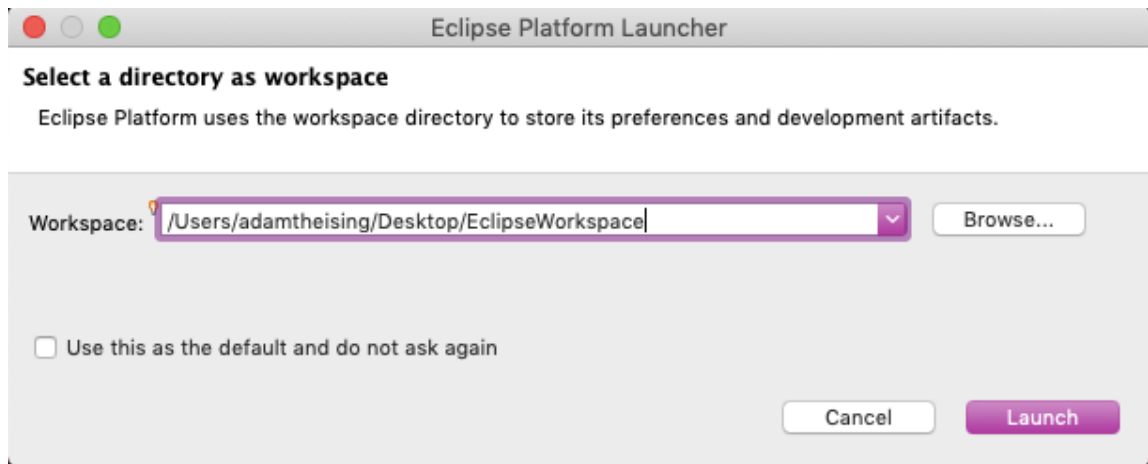

9. When the software opens, you will be taken to a welcome screen. Now we need to integrate PyDev and Eclipse. To do this, navigate to the top ribbon and click on **Help > Install New Software…**
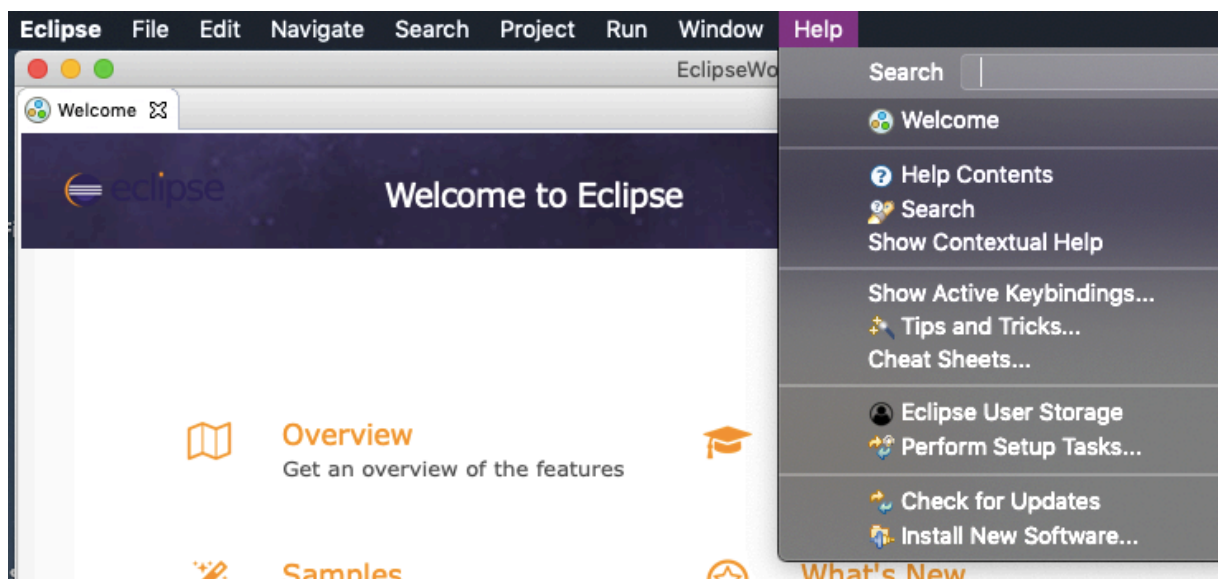

10. An pop-up window will open (see image below). In the text box that says "**Work with**", type the following URL: http://pydev.org/updates. Then hit **ENTER**. After a few moments, you should see two software options available. As shown below, select only the box for **PyDev** (DO NOT SELECT the optional Mylyn box).

11. Keep clicking **Next>**, and again, accept license agreements as needed. Then click **Finish.** If you get a Security Warning box, select **Install Anyway**. This should finish the installation. A software updates box should pop up; click **Restart Now**. The software should now be open and updated.

12. Now we need to reset some preferences so that PyDev is ready for use. To do this, find the **Preferences** tab in the top ribbon. (For Mac OS, this will be found in **Eclipse > Preferences…**, as shown below. For Windows OS, I believe you can find it in **Window > Preferences**).
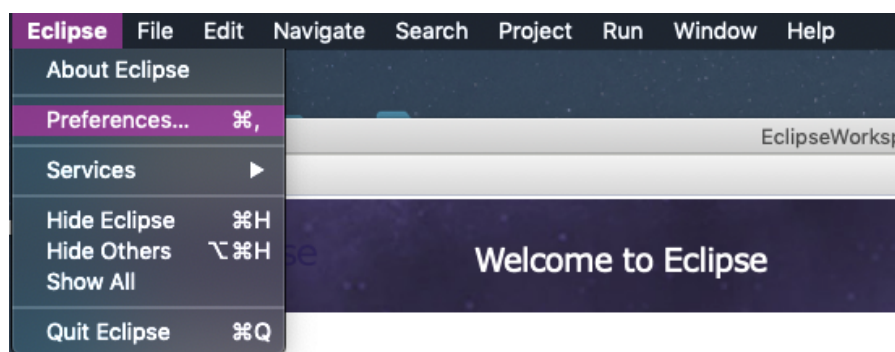

13. Once the window opens, drill down the left-hand-side menu to select the interpreter. Click down **PyDev > Interpreters > Python Interpreters**. In the top right corner of the resulting window, you should have a **Browse for Python/pypy exe** button (in Windows, this button might just be called **New…**). Click on it.
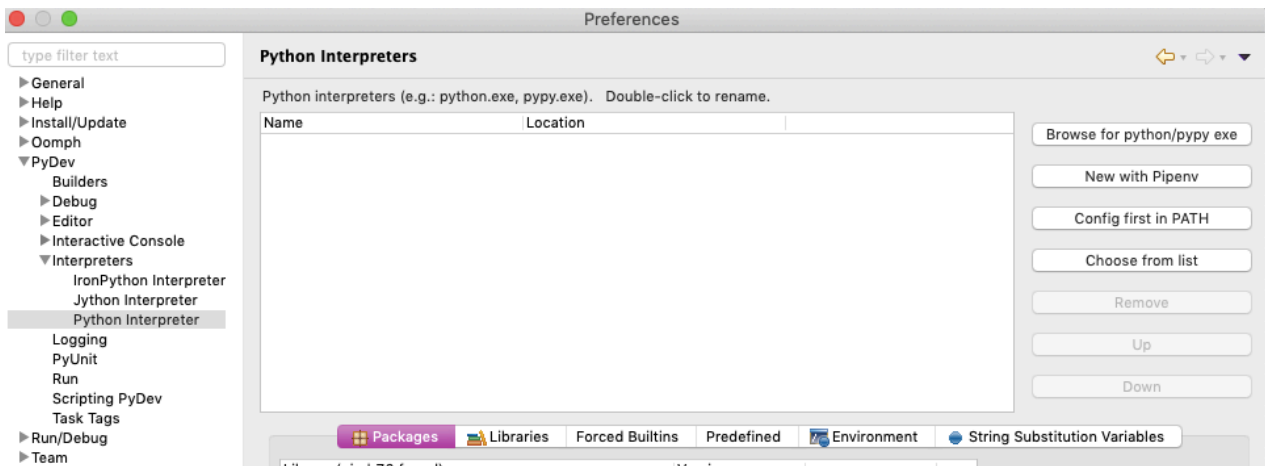
14. A **Select Interpreter** window should pop up. You need to direct Eclipse to the location of your Python 3 libraries and packages. In the text box for **Interpreter Executable**, type out the file location (and file name) where you've saved Python. (For Mac OS X users, this is typically */usr/local/bin/Python3.7*. For Windows users, recall where you've saved Python from earlier.). In the **Interpreter Name** text box, give your interpreter a name (Python37 would be an easy and obvious choice).
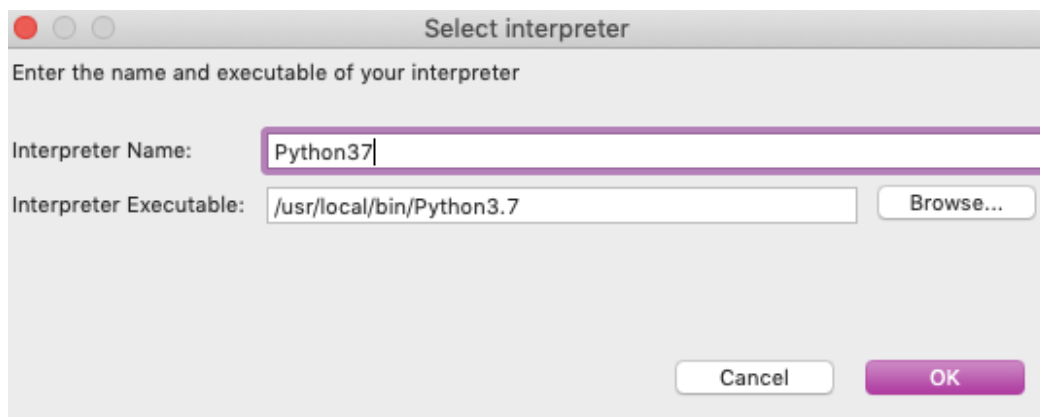

15. Click **OK** when a window titled **Selection needed** pops up.

16. When you've returned to the **Preferences** window, it should look vaguely like the image below. Click **Apply and Close** when you're ready.
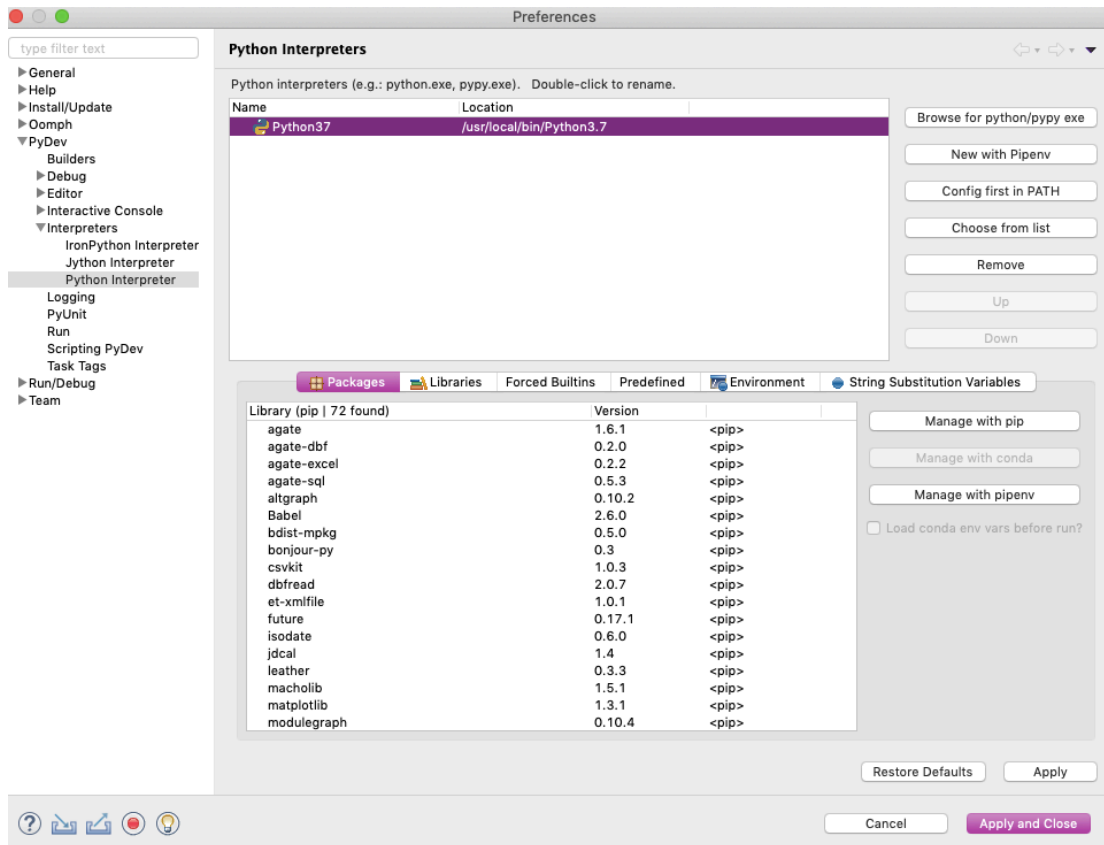
17. You should be back to the initial workspace window now, and you have Eclipse and PyDev properly configured! To make sure everything is in working order (and get you some initial interaction with Eclipse), let's code up and run a basic Python program…

18. In the top ribbon, select **File > New > Project**. Select **PyDev > PyDev Project** in the resulting window. Then click **Next>**.
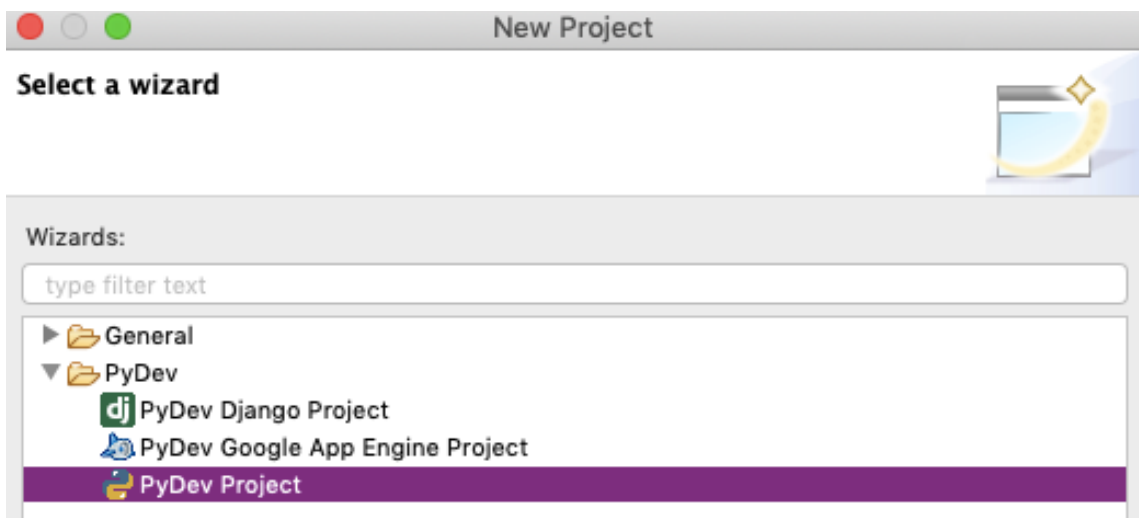

19. Create a new project with the name "FirstPythonProj". Make sure to check the lower box for *Create 'src' folder and add it to the PYTHONPATH.* Then press **Finish.**
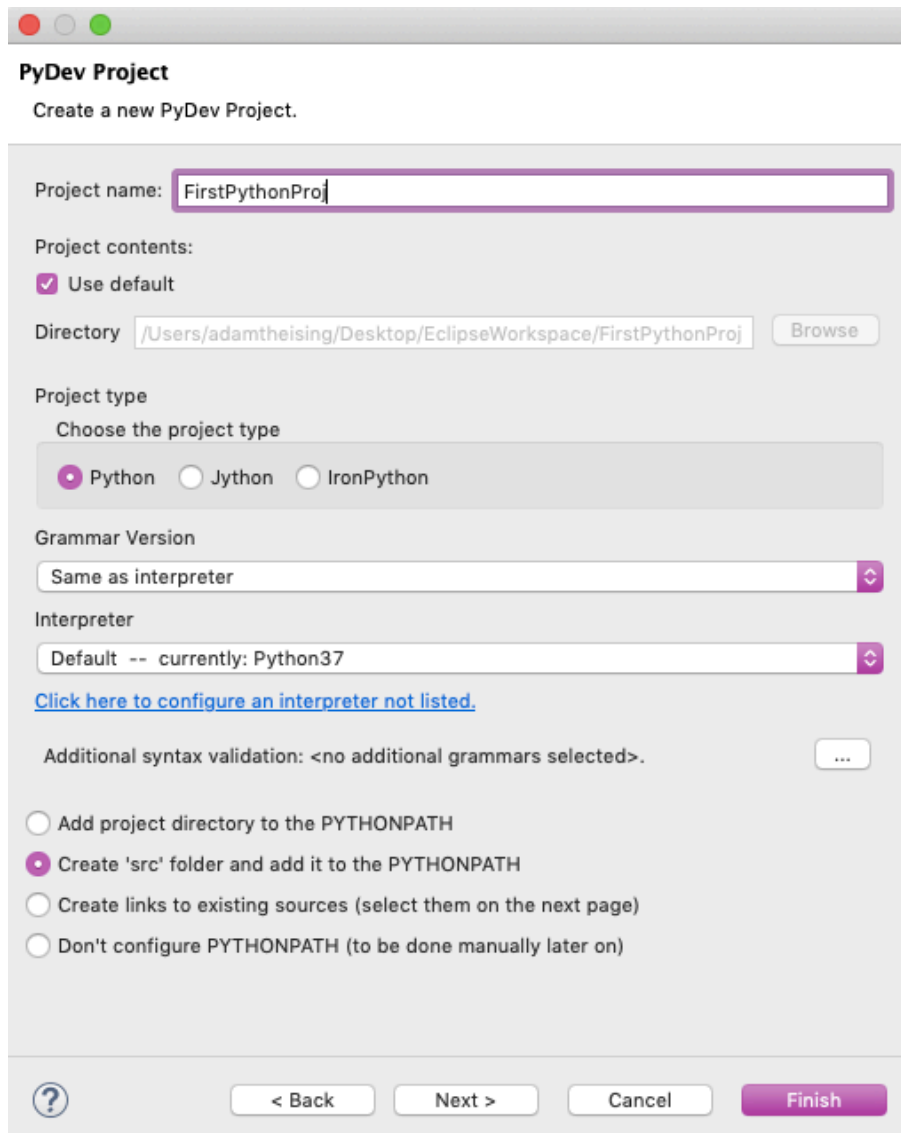
20. A window might pop up; click **Open Perspective**. This sets the PyDev perspective for this project.

21. To open a workspace (if you haven't already), go to the top ribbon and select **Window > New Window**. In the left menu of the resulting platform, right click on the **src** folder of the project and select **New > PyDev Module.** It should look like:
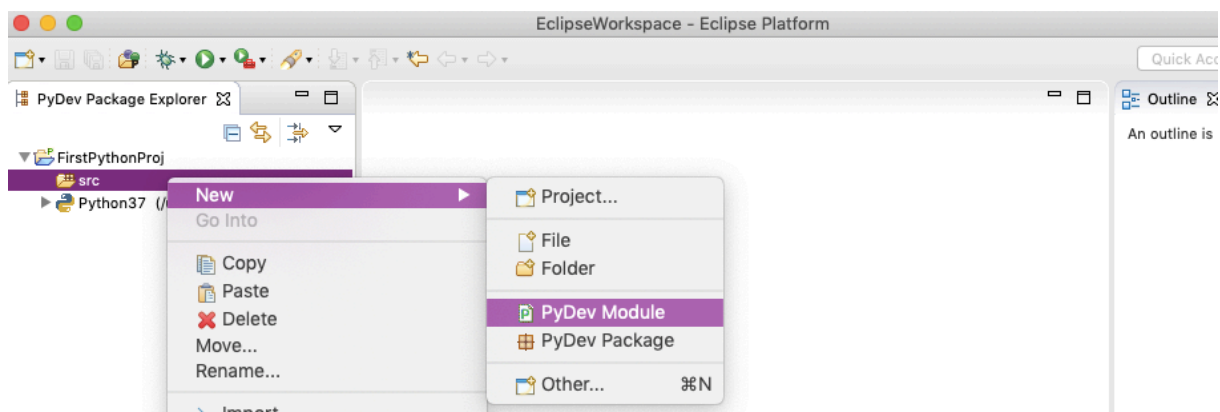
22. Create a module called "FirstModule". Click **Finish** once you've named it. If any additional boxes pop up here, just click **OK.**
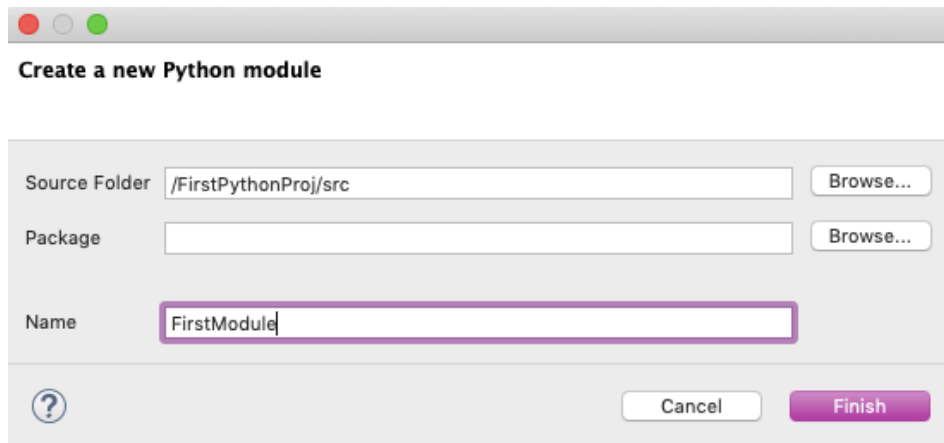
23. Create source code (on the right) that reads like this:
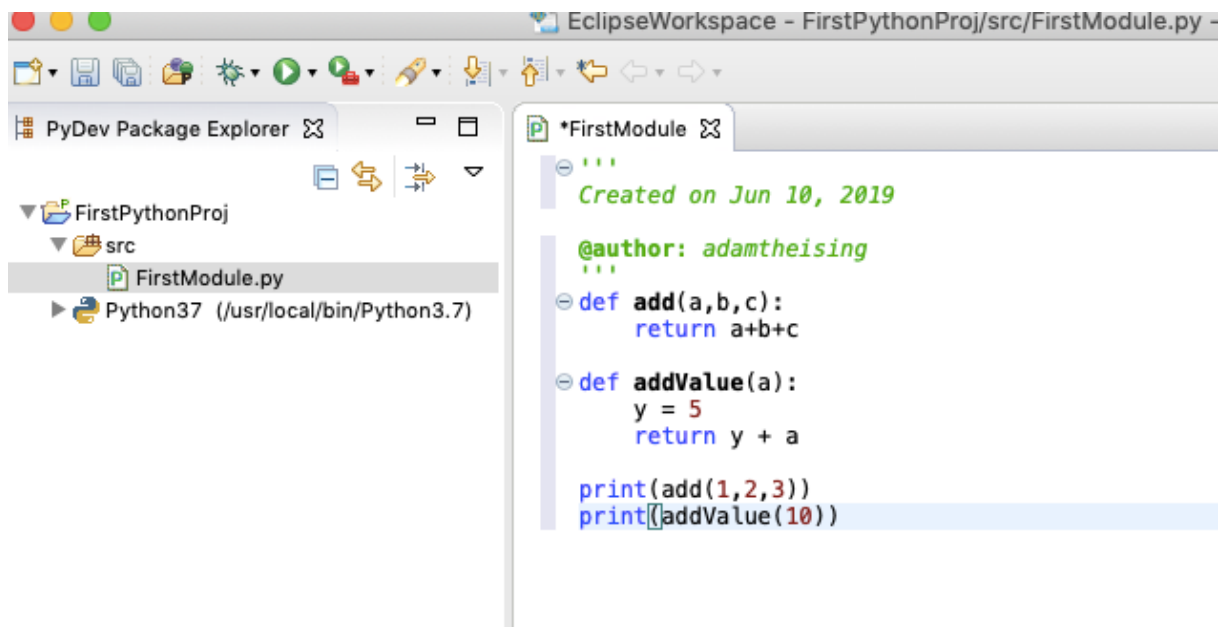
24. Right click on your model in the left hand menu (*FirstModule.py)* and select **Run As > Python Run**. Alternatively, click the button on the top menu that looks like .

25. If you see the following results in your console (bottom of workspace), congrats! You're good to go.