Python

Why Python
Running Python
Python strings, lists, & tuples
Python control structures

Scripting vs. a Programming Language

- A scripting language differs from a programming language in a few ways:
  - Programming languages are compiled, scripting languages are interpreted
  - Scripting languages most often run “inside” another program---an “environment”
  - Scripting languages can be more readable, are less syntax-strict

In C:

```
#include <iostream>
using namespace std;
int main() {
    cout << "Hello, world!" << endl;
    return 0;
}
```

In Python:

```
print "Hello, world!
```

The Python Philosophy

- It was developed in the late 1980s, perhaps 15 years after the conception of Unix.
- It was implemented in December 1989 by its principal author, Guido Van Rossum.
- Named for the British comedy group Monty Python
- Python is a dynamic, interpreted language
- Python is objected orientated---everything is an object
- You do not declare the types of variables or parameters or methods
- Like C++ and Java, Python is case sensitive
- There are no end of statement marks
- There are no block delineators (such as {} in C)

Getting Started

- There are three ways to run Python on your Pi:
  - IDLE (interpreter), in a terminal window, or as a script
    - Eric Idle, one of the founding members of Monty Python
- Python 2 or Python 3?
  - Python 3 is not backwars compatable
  - Python 2 has slightly better library support
  - A large legacy of Python 2 code
  - Most systems default to Python 2

Today

- Go to Google's Python Class
  - Read Introduction, Strings, Lists, and Sorting (omit List Comprehensions)
  - Download the google-python-exercises.zip file and unzip it
    - Do the programming exercises in string1.py and list1.py and submit the completed files to Moodle
- A few high-level comments
  - There are built-in functions that are called independent of an object such as len(), str(), range(),and sorted()
    - They typically return a value
  - There are functions that are called from objects, for example: L=[1,2,3] L.pop()
    - These functions (also called methods) may return a value or may alter the object, the function pop() does both
  - Everything is an object
  - The difference between lists, strings and tuples

Resources

- Google's Python Class
  - Download the google-python-exercises.zip file and unzip it
- Books, Websites, Tutorials
- Quick Reference Sheet