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CPADS Assignment 2 – Due 9/18
"Hello Python!"

The goal of this section of the course is to introduce fundamental programming constructs using a simple scripting language, Python. This approach will allow us to focus on *programming* rather than *syntax*, i.e. formulating a procedural solution. To accomplish this task we will write both *console* programs that process text files, as well as *turtle graphics* programs where we draw graphics in an "Etch-a-Sketch" fashion.

A program is nothing more than a text file(s) that is either compiled or run via an interpreter such as Python. Programs can be written using any simple text editor such as Notepad. However, it is often more convenient to use an IDE (*I*ntegrated *D*evelopment *E*nvironment) that provides a graphical interface and incorporates additional functionality into the editor. An IDE typically provides *syntactical highlighting* so that different structures of a program can be quickly identified (e.g. variables, keywords, block structures, comments, etc.). Many IDE's also support debugging features to help track down errors interactively, particularly semantic errors. In this class, we will be using a common IDE for Python called PyCharm (http://www.jetbrains.com/pycharm/). This activity is intended to help you get acquainted with PyCharm and use it to write your first Python program.

1. Basic Python

Before we start writing programs, we are going to try some simple interactive Python commands to see how Python works. Open PyCharm: **Menu->Programming->PyCharm**. Create a new project by selecting **Create New Project** and name the project **Test** (you may wish to make a new directory in **My Documents** called **CS100** to keep all your projects for this course). Also be sure that you select **python3.4** as the interpreter. Right-click on the **Test** project on the left hand side and select **New->Python File** and call it **Test** as well. Note that the file will open in the main PyCharm window with a **.py** extension.

Select **Tools->Run Python Console** from the menu bar at the top of the PyCharm window. You should see a window at the bottom of PyCharm which will contain a Python command prompt.

Which version of Python is installed on these computers (look at the top of the Console window)?

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At the prompt >>> type each of the following commands (shown in bold) and write the output below the command. If you receive an error when you type a command, *explain why* the error exists (do not simply write down the error message). Some commands may not produce output. If that is the case, write 'NO OUTPUT' below the command.

>>> **print Hello World!**

>>> **print ('Hello World!')**

>>> **message = 'Hello World!'**

>>> **n = 17**

>>> **print (message)**

>>> **print (n)**

>>> **message**

>>> **lambda = 3.125**

>>> **type(message)**

>>> **type(n)**

>>> **message/8**

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```
>>> n/8



>>> n/8.0



>>> n // 8



>>> n // 8.0



>>> message*2



>>> quit()
```

2. Hello Python! (Review)

We will now write the trivial "Hello World" program to review using PyCharm.

- Go to the **Test.py** window that we created earlier
- In the editor window type (note the syntactical highlighting):

```
print ('Hello Python!')
```

- In the menu bar select **Run->Run** and select **Test** in the pop-up window

  What output is produced in the bottom half of the PyCharm window?

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Congratulations! You have just written your first Python program. In subsequent classes we will learn basic programming constructs and begin writing more interesting Python programs using turtle graphics.