Katie Debetaz

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Foundations of Programming: Python

https://github.com/kdebetaz/IntroToProg-Python-Mod06

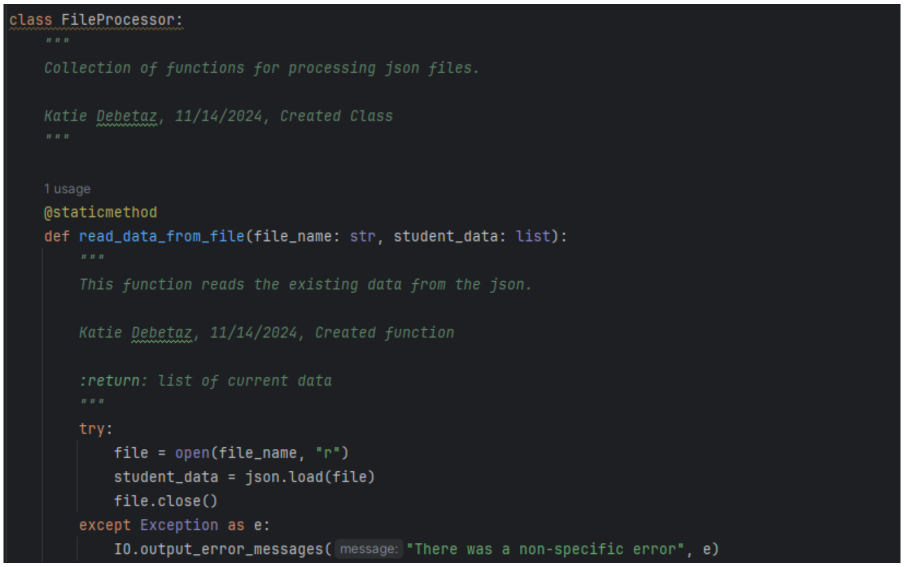
Assignment 06: Functions

Introduction

In this assignment, I enhanced my program from Assignment 5 by adding classes and functions. These additions make the code more functional and well organized. This document outlines the exact steps I took to implement these changes. I will also give details about what each of the functions do and the error handling that is present.

File Processor Class

The first class I implemented was the File Processor class as shown in Figure 1. This section of the code accounts for the interaction with the json files. It contains a function that reads the existing data as well as a function that writes the new data to the json file. I also made sure to include descriptive document strings for the class and both functions to make the purpose of each part clear. Each function also includes error handling for reading and writing to the files.

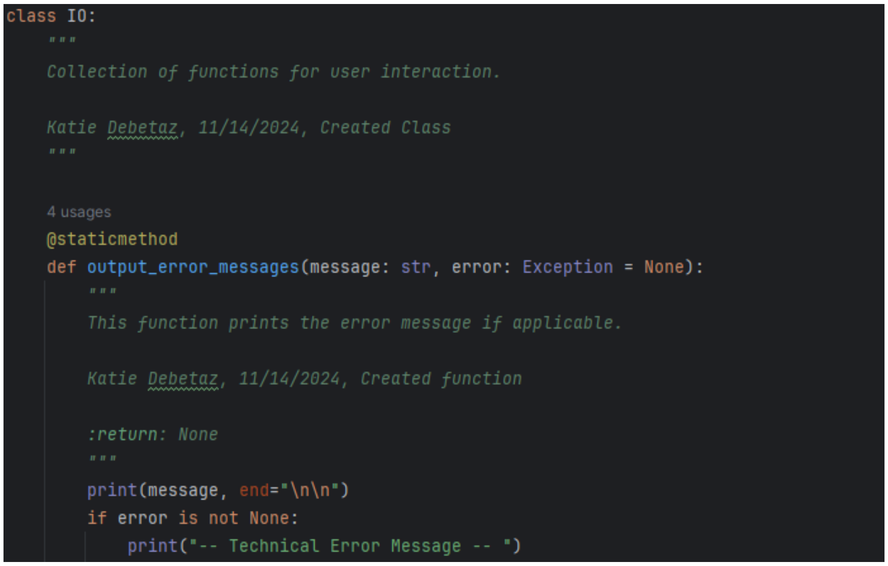


```
class FileProcessor:
    """
    Collection of functions for processing json files.

    Katie Debetaz, 11/14/2024, Created Class
    """

    1 usage
    @staticmethod
    def read_data_from_file(file_name: str, student_data: list):
        """
        This function reads the existing data from the json.

        Katie Debetaz, 11/14/2024, Created function

        :return: list of current data
        """
        try:
            file = open(file_name, "r")
            student_data = json.load(file)
            file.close()
        except Exception as e:
            IO.output_error_messages( message: "There was a non-specific error", e)
```

Figure 1. Class File Processor

IO Class

The second class I created was the IO class which is shown in Figure 2. This class contains functions that are utilized depending on the menu choice selected by the user as well as a function that outputs error messages. Similarly to the File Processor class, this class also includes descriptive document strings. There is also error handling for user input which refers to the output error messages functions to present the issue to the user.



```
class IO:
    """
    Collection of functions for user interaction.

    Katie Debetaz, 11/14/2024, Created Class
    """

    4 usages
    @staticmethod
    def output_error_messages(message: str, error: Exception = None):
        """
        This function prints the error message if applicable.

        Katie Debetaz, 11/14/2024, Created function

        :return: None
        """
        print(message, end="\n\n")
        if error is not None:
            print("-- Technical Error Message -- ")
```

Figure 2. Class IO

Summary

This assignment demonstrates the addition of classes and functions to the program. The classes and functions allow the code to be split up into sections that allow for better readability as well as making it easier to add new components.