Gurinder Pabla

Aug. 16, 2023

Foundations of Programming: Python

Assignment 06

https://github.com/gurindersp/IntroToProg-Python-Mod06
https://gurindersp.github.io/IntroToProg-Python-Mod06/

Functions and Debugging

Introduction

In this module, we tackled an advanced topic in the form of functions and debugging. By using functions, it allows for your script to be more organized as it serves to group one or more statements. This organization makes using the Separation of Concerns method very easy and efficient. In addition, Python does not execute the function until it is explicitly called for. The other topic that was covered was getting accustomed to the debugging tools provided within the IDE. This prepares us for a situation where our code is not working and how to precisely break apart the lines to discover the bug. In the end, our understanding of the material was tested via the task of completing a script template that would allow for a user to execute options displayed within a menu.

Functions and PyCharm Debugger

Functions are method available in Python that allows the user to group multiple statements into one setting. When a script is run, the program will load the function into the background, but it will not execute the function until the function is called in the script. By doing this, one can more easily divide their own code into the processing and presentation sections. We also briefly touched upon classes, but they are useful themselves as, "A class is a user-defined blueprint or prototype from which objects are created. Classes provide a means of bundling data and functionality together" (**https://www.geeksforgeeks.org/python-classes-and-objects/#**, 2023) (External Site). A vital aspect of coding is knowing how to efficiently resolve any bugs that appear during the creating of the script. PyCharm has its own tool known as the PyCharm Debugger which provides the options to break down the script line by line.

Module 6 Script Assignment

This week's assignment was decently like last week's assignment, but the key difference lay in the set-up of the script template. This time, we worked mainly with classes and functions, which made reading the script in the beginning a bit complicated since it was my first time seeing this format. I started this assignment by creating a ToDoFile.txt so that the script can read the data within it. Next, I added in code so that the function to add data, the function to remove data, and the function to save data would be effective. This was within the processing class, the next step was to complete the presentation class, which would take in the inputs from the user. After successfully completing the script, I ran the data within PyCharm and the Terminal, with the results displayed in Figures 1-3 and Figures 4-6, respectively.

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Summary

By the end of this module, we learned two essential concepts within coding, writing functions and learning debugging procedures. Functions serve to clean up your script by bringing multiple statements into one location. Next, by learning the correct debugging procedures, it allows for quick and efficient troubleshooting of your own script. In this case, we looked specifically at what PyCharm had to offer with its own Debugger and by practicing it frequently, it will allow is to get accustomed to the method that much quicker. These are topics that will follow along with us far into our coding journey.

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```
/usr/local/bin/python3.11 /Users/gurinderpabla/Documents/_PythonClass/Assignment06/Assigment06_Starter.py
******* The current tasks ToDo are: *******
Homework (5)
Chores (3)
******************************************


        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

Please define a task: Nap
Please assign a priority: 1
******* The current tasks ToDo are: *******
Homework (5)
Chores (3)
Nap (1)
******************************************


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

Figure 1: Script on PyCharm

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

Which task would you like to remove:Chores
Task has been removed.

******* The current tasks ToDo are: *******
Homework (5)
Nap (1)
******************************************


        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: *******
Homework (5)
Nap (1)
******************************************
```

Figure 2: Script on PyCharm

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```
"""""""""""""""""""""""""""""""""""""""""""""""""

        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

Goodbye!

Process finished with exit code 0
|
```

Figure 3: Script on PyCharm

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```
(base) Gurinders-MacBook-Pro-2:Assignment06 gurinderpabla$ python3 Assigment06_Starter.py
******* The current tasks ToDo are: *******
Homework (5)
Chores (3)
******************************************

        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

Please define a task: Nap
Please assign a priority: 1
******* The current tasks ToDo are: *******
Homework (5)
Chores (3)
Nap (1)
******************************************

        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

Which task would you like to remove:Chores
Task has been removed.

******* The current tasks ToDo are: *******
Homework (5)
Nap (1)
******************************************
```

Figure 4: Script on Terminal

```
        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: *******
Homework (5)
Nap (1)
******************************************

        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

Goodbye!
(base) Gurinders-MacBook-Pro-2:Assignment06 gurinderpabla$
```

Figure 5: Script on Terminal

```
ToDoFile.txt
Homework,5
Nap,1
```

Figure 6: Result of Script