**An Introduction to Python**

**Introduction**

The scripting language Python provides a solid platform for high level programming and, in our case, data mining. Python first appeared in 1991 with a single purpose: take the best concepts from a variety of preexisting languages and combine them into one package. It takes hints from Java, C, C++, and Perl just to name a few. Python is considered a multi-paradigm language in that it provides functionality for object-orientated programming, logic programming, functional programming, etc. In fact, Python in a way provides a bridge between “traditional” and “non-traditional” programming languages. For example, it allows object-oriented programming (similar to Java), but runs through an interpreter (similar to JavaScript). Within the data-mining realm, Python provides us an outlet to gain vast amounts of information with relatively small amounts of code. For example, Python allows us to “scrape” or “crawl” the Internet for information that may be useful to us (we’ll go over this in more detail in later exercises). There are Python libraries that allow us to mine social media sites such as Facebook and Twitter (we’ll go over this in more detail as well in later exercises). The list of things we can do with Python is pretty much endless, as you’ll see over time.

**Purpose**

The purpose of this exercise is to get Python installed on your computer and walk through a simple Hello World exercise. By the end of this exercise, we hope you will have gained a basic understanding of Python and its potential.

**Before We Begin…**

Please, if you all run into any trouble during the course of this exercise, do not hesitate to seek help from me. I want to make sure you all get off on the right foot. I’m here for you!!! ☺

**Procedure**

**Part 1: Instillation**

Firstly, let’s go ahead and download Python from the web. For the purposes of this class, we will use a distribution of Python called Anaconda. This particular distribution allows us to use IPython, which provides enhancements and features not found with the stock Python distribution.

1. Navigate to the website <http://continuum.io/>. Click on Products and then click on Anaconda.
2. On the right-hand side of the next page, click on Download Anaconda. Note that Anaconda is completely FREE. Input a suitable email into the pop-up window titled Free Download. Feel free to uncheck or check the box dealing with news and information. Click Submit.
3. On the next page click the Graphical installer for your operating system. Follow the onscreen prompts to run the installer. Note that running the installer will install Anaconda as well as IPython.
4. If all goes according to plan, open up a command prompt/terminal and type IPython. You should see something along these lines…

Python 2.7.8 |Anaconda 2.0.1 (x86\_64)| (default, Jul 2 2014, 15:36:00)

Type "copyright", "credits" or "license" for more information.

IPython 2.1.0 -- An enhanced Interactive Python.

Anaconda is brought to you by Continuum Analytics.

Please check out: http://continuum.io/thanks and https://binstar.org

? -> Introduction and overview of IPython's features.

%quickref -> Quick reference.

help -> Python's own help system.

object? -> Details about 'object', use 'object??' for extra details.

In [**1**]:

Congratulations!! You have successfully installed Anaconda and IPython.

**Part 2: A Simple Hello World! Exercise**

Now that you have Anaconda and IPython installed on your computer, we can set your working directory and run through a basic Hello World! exercise. Note that we will be executing our Hello World! exercise through the IPython interpreter directly and not by building a program in a development environment or text editor.

1. With the IPython environment running, type print “Hello World!” and press enter. You should see Hello World! printed right beneath the command. The print function simply means output some sort of content to the IPython interpreter, in this case Hello World!
2. Now just for fun, let’s go ahead and store the words “Hello World!” in a variable x. In IPython, type x = “Hello World!” and press enter. From here, again just for fun, let’s see how many characters variable x contains. In IPython, type len(x) and press enter. The output should say 12 (remember, a space counts as a character!).
3. To wrap up, let’s do a little library importation practice. For the purposes of this exercise, we will import of time library and display the current time along with “Hello World!”.
4. In IPython, type import time,datetime and press enter. With both the time and datetime libraries loaded, let’s call time and set it in a variable. Type seconds = time.time() and press enter.
5. Next, let’s format the time in a month/day/year hours/minutes/seconds format.

Type current\_time = datetime.datetime.fromtimestamp(seconds).strftime(‘%m-%d-%Y %H:%M:%S’)

1. Finally, let’s put it all together. Type print “Hello World! The current date and time is “ + current\_time. You should the above statement printed with the current date and time following the statement.

**Wrap-Up**

Congratulations! You have just downloaded another major key tool to this class!!! Over the course of time, we feel that you will see how multi-versatile and just overall cool Python is as well as how it empowers you as data miners/analyzers.