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Course: Foundations of Programming: Python (IT FDN 110 A Wi 25)
GitHub Link: https://github.com/zeller-a/IntroToProg-Python-Mod07

Assignment 07 – Classes and Objects

Introduction
One of the primary goals of this week's assignment is to learn about using classes to manage data. We also covered adding data classes.

In preparation for Assignment 07 "Classes and Objects" I read and watched the module text and videos, writing notes along the way answering the "questions to consider" while working on the assignment. We created a link to the repository and knowledge document and in the GitHub forum.

Constants and Variables
The constants defined were: The constant **MENU: str** is set to the value:

> ---- Course Registration Program ----
>   Select from the following menu:
>   1. Register a Student for a Course
>   2. Show current data
>   3. Save data to a file
>   4. Exit the program

The constant **FILE_NAME: str** is set to the value "Enrollments.json"

The variables (all set as string variables) included: **student_first_name: str** is set to empty string, **student_last_name: str** is set to empty string, **course_name: str** is set to empty string, **json_data: str** is set to empty string, **menu_choice: str** is set to empty string, **students: list** is set to empty list.

These expressed variables are to be provided by the user.

Four classes are created: FileProcessor, IO, Person, and Student.

Functions and Processing
All functions include descriptive document strings and the @staticmethod decorator. All functions that include except blocks that calls to the function handling error messages. The program includes the following functions with the following names and parameters: output_error_messages(message: str, error: Exception = None), output_menu(menu: str), input_menu_choice(), output_student_courses(student_data: list), input_student_data(student_data: list), read_data_from_file(file_name: str, student_data: list), and write_data_to_file(file_name: str, student_data: list).

Input / Output:
On menu choice 2 the program prompts the user to enter the student's first and last name, followed by the course name, using the input() function. Data collected for menu choice 2 is added to a two-dimensional list table (list of Student objects). All data in the list is displayed when menu choice 1 "Show Current Data" is used.

Processing

On menu choice 3, the program opens a file named "Enrollments.json" in write mode using the open() function. It writes the content of the students variable to the file using the dump() function, then file is closed using the close() method. Then displays what was stored in the file. Menu choice 4 ends the program.

Summary

New implementations in this assignment were creating classes.