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Course: IT FDN 110 B

Assignment 6 – Functions

Introduction

For this assignment, we continued to create a menu of items for a student in which they could enroll in a course, show enrollment data, save the enrollment data to a .json file, or quit the program. Similar to last week, the information input by the student was saved to a dictionary with “FirstName”, “LastName”, and “CourseName” as the keys and their respective inputs as the values.

Discussion

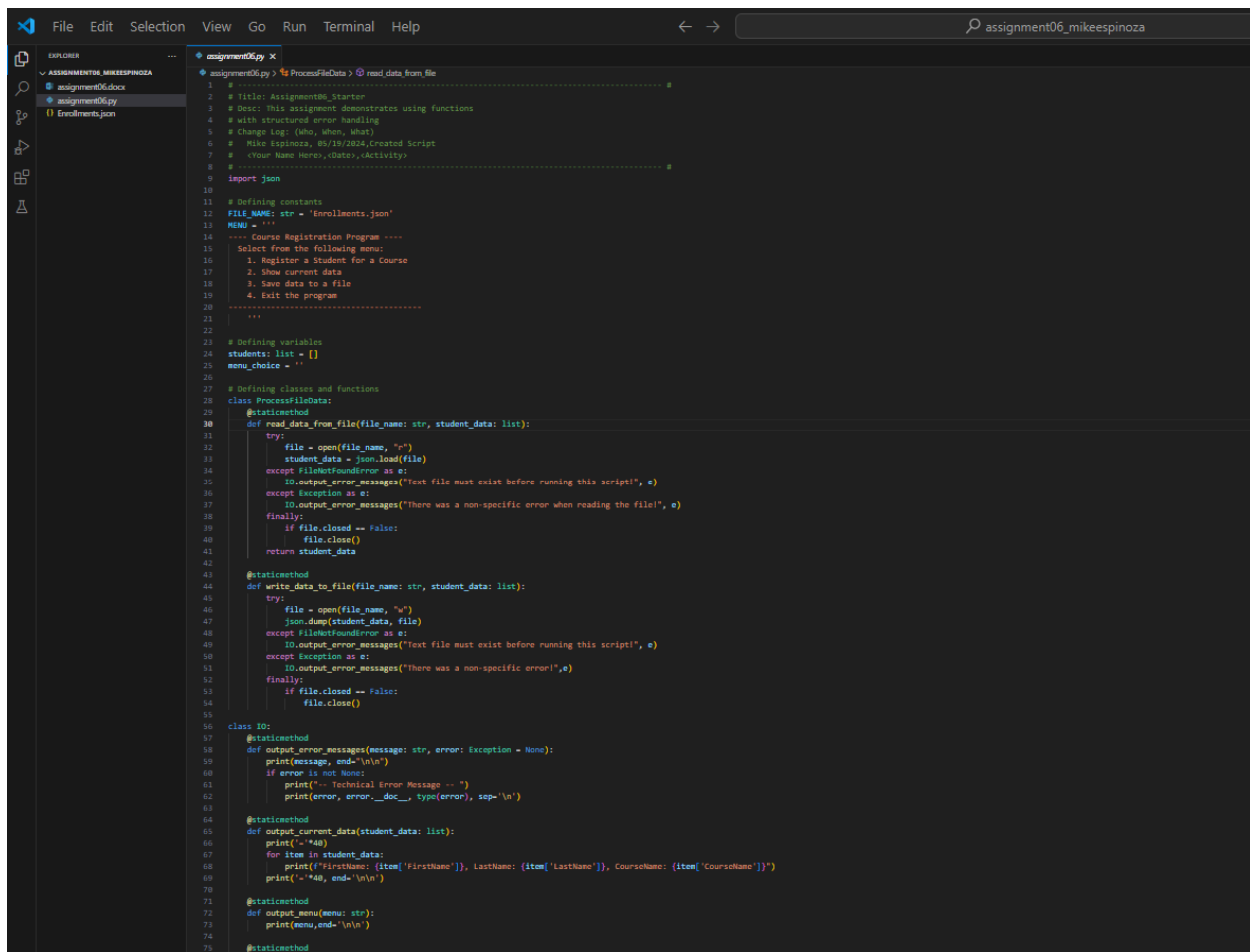
In class we discussed .json files, key values for dictionaries, and classes. The key value discussion was very interesting and helped develop additional skillsets when using dictionaries. Learning about classes also helped condense the code and organize in a way that is likely more readable to the user. We also continued to use error handling which I believe I was able to correctly implement this time around.

Script Overview and Output

An example of the script I generated in Visual Studios is shown in Figure 1. The code was organized such that the variables and constants were defined at the top of the script, followed by classes and functions, and then the logical statements that provided the menu to the student.

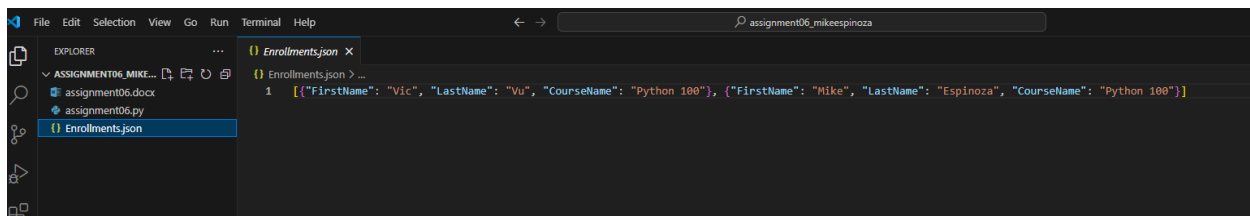
I also created a new repository and have saved my script to the repository below:

<https://github.com/emike9852/IntroToProg-Python-Mod06.git>



```
1 # ProcessFileData > read data from file
2 # Title: Assignment06_starter
3 # Desc: This assignment demonstrates using functions
4 # with structured error handling
5 # Change log: (who, when, what)
6 # Mike Espinoza, 05/19/2024, Created Script
7 # <Your Name Here>, <Date>, <Activity>
8 #
9 import json
10
11 # Defining constants
12 FILE_NAME = str = 'Enrollments.json'
13 MENU = """
14 ---- Course Registration Program ----
15 Select from the following menu:
16 1. Register a Student for a Course
17 2. Show current data
18 3. Save data to a file
19 4. Exit the program
20 .....
21 """
22
23 # Defining variables
24 students: list = []
25 menu_choice = ""
26
27 # Defining classes and functions
28 class ProcessFileData:
29     @staticmethod
30     def read_data_from_file(file_name: str, student_data: list):
31         try:
32             file = open(file_name, "r")
33             student_data = json.load(file)
34         except FileNotFoundError as e:
35             ID.output_error_messages("Text file must exist before running this script!", e)
36         except Exception as e:
37             ID.output_error_messages("There was a non-specific error when reading the file!", e)
38         finally:
39             if file.closed == False:
40                 file.close()
41         return student_data
42
43     @staticmethod
44     def write_data_to_file(file_name: str, student_data: list):
45         try:
46             file = open(file_name, "w")
47             json.dump(student_data, file)
48         except FileNotFoundError as e:
49             ID.output_error_messages("Text file must exist before running this script!", e)
50         except Exception as e:
51             ID.output_error_messages("There was a non-specific error!", e)
52         finally:
53             if file.closed == False:
54                 file.close()
55
56 class ID:
57     @staticmethod
58     def output_error_messages(message: str, error: Exception = None):
59         print(message, end="\n\n")
60         if error is not None:
61             print("-- Technical Error Message --")
62             print(error, error.__doc__, type(error), sep='\n')
63
64     @staticmethod
65     def output_current_data(student_data: list):
66         print("\n\n")
67         for item in student_data:
68             print(f"First Name: {item['FirstName']}, Last Name: {item['LastName']}, Course Name: {item['CourseName']}")
69         print("\n\n")
70
71     @staticmethod
72     def output_menu(menu: str):
73         print(menu, end="\n\n")
74
75     @staticmethod
```

Figure 1 – Script using Visual Studios.



```
{
  "Enrollments": [
    {
      "FirstName": "Vic",
      "LastName": "Vu",
      "CourseName": "Python 100"
    },
    {
      "FirstName": "Mike",
      "LastName": "Espinoza",
      "CourseName": "Python 100"
    }
  ]
}
```

Figure 2 – Example .json File if Menu Item “3” was selected.

Summary

This assignment very challenging at first but after watching the demos and revisiting my notes from class I believe I was finally able to code it properly. I’ve really enjoyed working with dictionaries as they seem like a powerful tool in Python. Error handling is still difficult for me to format properly at first, but I believe I was able to implement it correctly for this assignment.