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Course: IT FDN 110 A

Assignment 05 – Creating a program that uses of data processing using dictionaries and exception handling

Introduction

Writing this Python program was an enlightening experience, as it involved applying various key programming concepts, including variables, constants, data structures, exception handling, and file manipulation. The main objective of this assignment was to create a course registration system that can handle user inputs, store data in a dictionary, and interact with a CSV file to save and retrieve student information.

Process of writing the code

The first challenge in writing the program was managing the flow of the user's input and ensuring the data was appropriately captured. It was challenging to ensure changing the whole code from the format of developing a list to the format of developing dictionaries. Revising simple and detailed things in the code made me understand how the code differs depending on whether I want to create a program using lists or creating a program that uses dictionaries.

1st error encouterd is present in Figure (1), where I have added a space between:

File: TextIO

So, the python was unable to define it. Therefore, I used python's error fix options to provide me with solutions.

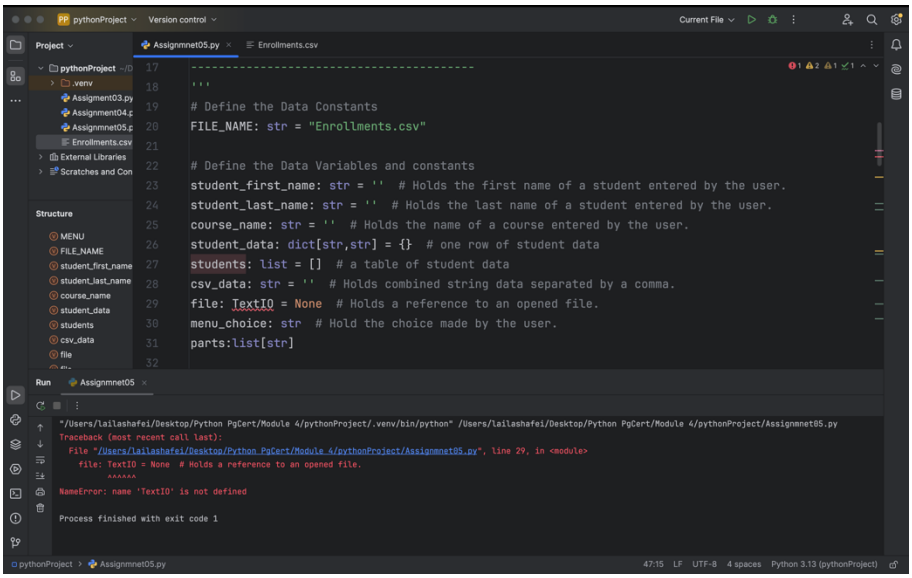

Figure 1. First Error

Second error where present in Figure (2), as I had to transform the code from:

print(f"Student {student[0]} {student[1]} is enrolled in {student[2]}")

to

print(f"Student {student[‘first_name]}, {student[‘last_name]} is enrolled in {student[‘course_name’]}")

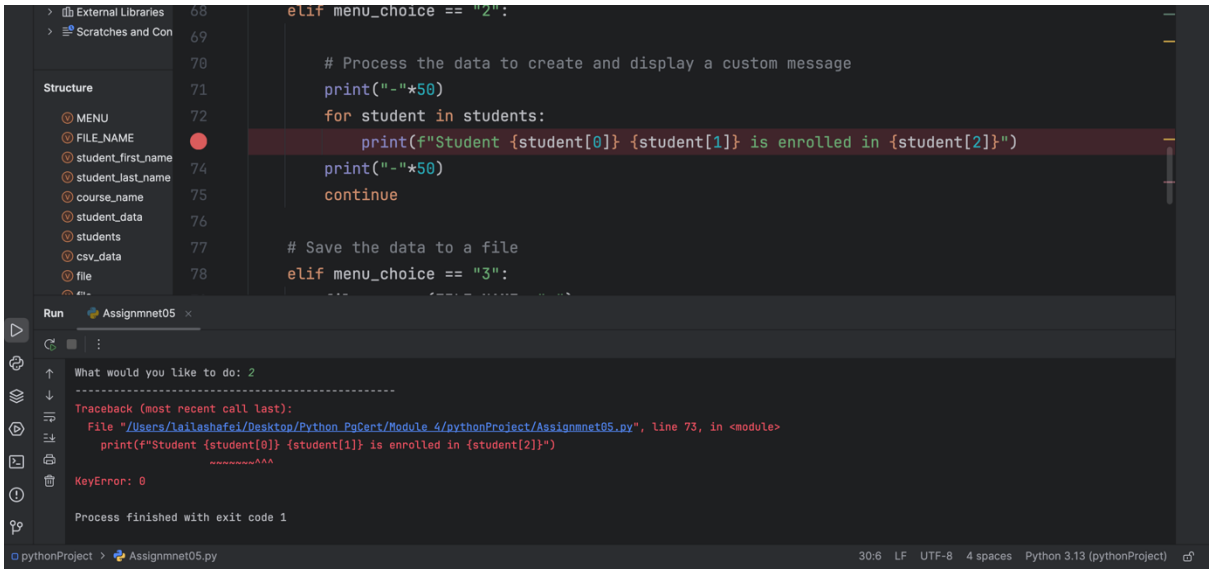

Figure 2. Second error

In Figure (3), fixed version

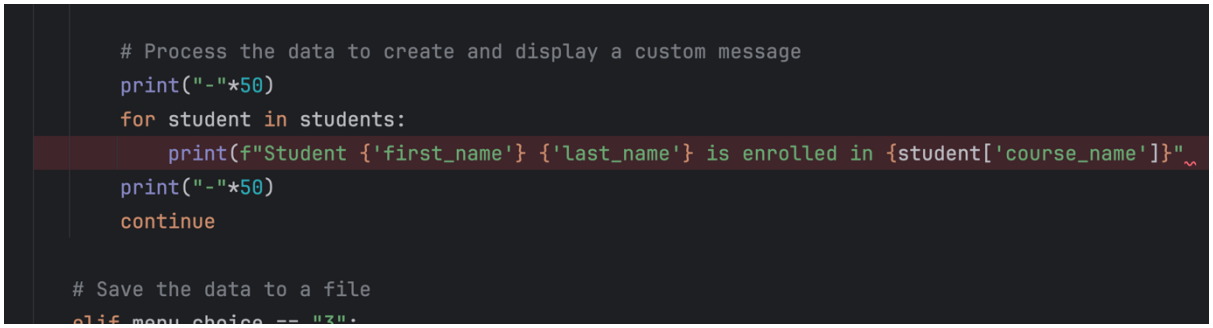

Figure 3. Fixed version of error 2

Upon running the code again, the python identified another error, due to not changing the code to use the dictionary not using a list. The identified error is present in the Figure (4).

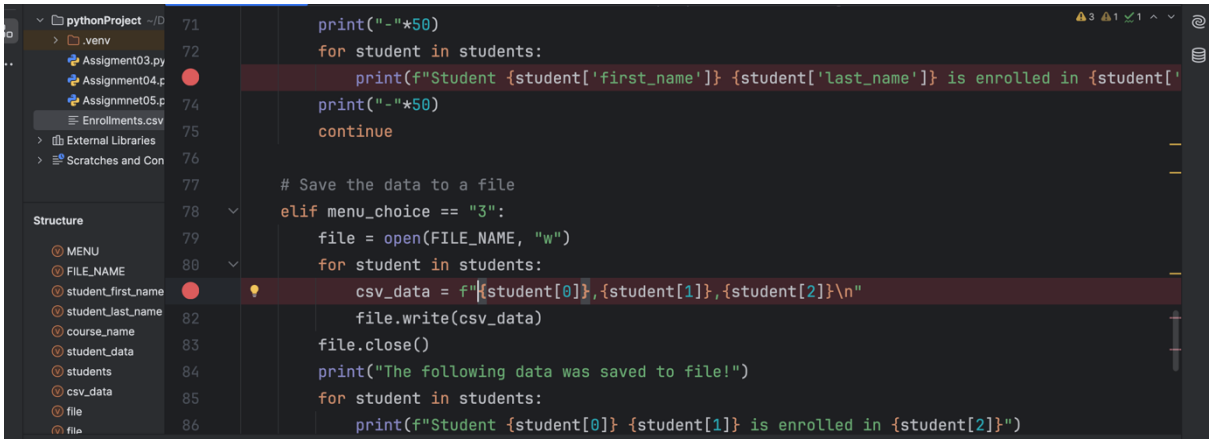

Figure 4. Fourth Error

In Figure (5), is a display of the code running with all errors resolved.

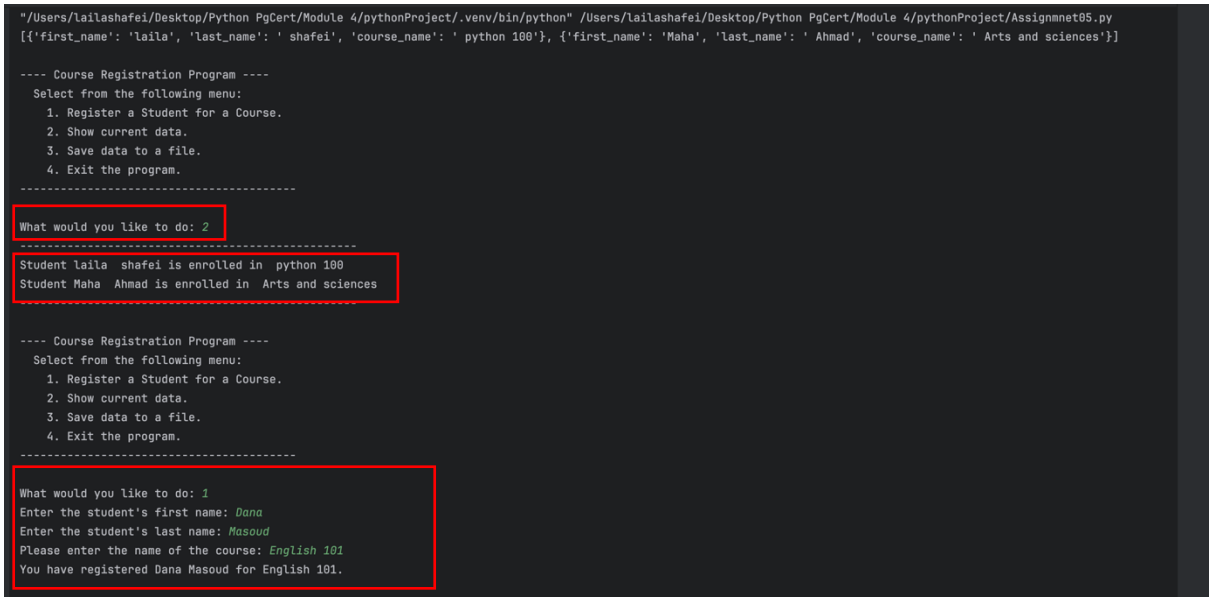

Figure 5. Code running perfectly!

Reading and writing data to a file was another essential aspect of this assignment. Using the `csv` module, I was able to load the data from an existing CSV file and display it on the screen. I also implemented functionality to write the newly entered data back into the file. One challenge I encountered was ensuring that the format of the data was consistent in both the reading and writing phases. After reading the data from the file, I made sure it was processed as dictionaries, so the program could easily work with it and later store it back in the CSV file in the correct format.Additionally, implementing a simple menu system and allowing the user to choose between multiple options (register a student, show data, save data, or exit) was an important task. I had to ensure that the program would continue running in a loop until the user chose to exit, and that each option would lead to the appropriate functionality. The program's flow needed to be intuitive for the user, which required attention to detail in designing the menu and handling the user's choices.

Summary

In conclusion, this assignment provided a valuable learning experience in using Python for practical data processing tasks. By utilizing dictionaries, lists, and exception handling, I was able to create a functional course registration system that interacted with a CSV file to store and retrieve student data. The program handles user input, validates the data, displays it correctly, and allows the user to save new registrations. The most important takeaway from this assignment is the importance of error handling, data validation, and maintaining clear code structure when working with real-world applications. Through this experience, I enhanced my programming skills and gained a deeper understanding of how to manage and manipulate data effectively using Python.