2021 - 2022 AP CSP Summer Assignment

Welcome to AP CSP for the 2021-2022 school year! This year we will be using Python for the programming portion of the course, so our summer assignment will allow you to get a bit familiar with it. While every programming language (even Scratch!) has variables, loops, and conditional statements, the syntax is usually unique to that language. Keywords are also often specific to a language. For example: `void` in JAVA, or `function` in Javascript, or `def` in Python.

This assignment is designed to help familiarize you with the syntax of Python. You will gain some comfort with running a Python program and providing inputs and outputs. This is also an opportunity to get prepared for saving, retrieving, and organizing your work in a consistent and purposeful manner. You need to focus on this because the environment that we write and run Python programs in will evolve throughout the course.

1. Here is a link to some suggestions for setting up folders for saving your work throughout the course.

2. Any online Python interpreter can be used for the summer assignment. This one is recommended since it allows you to save and download your work to your summer work folder.

3. ***What you must actually do:*** For the main part of the assignment, you will type in these programs and run them in the online Python interpreter. Save the programs to your summer work folder on your computer and save a screenshot of each program running in the online interpreter. On the first day of school you will zip/compress these 4 files: 2 Python files (with file extension .py) and the 2 screenshots of running code. The zip file will then be submitted to Schoology. Make sure to follow formatting exactly when you type these programs. Unlike JAVA/Processing, indentation really matters in Python. It is actually part of the syntax. Be sure to read the output in the console for any errors.

4. ***What you should probably also do:*** A good resource for getting started with Python is the W3Schools Python Tutorial. You should work through the beginning chapters up through and including *for loops*. But you can skip the chapters on *lists*, *tuples*, *sets* and *dictionaries* . . . for now.

5. ***Optional:*** If you would like to actually install a Python interpreter and IDE (Integrated Development Environment) on your computer, there are some options. We will be using Thonny, which is a single download and install, for both the interpreter and IDE. If you choose to install this, you can try opening up your .py projects for the summer assignments.

See what happens when you run them, and investigate the environment. Another option for a local IDE or editor involves downloading and installing the IDE or editor as well as Python 3.9.x (most likely 3.9.5). Do **not** install Python2. If you are using a newer Mac you may already have Python3 on your system since it comes bundled with the operating system. If you know how to use your *Terminal* program you can type: `which python3` at the prompt to see if you already have it. But regardless of whetheror not you have Python3, keep in mind that you will still need a code editor (Atom, Visual Studio Code etc.) And you will need to learn to find and run .py files (Python files) from a command line (ie. *Terminal* program on your Mac or Windows *PowerShell*.) Alternatively you have the choice of writing and running Python files from an IDE (**I**ntegrated **D**evelopment **E**nvironment). A popular one (one that we will gravitate toward as the course progresses) is the free PyCharm (Community Edition) from Jet Brains. Here are some instructions for installing and using PyCharm. **Important:** Make sure that you check the Set Path box BEFORE you click the install choice on the Python installation. Another simpler-to-install IDE that might be a good starting point is the Thonny IDE, which will automatically install Python for you.