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Foundations of Programming: Python

Assignment 06

CD Inventory (Functions)

# Introduction

This is a simple script of how to modify the sample script as required to add “function” in the script. There are a lot of “TODOs” that need to be done. Use “Function” to do things for data adding/deleting/processing.

I studied the Module\_06 materials and tried to understand how “functions” works and make the scripts. According to the sample script of Assignment06\_Starter, we can do some modifications on this script to achieve the goal.

# Explanation of the script

We would like to use Functions, which are a way of grouping statements and making this group available via a programmer defined name. We have 3 groups of classes: 1) Data Processor (Figure 1), 2) File Processor (Figure 2), and 3) Input and Output (IO) (Figure 3). In Data Processor, we can add files or delete data. In File Processor, we can read data from or save the data to text file. In IO, we can show the menu, ask user to select what to do, or ask user to input CD data.

Text

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Figure 1 - Data Processor

Graphical user interface, text, chat or text message, website

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Figure 2 - File Processor

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Figure 3 - IO

Here we explain some scripts in detail.

* For “add\_file” function, First I defined “CDInput” function to return 3 values every time we call this function (Figure 4). I stored these values to D1, D2, and D3 (Figure 5), then use “add\_file” function to process the data. (Figure 6)

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Figure 4 – CDInput function for data input

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Figure 5 - Data in D1,D2,and D3 when user chooses ‘a’

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Figure 6 - 'add\_file' function

* We can call “delete\_file” function when user input ’d’ (Figure 7). Use “del” to delete the row with ID value which matched our input (Figure 8). Now, we have a new 2D-table for the data we input. Then, return this new 2D-table.

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Figure 7 - Delete data when user input 'd'

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Figure 8 -- 'delete\_file' function

* For “write\_file” function, we can save the stored data to the text file. Every time we call this function (Figure 9), it will open the text file and write the data to it. (Figure 10)

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Figure 9 - Save data when user input 's'

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Figure 10- 'write\_file' function

* If we want to load the data from text file. We can call “read\_file” function. Use “for-loop” to read the text file row by row (Figure 11), then save them into dictionaries. “Read\_file” function aim to achieve the goal of reading (Figure 12).

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Figure 11 - Load data when user input 'l' and for-loop

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Figure 12 - 'read\_file' function

* Use “show\_inventory” function to display the data which stored in memory (Figure 13)

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Figure 13 - 'show inventory' function

# Save your script

File path of my script is C:\\_FDP\Assignment06\CDInventory.py (Figure 14)

**A screenshot of a computer

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Figure 14 - File path

# Run your script/Verify correct functioning

I used Spyder to run this script first. I planned to enter 2 CD datasets (Figure 15). First, I input ‘a’ for data input then input ‘i’ to display. CD data stored perfectly, and we can see the display result. (Figure 16)



Figure 15 - 2 datasets

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Figure 16 - Display the data

Enter ‘s’ to save data to txt file and open txt file to confirm. (Figure 17 & 18)

A screenshot of a computer

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Figure 17 - Input 's'

Text

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Figure 18 - Data stored in txt file

Load data from the txt file. (Figure 19)

Text

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Figure 19 - Load data from text file

Delete an entry. I entered “d” to select delete function and entered “5”, which means dataset with ID==5 is what we want to delete. (Figure 20)

Graphical user interface, text

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Figure 20 - Delete an entry

Use ‘i’ to display the result again. The row with ID==5 has been deleted.

Text

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Figure 21 - Display the result after deleting an entry

# Run your script (Terminal Window)

I used Anaconda Prompt to run the scripts again with different data input. I added the data as follows. (Figure 22 & 23)

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Figure 22 - Add data (1)

Text

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Figure 23 - Add data (2)

Display the data (Figure 24):

Text

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Figure 24 - Display the data (Anaconda Prompt)

Save the data to txt file (Figure 25) and text file result (Figure 26):

Text

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Figure 25 - Save the data (Anaconda Prompt)

Text

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Figure 26 - Result in text file (Anaconda Prompt)

Load the data from txt file (Figure 27):

Text

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Figure 27 - Load result from text file (Anaconda Prompt)

Delete CD ID number “1” then display it: (Figure 28)

Text

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Figure 28 - Delete and the result (Anaconda Prompt)

The scripts work perfectly!

# GitHub link for Assignment

[chhsieh0630/Assignment\_06: IT FDN 110 B Wi 22: Foundations Of Programming: Python (github.com)](https://github.com/chhsieh0630/Assignment_06)

# Summary

In this assignment, I learned how to add functions to the scripts. The difficulties are telling the differences of variables. The variable used in main body could be different from which used in functions. We put our data into the function to process, then return a value. We use main body to call the functions only, so it makes the main script body clean and tidy. This is a very good practice for me in the future to handle data such as this.