LESSON 1 – Python Implementation & Basics
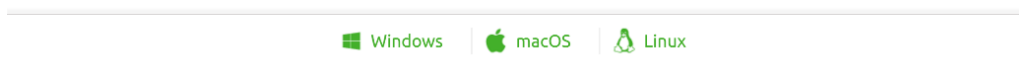
Background: For this lesson, we will be using the Anaconda - Python distribution to gain an understanding of the basic principles and functions that the Python coding language provides. The first step is understanding how to implement Python on your computer.
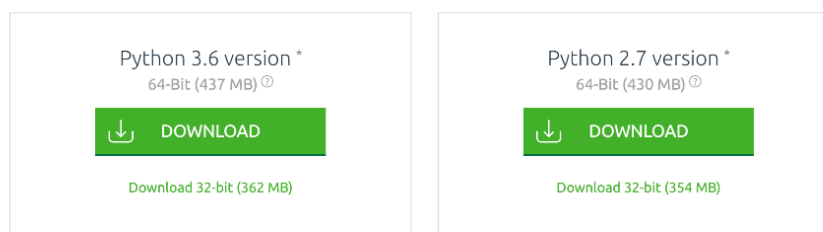
SECTION 1 – Install Anaconda

Download Anaconda

1. Open a web browser and go to the following link: https://www.continuum.io/downloads
2. Scroll down and select your current Operating System.
3. Select the newest Python version available for download. (i.e. 3.x over 2.x)

Download for Your Preferred Platform

| Windows | macOS | Linux |

Anaconda 4.4.0 For Windows Graphical Installer

Python 3.6 version *
64-Bit (437 MB) ⓘ

⬇ DOWNLOAD

Download 32-bit (362 MB)

Python 2.7 version *
64-Bit (430 MB) ⓘ

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Behind a firewall?
* How to get Python 3.5 or other Python versions
How to Install ANACONDA

Install Anaconda

1. Run the install file once downloaded.
   a. Leave all installation settings as default!
   b. Ensure that Anaconda is selected as your default Python 3.x provider near the end of the installer steps, just before commencing installation.

SECTION 2 – Using IPython Notebooks (Jupyter)

1. **Open the Start menu and search 'Jupyter Notebook'**
   a. *If it does not show up, navigate to the Anaconda folder on the start menu to find it.*
2. **Right-click and add 'Jupyter Notebook' to your Start menu or Taskbar for easy access.**
3. **Alternatively, open the command prompt and type 'jupyter notebook', press enter.**
   a. *Wait a few moments and a new browser window should pop up that will look something like the following:*
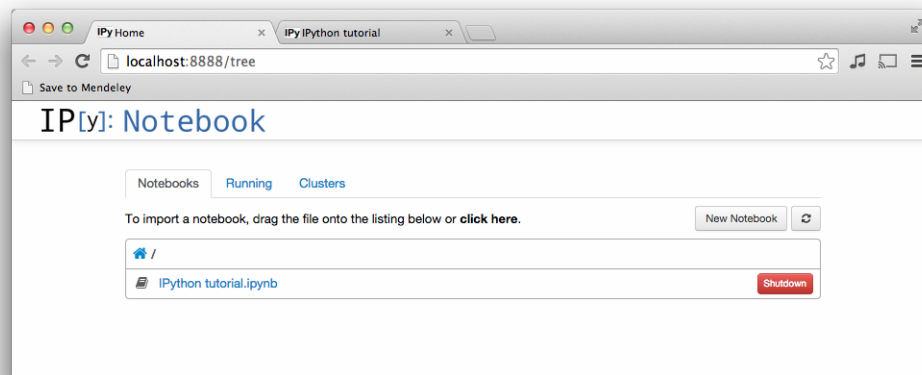
Note: This is your directory structure for all your IPython notebooks. You can create and modify your notebooks from here. IPython notebooks are great for making your Python programs along with all the documentation needed. It also saves output so you can reference back in the future.

4. **Click the 'New Notebook' button, to create your first Notebook.**
   a. *This should open a new browser tab that looks something like this:*
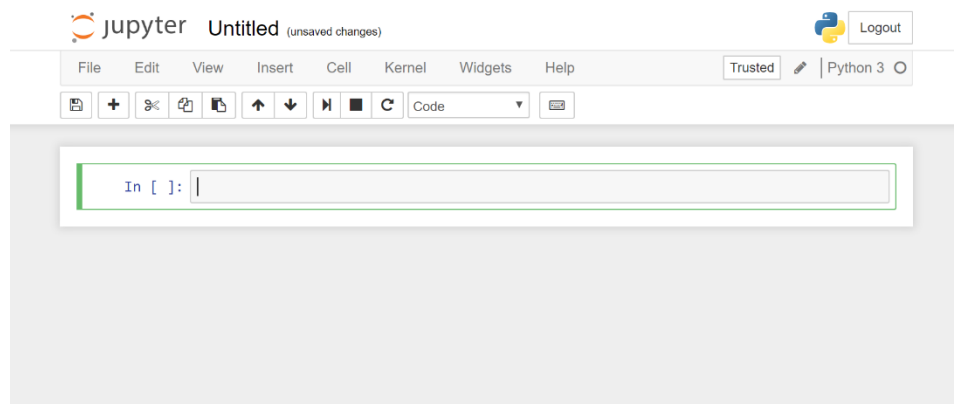
5. **Notice it says 'Untitled' at the top, click the text to rename your Notebook**

Note: It is important to remember that any code you write for the **Python – Basics** boot camp, should be written in Jupyter for easier testing. Once your code is functional, copy it into a new text file and change the file extension to '**.py**'. *Double click that file to run your Python script!*

6. **You can use 'Ctrl + S' to save your progress at any time.**
7. **An IPython notebook is made up of a number of cells. Each cell can contain Python code.**
   a. *You can execute a cell by clicking on it and pressing '**Shift + Enter**'.*
   b. *When you do so, the code in the cell will run, and the output of the cell with be displayed beneath the cell.*
   c. *For example, after running the first cell in the example it looks like this:*
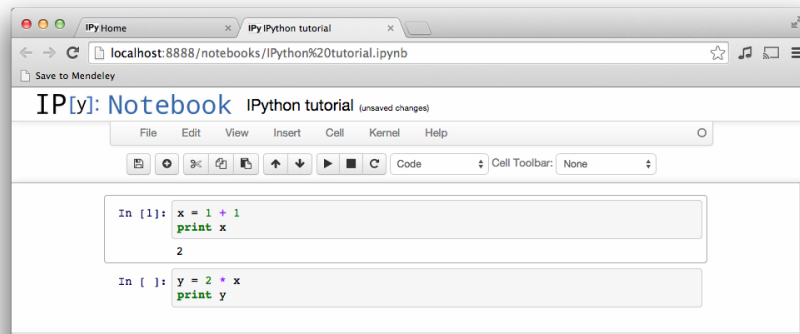
Note: Notice how the output was printed directly below the first cell. Saving your notebook will also save your outputs for future reference.

8. **Global Variables are shared between cells.**
   a. Executing the second cell in the example therefore provides the following result:
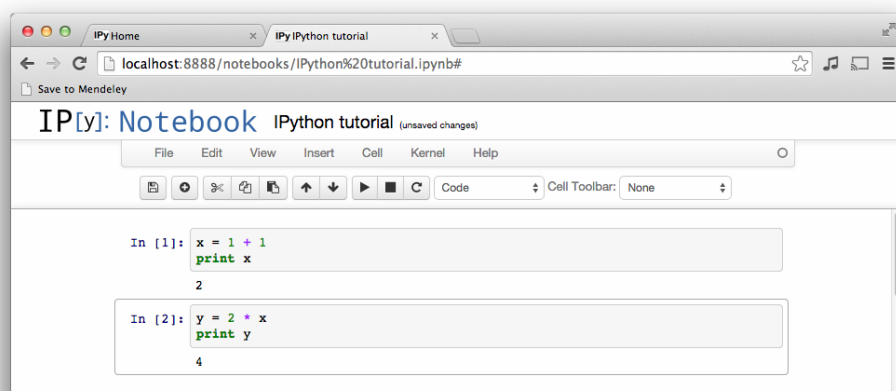
9. **By convention, IPython notebooks are expected to be run from <u>top to bottom</u>.**
   a. Failing to execute some cells, or executing out of order can result in errors like this one:
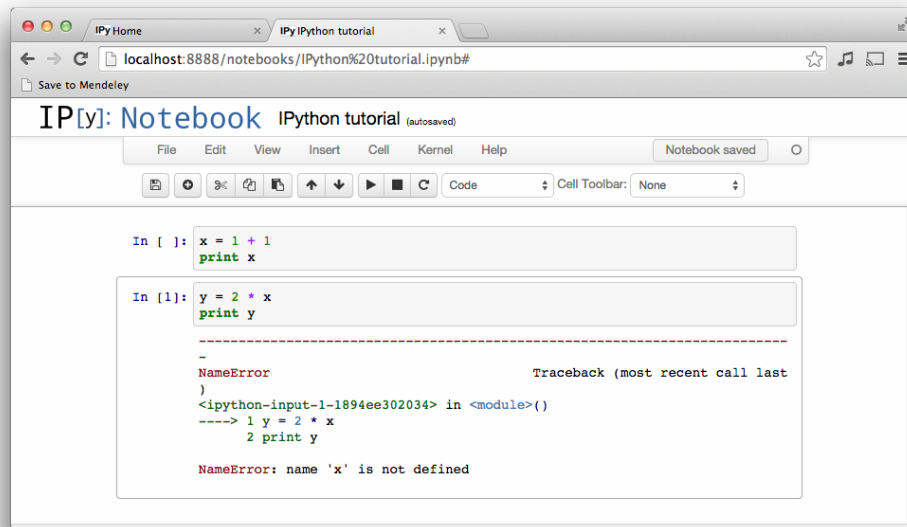
Great!
You can now begin coding your Python scripts in IPython notebooks to save your output.

REMINDER: *These lessons require that you copy-paste your code into Python **(.py)** files once they are running correctly. Doing so will also allow you to run your scripts through the console.*

TO START CODING – CONTINUE BELOW

Now that you understand how Jupyter works,
load the '**Lesson1-Starter.ipynb**' that was included with this lesson.

Section 3 through 6 will be explained inside the Lesson 1 Notebook to make it easier to follow along with examples.