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GitHub: https://github.com/kchoi78/IntroToProg-Python-Mod06

Collections of Data Pt 3

Introduction

In this lesson we took our handy program for previous assignments and took it even further by creating classes and functions. Functions are a way to productionize our code by creating a block of code that can be repeated without copy and pasting what we had written. We are also able to pass our own parameters into the function. Classes are a way to group these functions, and when used together can really help in readability of the code. This assignment is sectioned into three main parts: the file processing class, the input/output class, and then the main body of the code that performs the functions within the classes with the given parameters. Within the program, I have also added helpful document strings to provide more documentation and insight to the classes and the parameters.

File Processing Class

The file processing class is aptly called `FileProcessor`. This is a collection of processing layer functions that will read and write JSON files. In this `FileProcessor` class, there are two functions--or more formally called methods when within a class--`read_data_from_file` and `write_data_from_file`. These two methods will do the same steps of reading and writing into JSON files as the last assignment, but instead the user can now provide their own parameters to pass into the methods for more scalability. You will note that the methods here will reference another method, `output_error_message`, from the next defined class called `IO`.

Input/Output Class

This next class called `IO`, short for Input/Output, will handle the input and output of the data, as well as exception handling. This class is mostly concerned with the presentation of the data. I first defined the method `output_error_message`, which is referenced all throughout the program whenever exception handling is needed. I enjoyed the fact that this method could be referenced in the earlier class even though it had not been defined until the next class section. Personally, I found this error handling method to be extremely useful and much easier to read than the series of print functions from the last assignment.

As per usual, the user is presented with the menu of choices wherein the user may input options 1 through 4 that will perform corresponding actions. The code is now organized into methods that perform each of these actions.

Main script

The section of this program that actually runs the script is the main body of the script. My favourite part of utilising classes and functions is the most obvious here: under the While True loop, each of the menu choice statements have a concise function that will do exactly what the last program did, just in way fewer codes. Because the bulk of the legwork was done earlier in the class definitions, the main body of the script can now be simplified and much less overwhelming for users who want to look under the hood.

Conclusion

In this assignment we have learned to reorganize our previous assignment by using classes and functions. I really enjoyed this method of writing code where it is sectioned into different “concerns”, or specific functionality of the program. Having the program organized in this manner made it much easier to debug and find different pieces of logic.