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Foundations of Programming: Python

Assignment05

Working with dictionaries and files

# Introduction

In this write-up, I will be discussing how I created a Python Script that asks a user to input one of five different options to fulfill a task. The options are to view an existing file, add to the file, delete from the file, save what you added to the file, and end the script. The script in this assignment uses the dictionaries, lists, and while/if/for loops to create a working program that solves this task.

# Working with files

An important part of this assignment was learning to use existing files in a script. This is important because if you close a command where you have input data, that data will be lost if you close the command without saving. A text file provides a location for this data to be saved to, and later retrieved. To learn this, I created the following script in an exercise that stores list data in a file.

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***Figure 1. Learning to store list data in a file. LAB 5-1***

Figure 1 shows the script I created to learn to store data within a file. I used information on lists learned in Assignment04 to enter data into an existing text file using “w” and .write to write text into the file. I then used “r” to read the file I had just created.

# Learning how to create and use dictionaries

A vital concept in this assignment is how to create a dictionary of values. Dictionaries are like lists and tuples, in that they can store data; however, dictionaries use a key to call data. This allows it to be human readable. To create a dictionary, it is much like creating a tuple; however, the identifying feature of a list is to use braces instead of parentheses or brackets. To learn this, I ran the following script.

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***Figure 2. Learning to create and work with a dictionary. LAB 5-2***

Figure 2 shows a script, much like for LAB 5-1, except that I use dictionaries instead of lists. Dictionaries have a set format that assigns each item an identifying key. This allows the user to later call the key rather than calling a number like with lists.

# Creating a script that works with existing files and dictionaries to make an interactive menu

For this assignment, I used dictionaries and existing files in combination with while loops, for loops, and if statements. I began by opening and reading the existing text file with data in it and creating dictionaries out of each row of data. For the data in the text file, I assigned items needing to be done as a Task, and the level of importance as the Priority. Next, I used a while loop to allow the user to see the menu of five options, and it would loop back and display this menu each time the user entered an option and completed the if statement associated with it. If the user entered “1”, the script would display the contents of the text file for the user to see. If the user then chooses option “2”, they are prompted to enter a task and priority to add to the existing list. If the user chooses option “3” the script prints the contents of the file and the number of each dictionary row of data using .index to find the row number. They are asked which row of data they want to delete. The user can enter any row number to delete that row. Next, if the user enters “4”, the script saves any addition the user added to the script in option “2” by using the open function and the “w” option to write to the file. Finally, if the user enters “5”, the while loop breaks, ending the script.

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***Figure 3. Code for this assignment***

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***Figure 4. Code for this assignment cont.***

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***Figure 5. Successfully funning my script***

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***Figure 6. Successfully funning my script cont.***

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***Figure 7. Successfully funning my script cont.***

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***Figure 8. Testing my code in the terminal***

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***Figure 9. Testing my code in the terminal cont.***

Figures 1, 2, 3, 4, 5, 6, 7, 8, and 9 show my code take user input data to interact with the menu and work with an existing script. These images show the code running in PyCharm and the terminal, and the script working.

# Summary

This assignment was fairly difficult as it had several different sections that needed attention. The notes provided by Professor Root gave good examples of how to create and use dictionaries, files that already have data, and while loops/for loops/if statements. This allowed for me to apply what I learned from his notes and combine it with material I learned from previous assignments to complete this assignment.

Link to repository: https://github.com/Brenden1354/IntroToProg-Python