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Foundations of Programming: Python

Assignment 05

CD Inventory (Dictionaries)

# Introduction

This is a simple script of how to modify the sample script as required to replace the inner data structure by dictionaries, also add functionality of loading and deleting data. Everything needs to be done under a list of dictionaries as 2D table.

I studied the Module\_05 materials and tried to understand how “dictionaries” works and make the scripts. According to the sample script of CDInventory\_Starter, we can do some modifications on this script to achieve the goal.

# Explanation of the script

We are going to: 1) Replace the inner data structure by dictionaries and 2) Add loading and deleting function. Let us start from changing data structure.

Here we explain some scripts in detail.

* First, I started from changing the Add function. I used “dicRow” to store the user input data, as dictionaries form. Then I used .append() to add more dataset if user wants to (i.e. keep choosing ‘a’)

(Figure 1). So, we have a 2D table “lstTbl”

Text

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Figure - 'Add' function

* Second, I modified Display function. Only value in dictionaries is necessary here, so I used .value() to get the value data and printed them out. (Figure 2)

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Figure 2 – ‘Display’ function

* Third, I saved this 2D table “lstTbl” to txt file “CDInventory.txt”. I tried to save the inventory data only without the header (ID,Title,Artist). I used “strRow” to store the value in the 2D table and wrote the data into txt file. (Figure 3)

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Figure 3 – ‘Save’ function

* Ready to start testing the Loading function. I opened the strFileName = 'CDInventory.txt' and read the data from the txt file row by row. Strip() and Split() could convert each row data (string type) to a list. I put the list data into a dictionaries structure “dicRow”, then used “lstTbldisp” to store a list of dictionaries as 2D table. (Figure 4)

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Figure 4 – ‘Load’ function

* Last, the plan is to delete the row if I entered CD ID number. If the ID number matches our input number “delChoice”, then .remove() function can remove this row from “lstTbl”. (Figure 5)

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Figure 5 – ‘Delete’ function

# Save your script

File path of my script is C:\\_FDP\Assignment05\CDInventory.py (Figure 6)

Graphical user interface, application

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Figure 6 - File path

# Run your script

I used Spyder to run this script first. I planned to enter 2 CD dataset (Figure 7). First, I input ‘a’ for data input, then input ‘i’ to display. CD data stored perfectly, and we can see the display result.

Text

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Figure 7 – Display result

Input ‘s’ to save data to txt file and open txt file to confirm. (Figure 8)

Text

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Figure 8 – The result in text file

Load data from the txt file. (Figure 9)

Text

Description automatically generated

Figure 9 – Load result from text file

Delete an entry. I entered “d” to select delete function and entered “4”, which means dataset with ID==4 is what we want to delete. And it works! (Figure 10)

Text

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Figure 10 - 'Delete' ID=4 and the result

# Run your script (Terminal Window)

I used Anaconda Prompt to run the scripts again with different data input. Here is the data we used: (Figure 11)

Text

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Figure 11 - Dataset for Anaconda Prompt test

Run the script: (Figure 12)

Text

Description automatically generated

Figure 12 - Command line to execute the scripts

Add the data and display it. (Figure 13)

Text

Description automatically generated

Figure 13 - Display the result in Anaconda Prompt

Save the date to txt file: (Figure 14)

Text

Description automatically generated

Figure 14 - The result in text file (Anaconda Prompt)

Load the data from txt file: (Figure 15)

Text

Description automatically generated

Figure 15 - Load result from text file (Anaconda Prompt)

Delete CD ID number “4” then display it: (Figure 16)

Text

Description automatically generated

Figure 16 - Delete and the result (Anaconda Prompt)

The scripts work perfectly!

# Summary

In this assignment, I learned how to replace the inner data structure by dictionaries. The biggest problem in this assignment is how to make the delete function works. However, the goal is not very difficult to achieve if we can “find” the row which matches our entered CD ID number. This is a very good practice for me in the future to handle data such as this.