Monroe Township Library Coding Bootcamp

Class 1 Notes

* Intro to coding, syntax, languages
* A little bit about the Python programming language
* How to install Python
* IDEs and coding environments
* Github, how to access class files
* Print statement
* Basic data types
* Variables
* Comments

**Coding in general:**

* Coding (or programming), at its most basic, means writing instructions that can be interpreted and processed by a computer
* There are several different coding languages that operate slightly differently, and are used for different purposes
* A programming language’s **syntax** refers to the rules that need to be followed when writing the code
  + Many languages have similar functionality but use different syntax

**Python:**

* In this class we’ll be coding in Python, one of the most popular coding languages used in anything from data science to web development to machine learning
* Python strives to be easy to write and understand (relative to other languages)
* Python in an interpreted language which means the code you write is converted to a computer-readable format when you run your program, you do not have to compile the code first
  + In general, Python has a reputation for making development quicker and easier, but running a little slower than compiled languages
* You can install Python by going to [python.org](https://www.python.org/) and downloading the current version for your OS
  + Make sure you choose ‘Add to Path’ option when installing

**IDES and coding environments**

* A coding environment is simply a place where you can write code
* Technically, all you need is a text editor (like Notepad), but IDEs come with helpful features, code completion, and debug options that make writing code easier
* We’ll be using Visual Studio Code in this class which can be downloaded from [code.visualstudio.com](https://code.visualstudio.com/)

**Github & Projects**

* I’ll be uploading all class files to Github, which is a code-hosting website (among many other things), feel free to create an account if you want
* You can access files at [github.com/monroecoding](https://github.com/monroecoding) and select the ‘Coding Bootcamp’ repository
* In the upper left there is a dropdown menu that says ‘main’, click on that to access files from each class
* If you have an account, you can also post questions and completed projects in the discussions tab, I’ll try to keep an eye on that
* There will be small functional projects to work on (either at home or in class if there’s time), the code will be posted on Github and I’ll walk through the project at the beginning of the next class

**Printing to terminal**

* The print statement is a built-in Python function that simply prints whatever is wrapped in parentheses to the terminal/console
* We’ll be using this a lot to view output of our code

**Basic data types**

* **String (str):** a string of characters between single or double quotes, can contain letters, numbers, or special characters
* **Integer (int):** a positive or negative whole number
* **Floating point number (float):** a positive or negative decimal number
* **Boolean (bool):** a true of false value
* **NoneType (None):** represents no value, returned when functions have no output

**Variables**

* Variables are used to store data so that it can be accessed later
* In Python, variables are creating by simply choosing a name and assigning a value using the assignment operator (=)
  + Variable names cannot start with a number or contain spaces
  + Not necessary, but Python convention is to use lowercase and string multiple words together with an underscore
  + Avoid using specific Python keywords as you may accidentally overwrite important data
* Python is dynamically-typed, meaning we do not need to specify beforehand what data type our variable will hold, and we can override existing variables with any data type

**Comments**

* It is good practice to write comments explaining what your code does, especially if you are working with other programmers
* Comments can be added to your code using a hash (#), anything after the hash will be ignored by the computer when the program is run
* Large blocks of code can be ‘commented out’ by highlighting and pressing Ctrl + /