Monroe Township Library Coding Bootcamp

Class 2 Notes

* Getting user input
* More on basic data types
* Basic math operations with ints and floats
* Some important string methods
* String concatenation and formatted strings
* ‘Truthy’ and ‘falsey’ values
* Type conversion

**Getting user input:**

* If we want to receive input from the user, we use the built-in input function
  + The input function can be given a string that will print to the terminal, generally used to give instructions on the type of input
* Typically input will be stored to a variable so we can do something with the inputted data

**Math operations with ints and floats:**

* Basic math operations can be performed on ints and floats; addition (+), subtraction (-), multiplication (\*), and division (/)
  + With these operations, if a float is included the result will always be a float
  + Operations follow PEMDAS (parentheses, exponents, multiplication/division, addition/subtraction)
* Floor or int division (//) will round down to the nearest whole number
* The modulus operator (%) returns the remainder after division

**String methods:**

* The len() method returns the length of a string (including spaces)
* You can ‘index’ a string, using bracket notation and the number of the character
  + Counting starts from 0, meaning the first character of a string is the zeroth index
  + You can also indicate where to stop to slice a string, getting all the characters of a string *up to* the indicated stop
  + Indicating the ‘step’, where step=x means it will return every x character from a string
    - For example, a step of 2 would get every other character
  + Index values are separated by colons in this order **[start: stop: step]**
* The count() method returns the number of times a character or set of characters is found within a string
* You can transform a string to all lowercase or uppercase letters using the lower() and upper() methods
* The find() method will return the index of the first instance of a character or set of characters in a string, it will return -1 if it doesn’t find it
  + The index() method works the same way but will raise an error if the value is not found
* For a list of string methods and their uses check out [www.w3schools.com/python/python\_ref\_string.asp](https://www.w3schools.com/python/python_ref_string.asp)

**Concatenation and formatted strings:**

* Concatenation is the process of combining strings using the addition operator (+)
  + You cannot concatenate strings with other data types without type converting first
* You can create a formatted string by putting an ‘f’ in front of your string quotes
  + You can insert variables or other operations using curly brackets {}
  + Values in the curly brackets will be implicitly converted to strings

**‘Truthy’ and ‘falsey’ values:**

* Booleans are explicitly True or False, but other data types have ‘truthy’ or ‘falsey’ values, meaning they will be considered True or False in conditional statements or if converted to a bool
* All non-zero integers and floats are considered ‘truthy’ while 0 is consider ‘falsey’
* Empty strings (an empty pair of quotes) are ‘falsey’ while strings containing any characters are ‘truthy’
* NoneTypes are always ‘falsey’

**Type Conversion:**

* Data types can be converted to other types using the built-in functions:
  + **int()** can convert strings (if they are only digits), floats (rounded down), and booleans(True=1, False=0) to integers
  + **float()** can convert strings(digits with a decimal place), ints(just adds a zero after decimal place), and Booleans (True=1.0, False=0.0) to floats
  + **str()** can convert any basic data type to a string
  + **bool()** can convert any basic data type to a boolean (based on its ‘truthy’ or ‘falsey’ value)

**Project: Getting String Data**

**Check class files at** [**github.com/monroecoding**](https://github.com/monroecoding)

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