

< 2021-Aug-2nd >

< IT FDN 110 B Su 21 >

< Assignment_04 >

Assignment_05

Introduction

The script developed uses a simple, menu-driven interface allowing the user to load CD inventory data from file, enter CD data, view the inputted inventory data, delete CD data, save the inventory to a data file, and exit out of the program. The program explores the script's ability to use the list and dictionary methods to create and maintain a list / dictionary every time user enters the data.

Procedure

Setting Up the while loop

In the while condition, a Boolean True operator is used to control the loop. Input() is used to capture the data from the user. The variable *strChoice* represents user's choice from the menu. *lstTbl* is a list that will contain the multiple lists generated through user's inputted data.

Storing data – Hello “Dictionaries”

Through the use of append(), dictionary method adds key:value pairs to the end of local dictionary variable called *userInputDict*. The dictionaries replace the index with key and sequence to create a 2D table. Variables for storing the user inputted “ID”, “title”, and “artist” are then assigned to *userInputDict*. See listing 1.

```
41 # 2. Add data to the table (2d-list) each time the user wants to add data
42 userInputDict = {}
43 strID = input('Enter an ID: ')
44 strTitle = input('Enter the CD's Title: ')
45 strArtist = input('Enter the Artist's Name: ')
46 intID = int(strID)
47 userInputDict = {'ID': intID, 'title': strTitle, 'artist': strArtist}
48 lstTbl.append(userInputDict)
49 pass
```

Listing 1: Appending *userInputDict* and *lstTbl* using *append()*

Loading data – “For” Loop

Through a For loop, data from an external .txt file is first loaded into a list called *lstRow* and then into a dictionary called *dicRow1*. This makes sure we have data added to memory to manipulate further. The data from *dicRow1* is further appended to *lstTbl* to build the inventory 2D list. The local dictionary initializing of *dicRow1* makes sure there's no reminiscence of previous data row left when moving to following row. See listing 2.

```
28 if strChoice == 'l':
29     # functionality of loading existing data
30     objFile = open(strFileName, 'r')
31     for row in objFile:
32         dicRow1 = {}
33         lstRow = row.strip().split(',')
34         dicRow1 = {'ID': int(lstRow[0]), 'title': lstRow[1], 'artist': lstRow[2]}
35         lstTbl.append(dicRow1)
36         print(lstRow)
37     objFile.close()
38     pass
```

Listing 2: Loading lists from file to memory

Deleting data – Meshing “List” & “Dictionary” together!

By referring to the list’s index (inputted by user) the corresponding dictionary can be deleted from the memory. The *userId* is compared with the “ID” in the dictionary *dicRow*. The program checks to see if the user Id is actually in the dictionary with “==” operator. And upon detection, deletes the dictionary item from the list, *lstTbl*, by finding the correct index. See listing 3.

```
56     elif strChoice == 'd':
57         # functionality of deleting an entry
58         userId = input("what ID do you want to delete? :")
59         for dicRow in lstTbl:
60             if int(userId) == dicRow['ID']:
61                 del lstTbl[lstTbl.index(dicRow)]
62                 print("\ndicRow got deleted", userId)
63             else:
64                 print("\nAction aborted", userId, "doesn't exist in the dictionary.")
65         pass
```

Listing 3: Deleting a dictionary in memory

Summary

In this assignment, I learned how to read and execute changes to the code snippet received from someone else. Great learning experience on how to maintain code’s functional integrity while introducing changes in a professional environment. I learned how to pseudocode an algorithm and then refine the code to match Python’s syntax. Next, I learned how to create and modify dictionaries.

Appendix

```
1  #-----#
2  # Title: CDInventory.py
3  # Desc: Mod. of starter script to use dictionaries (Assignment_05)
4  # Change Log: (Who, When, What)
5  # SGupta, 2021-Aug-08, Created File
6  #-----#
7
8  # Declare variabls
9
10 strChoice = '' # User input
11 lstTbl = [] # list of lists to hold data
12 dicRow = {} # dict of data row
13 strFileName = 'CDInventory.txt' # data storage file
14 objFile = None # file object
15
16 # Get user Input
17 print('The Magic CD Inventory\n')
18 while True:
19     # 1. Display menu allowing the user to choose:
20     print('\n[l] load Inventory from file\n[a] Add CD\n[i] Display Current Inventory')
21     print('\n[d] delete CD from Inventory\n[s] Save Inventory to file\n[x] exit')
22     strChoice = input('l, a, i, d, s or x: ').lower() # convert choice to lower case at time of input
23     print()
24
25     if strChoice == 'x':
26         # 5. Exit the program if the user chooses so
27         break
28     if strChoice == 'l':
29         # functionality of loading existing data
30         objFile = open(strFileName, 'r')
31         for row in objFile:
32             dicRow1 = {}
33             lstRow = row.strip().split(',')
34             dicRow1 = {'ID': int(lstRow[0]), 'title': lstRow[1], 'artist': lstRow[2]}
35             lstTbl.append(dicRow1)
36             print(lstRow)
37         objFile.close()
38         pass
39     elif strChoice == 'a': # no elif necessary, as this code is only reached if strChoice is not 'exit'
40
41         # 2. Add data to the table (2d-list) each time the user wants to add data
42         userInputDict = {}
43         strID = input('Enter an ID: ')
44         strTitle = input('Enter the CD's Title: ')
45         strArtist = input('Enter the Artist's Name: ')
46         intID = int(strID)
47         userInputDict = {'ID': intID, 'title': strTitle, 'artist': strArtist}
48         lstTbl.append(userInputDict)
49         pass
50     elif strChoice == 'i':
51         # 3. Display the current data to the user each time the user wants to display the data
52         print('ID, CD Title, Artist')
53         for row in lstTbl:
54             print(row)
55         pass
56     elif strChoice == 'd':
57         # functionality of deleting an entry
58         userId = input("what ID do you want to delete? : ")
59         for dicRow in lstTbl:
60             if int(userId) == dicRow['ID']:
61                 del lstTbl[lstTbl.index(dicRow)]
62                 print("\ndicRow got deleted", userId)
63         pass
64     elif strChoice == 's':
65         # 4. Save the data to a text file CDInventory.txt if the user chooses so
66         objFile = open(strFileName, 'w')
67         for row in lstTbl:
68             strRow = ''
69             for item in row.values():
70                 strRow += str(item) + ','
71             strRow = strRow[:-1] + '\n'
72             objFile.write(strRow)
73         objFile.close()
74     else:
75         print('Please choose either l, a, i, d, s or x!')
76
```

Listing 4: CDInventory.py

```
Console 1/A
In [528]: runfile('/Users/apple/_FDNProgramming/Assignment_05/CDInventory.py', wdir='/Users/apple/_FDNProgramming/Assignment_05')
The Magic CD Inventory

[l] Load Inventory from file
[a] Add CD
[i] Display Current Inventory
[d] delete CD from Inventory
[s] Save Inventory to file
[x] exit

l, a, i, d, s or x: l

['1', 'Sob Rock', 'John Mayer']
['2', 'Awake', 'Tycho']
[l] Load Inventory from file
[a] Add CD
[i] Display Current Inventory
[d] delete CD from Inventory
[s] Save Inventory to file
[x] exit

l, a, i, d, s or x: a

Enter an ID: 3

Enter the CD's Title: Coming Home

Enter the Artist's Name: Leon Bridges
[l] Load Inventory from file
[a] Add CD
[i] Display Current Inventory
[d] delete CD from Inventory
[s] Save Inventory to file
[x] exit

l, a, i, d, s or x: i

ID, CD Title, Artist
{'ID': 1, 'title': 'Sob Rock', 'artist': 'John Mayer'}
{'ID': 2, 'title': 'Awake', 'artist': 'Tycho'}
{'ID': 3, 'title': 'Coming Home', 'artist': 'Leon Bridges'}
[l] Load Inventory from file
[a] Add CD
[i] Display Current Inventory
[d] delete CD from Inventory
[s] Save Inventory to file
[x] exit

l, a, i, d, s or x: d

what ID do you want to delete? : 1

dicRow got deleted 1
[l] Load Inventory from file
[a] Add CD
[i] Display Current Inventory
[d] delete CD from Inventory
[s] Save Inventory to file
[x] exit
```

Listing 5: Output from working script in IDLE - (1/2)

```
l, a, i, d, s or x: i

ID, CD Title, Artist
{'ID': 2, 'title': 'Awake', 'artist': 'Tycho'}
{'ID': 3, 'title': 'Coming Home', 'artist': 'Leon Bridges'}
[l] Load Inventory from file
[a] Add CD
[i] Display Current Inventory
[d] delete CD from Inventory
[s] Save Inventory to file
[x] exit

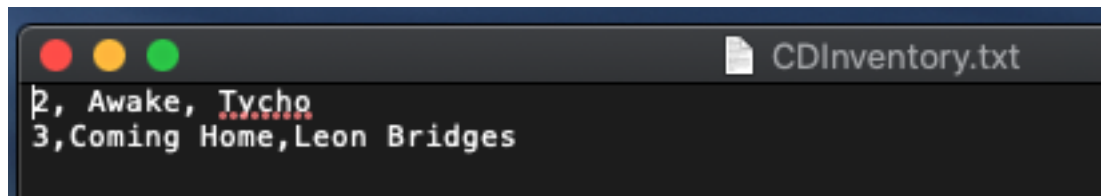
l, a, i, d, s or x: s

[l] Load Inventory from file
[a] Add CD
[i] Display Current Inventory
[d] delete CD from Inventory
[s] Save Inventory to file
[x] exit

l, a, i, d, s or x: x

In [529]:
```

Listing 6: Output from working script in IDLE - (2/2)



```
2, Awake, Tycho
3, Coming Home, Leon Bridges
```

Listing 7: Output in CDInventory.txt