Python Programming

Session - 1

- Ajay Kumar

Jupyter Notebook

- Interactive environment for writing and running code.
- Cells - Container for text to be displayed in the notebook or code
- Kernel - “computational engine” that executes the code
- Code Cell and Markdown Cell
- "Hello World!" - print
- Running State / Keyboard Shortcuts

Markdown Basics

- Add headings by starting a line with one (or multiple) # followed by a space
- Make text italic or bold by surrounding a block of text with a single or double * respectively
- You can embed code meant for illustration instead of execution in Python using ```
- You can build nested itemized or enumerated lists

Python Basics

- Python uses indentation to indicate a block of code. (Indentation refers to the spaces at the beginning of a code line)
- Python will give you an error if you skip the indentation
- The number of spaces is up to you as a programmer, but it has to be at least one
- You have to use the same number of spaces in the same block of code, otherwise Python will give you an error

Variables

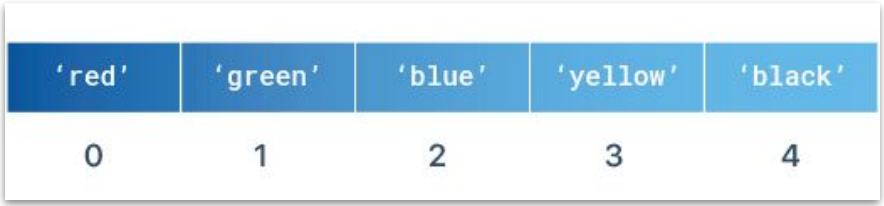
- In Python, variables are created when you assign a value to it (using "=" sign)
- Variables do not need to be declared with any particular type and can even change type after they have been set.
- String variables can be declared either by using single or double quotes
- Variable Names - must start with a letter or the underscore character and case sensitive
- Python allows you to assign values to multiple variables in one line

Data Types

- To verify the type of any object in Python, use the type() function
- Numeric Types: int, float
  - Int, or integer, is a whole number, positive or negative, without decimals, of unlimited length.
  - Float, or "floating point number" is a number, positive or negative, containing one or more decimals
  - You can convert from one type to another with the int() and float() functions

Data Types

- Text Type: str
  - Strings are defined either with a single quote or a double quotes.
  - You can assign a multiline string to a variable by using three quotes
- Sequence Types: list
  - List is a collection which is ordered and changeable. Allows duplicate members.
  - Accessing an index which does not exist generates an exception (an error).
  - You access the list items by referring to the index number (sample_list[0])
  - To add an item to the end of the list, use the append() method



Basic Operators

Arithmetic Operators on Numbers

Operator	Name	Example
+	Addition	x + y
-	Subtraction	x - y
*	Multiplication	x * y
/	Division	x / y
%	Modulus	x % y
**	Exponentiation	x ** y
//	Floor division	x // y

Basic Operators

Arithmetic Operators on Strings

- To concatenate, or combine, two strings you can use the + operator.
- Python also supports multiplying strings to form a string with a repeating sequence

On Lists

- Just as in strings, lists can be joined with the addition operators, also python supports forming new lists with a repeating sequence using the multiplication operator

Session Break

GitHub Link