T.J. Tharp

May 15th, 2023

IT FDN 110 A Sp 23: Foundations Of Programming: Python

Assignment 06

github repo: https://github.com/Tadlol/IntroToProg-Python-Mod06

Implementing Functions to Complete a Code

Intro

With the provided starter code that was designed with Separation of Concerns (SoC), I completed the function blocks that were started to enable the code to run without errors. The code utilizes classes, functions, loops and if statements to interact with the user and run correctly.

Separation of Concerns

Separation of Concerns (SoC) is a great design principle for organizing you code into distinct sections. SoC allows the developer to split the code that does the processing from the code that interacts with the user. An efficient way to enable coding with SoC is by using functions. The starter code was split up into four distinct sections: Data, Processing, Input/Output (I/O), and the Main Body of Script. I had to read and interpret the data section as well as the main body of the script to determine the intent of each processing and I/O function before I could move forward with finishing the functions and overall code. (Fig. 1)

```
# Main Body of Script  ------------------------------------------------------ #


# Step 1 - When the program starts, Load data from ToDoFile.txt.
Processor.read_data_from_file(_file_name=file_name_str, list_of_rows=table_lst)  # read file data

# Step 2 - Display a menu of choices to the user
while (True):
    # Step 3 Show current data
    IO.output_current_tasks_in_list(list_of_rows=table_lst)  # Show current data in the list/table
    IO.output_menu_tasks()  # Shows menu
    choice_str = IO.input_menu_choice()  # Get menu option

    # Step 4 - Process user's menu choice
    if choice_str.strip() == '1':  # Add a new Task
        task, priority = IO.input_new_task_and_priority()
        table_lst = Processor.add_data_to_list(task=task, priority=priority, list_of_rows=table_lst)
        continue  # to show the menu

    elif choice_str == '2':  # Remove an existing Task
        task = IO.input_task_to_remove()
        table_lst = Processor.remove_data_from_list(task=task, list_of_rows=table_lst)
        continue  # to show the menu

    elif choice_str == '3':  # Save Data to File
        table_lst = Processor .write_data_to_file(file_name=file_name_str, list_of_rows=table_lst)
        print("Data Saved!")
        continue  # to show the menu

    elif choice_str == '4':  # Exit Program
        print("Goodbye!")
        break  # by exiting loop
```

Figure 1: Main Body of Starter Script

T.J. Tharp

May 15th, 2023

IT FDN 110 A Sp 23: Foundations Of Programming: Python

Assignment 06

github repo: https://github.com/Tadlol/IntroToProg-Python-Mod06

Functions

Functions are a collection of statements that when grouped together complete a task defined by the developer. Defining functions allows the developer to use the functions repeatedly and in various scenarios without needing to retype the function for each scenario. A great example of this is when I used the codes “write_data_to_file” function to not only save the user’s data when they choose to via option ‘3’ but also when they choose to exit the program via option ‘4’. The user will be asked if they saved their data yet or not with my additional “save_state” function and depending on their answer the file will be saved again before the program exits. (Fig. 3)

```
elif choice_str == '4':  # Exit Program
    state = IO.save_state()  # Confirms Save state
    if state.lower() == "n":
        table_lst = Processor.write_data_to_file(file_obj=file_name_str)  # Saves data
        print("Data saved, Goodbye!")
        break  # Exits program by exiting loop
    elif state.lower() == "y":
        print("Goodbye!")
        break  # Exits program by exiting loop
```

Figure 3: Code to check save state with user

Summary

The starter file was well put together and it allowed me to easily interpret the original developer’s intent for the code. I was able to adjust the existing functions parameters to meet the parameters of “Main Body of Script” as it was written. I then completed the functions so they would process the data correctly based on the user’s menu selection. Finally I added an additional custom function that check’s with the user on the save state of the data. I added and error check at the start of the program that checks if a file exists to read and if one does not exist then it creates the empty file. My code has been tested and ran in both CMD (Fig. 4) and PyCharm (Fig. 5).

```
C:\_PythonClass\Module06- Functions\Module06- Functions\Assignment>python Assignment06.py
******* The current tasks ToDo are: *******
school work (high)
*******************************************


      Menu of Options
      1) Add a new Task
      2) Remove an existing Task
      3) Save Data to File
      4) Exit Program


Which option would you like to perform? [1 to 4] - 1

Enter a new task: chores
Enter chores's priority:low
******* The current tasks ToDo are: *******
school work (high)
chores (low)
*******************************************


      Menu of Options
      1) Add a new Task
      2) Remove an existing Task
      3) Save Data to File
      4) Exit Program


Which option would you like to perform? [1 to 4] - 2

What task would you like to remove? chores
******* The current tasks ToDo are: *******
school work (high)
*******************************************


      Menu of Options
      1) Add a new Task
      2) Remove an existing Task
      3) Save Data to File
      4) Exit Program


Which option would you like to perform? [1 to 4] - 3

Data Saved!
******* The current tasks ToDo are: *******
school work (high)
*******************************************


      Menu of Options
      1) Add a new Task
      2) Remove an existing Task
      3) Save Data to File
      4) Exit Program


Which option would you like to perform? [1 to 4] - 4

Did you save the list already? (y/n): y
Goodbye!
```

Figure 4: Code Running In CMD

T.J. Tharp

May 15th, 2023

IT FDN 110 A Sp 23: Foundations Of Programming: Python

Assignment 06

github repo: https://github.com/Tadlol/IntroToProg-Python-Mod06

```
C:\Python\Python311\python.exe "C:\_PythonClass\Module06- Functions\Module06- Functions\Assignment\Assignment06.py"
******* The current tasks ToDo are: *******
school work (high)
*********************************************


        Menu of Options
        1) Add a new Task
        2) Remove an existing Task
        3) Save Data to File
        4) Exit Program


Which option would you like to perform? [1 to 4] - 1

Enter a new task: dance
Enter dance's priority:low
******* The current tasks ToDo are: *******
school work (high)
dance (low)
*********************************************


        Menu of Options
        1) Add a new Task
        2) Remove an existing Task
        3) Save Data to File
        4) Exit Program


Which option would you like to perform? [1 to 4] - 2

What task would you like to remove? school work
******* The current tasks ToDo are: *******
dance (low)
*********************************************


        Menu of Options
        1) Add a new Task
        2) Remove an existing Task
        3) Save Data to File
        4) Exit Program


Which option would you like to perform? [1 to 4] - 3

Data Saved!
******* The current tasks ToDo are: *******
dance (low)
*********************************************


        Menu of Options
        1) Add a new Task
        2) Remove an existing Task
        3) Save Data to File
        4) Exit Program


Which option would you like to perform? [1 to 4] - 4

Did you save the list already? (y/n): n
Data saved, Goodbye!
```

Figure 5: Code Running In PyCharm