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IT FDN 110 – Foundations of Programming: Python

Assignment 0X

Module 05 – Assignment 05

Introduction

Module 05/Assignment 05 had using a starter script and actually changing it and adding to it so that it used the concepts we learned in this module. This module discussed dictionaries and how they are similar and different from lists and tuples. Dictionaries, like lists, are mutable and can be nested. Similarly to lists, you can access elements within a dictionary. But in dictionaries you don't use indexes, you use keys. Dictionaries are composed of key-value pairs. I think of it kind of like a table where each pair gives the column heading and the value for that column. This assignment allowed me to explore the ways in which dictionaries work differently than lists and tuples. The assignment was to take a given script and convert all of the inner lists to dictionaries, and then modify the rest of script to match the behavior and structure of dictionaries including deleting an entry and loading data into memory.

Once finished, we were to upload our program to a GitHub repository so that classmates could review and comment on it. In return, we will also be reviewing our classmates' Assignment 05.

This paper will detail how I did it, what went well and what didn't go as well.

What went well

With a fulltime job and a one-year-old at home, I don't have any time during the week to start the assignment. I always work on it on weekends. It seemed like there were others who were also being challenged by this course who would benefit from group work so I set up a zoom meeting to see who would come. I met Saturday and Sunday with several different people to chat about the assignment and talk things through – what was working and what wasn't and where to find examples or more information about certain parts in the module or online. Everyone had already started a little bit by the time they joined the meeting and so we all had our own way to write the script and we were able to help each other by sharing screens and helping individuals on their personal script using what they had come up with so far. It was interesting to see different ways people were doing things based on examples that were given in the module or in Fridays class. Most of the script was the same, since it was pre-written, but the parts that needed changed were slightly different. Everyone agreed that it was helpful because they were able to ask the "stupid" questions they might not ask in class. It helped to know that as individuals we were not behind or slow – there was no one person who was just "getting it".

Beyond the zoom meetings, I think what went well in my script was that I was able to keep some of my program from last week. One thing I did last week was to confirm with the user that the data they just entered was correct or not. If it was correct, the program went back to the main menu. But, I was unable to figure out/ did have the time to figure out how to correct a user's mistake entry. This week, I added in the same code to confirm with the user if their entry was correct. But this time, I was able to redirect them to the delete entry function if it was wrong.

```
Enter the CD's Title: Red

Enter the Artist's Name: Taylor Swift
{'ID': 2, 'Album': 'Red', 'Artist': 'Taylor Swift'}

Is this correct? Y/N: y

Great - Back to Menu

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

Figure 1 - Confirming with the user that the data they entered is correct - 'Yes' option.

```
Enter the CD's Title: Evermore

Enter the Artist's Name: Taylor Swift
{'ID': 3, 'Album': 'Evermore', 'Artist': 'Taylor Swift'}

Is this correct? Y/N: n

If you'd like to delete a CD from the inventory, press [d].

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

Figure 2 - Confirming with the user that the data they entered is correct - 'No' option.

Additionally, I was finally able to successfully run the program in anaconda the first try. After changing the directory (cd) to the path where the file was saved and then calling “python CDInventory.py” – the script ran successfully in python 3.

```
MENU
[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: 1
Enter the CD's Title: Folklore
Enter the Artist's Name: Taylor Swift
{'ID': 1, 'Album': 'Folklore', 'Artist': 'Taylor Swift'}
Is this correct? Y/N: y

Great - Back to Menu
```

Figure 3 - A successful run of the CD inventory script in anaconda.

What didn’t go well

Honestly the rest of it didn’t go as well. This assignment didn’t take me quite as long as last weeks, but still took 9 hours. I think the only reason I was able to complete it on time/at all was because of the zoom meetings and being able to chat it out and get some explanations and talk it though as a group. I also saw the post on the forum from James which wanted to clarify what we were supposed to delete – the in-memory data or the data from the text file. That concept hadn’t even occurred to me and it was hard for me to wrap my brain around what the program was doing and it took a while to actually understand what was “in-memory” and what wasn’t. Still kinda fuzzy but I knew that I needed to copy

the code that displayed the current inventory to the top, outside of my while loop. That way, it read the text file, if there was one, and read the text file into in-memory data to start with. Then, immediately you could use the delete function. Otherwise, you had to add in some CD data in order to delete anything.

```
The Magic CD Inventory

Current inventory is:

1,Bad,Michael Jackson

3,The Big Wheel ,Runrug

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

Figure 4 - The start of the Magic CD Inventory" program which first creates and/or imports the current inventory from file.

I also struggled for a long time on the saving the data to file. I'm getting the opening and closing – those parts are easy. But extracting the data from the different data types be it lists or dictionaries, using multiple for loops is confusing. I have a hard time knowing when to use one for loop or two. I often put in print statements, and it prints things multiple times which indicates that I'm not using the for loop correctly or I have two for loops when I should have used one. I tend to look back at module examples or my own previous labs or assignments for guidance and if I can't piece it together from something I've already written or from the module, I spend a long time googling. Its definitely something I struggled with on this assignment.

Lastly, although I got the in-memory saving and deleting down, I think the program would have been better if I could choose to save over the file or choose to append to the file. Because I'd add and delete things and then save and when I reload the data from the file, it's getting longer and more repetitive as well as out of order. Maybe these are things to work on in the next module if we continue working with this program.

```
MENU
[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,Bad,Michael Jackson

3,The Big Wheel ,Runrug

1,Bad,Michael Jackson

3, The Big Wheel , Runrug

2, Red, Taylor Swift

1, Evermore, Taylor Swift

4, Abbey Road, The Beatles

2, Red, Taylor Swift

1, Evermore, Taylor Swift

4, Abbey Road, The Beatles
```

Figure 5 - A long, disorganized and repetative CD inventory.

Summary

I think this assignment was a bit much – I know I learned *something* but since I'm still struggling with past concepts it was very challenging and I don't think I was able to fully grasp this week's concepts as they built upon last weeks. Yes, I completed the assignment, but I did have help. This week I started writing out notes for myself a page per concept for things like: lists, tuples, loops, and dictionaries. It created a good reference to use while talking about them in the zoom group and helped me keep them straight. I think I'm personally just struggling with not being able to spend more time during the week to really digest the materials before I start on the assignment. Its more of a hunt/peck situation where look for the examples I need to complete the task. The first couple of weeks seemed more slow, and I was able to keep up with concepts but it seems like its getting faster and I'm falling behind in fully understanding the concepts. Its hard for me to write code without looking for examples. I don't know if that's where we should be or not, but that's where I am right now.

Appendix

I used a site called (Highlight your source code, 2021)[1] to format the code into the colored version. See below:

```
#------------------------------------------#
# Title: CDInventory.py
# Desc: A CD inventory program
# Change Log: (Who, When, What)
# DBiesinger, 2030-Jan-01, Created File
# ALarson, 2021-Nov-13, Converted 2D list to list of dictionaries
# ALarson, 2021-Nov-14, Changed menu code blocks to match dictionary functionality
# ALarson, 2021-Nov-14, Added functionality for deleting and loading data
#------------------------------------------#

# Declare variables
strChoice = '' # User input
dictTbl = []  # list of dictionaries to hold data
dictRow = {}  # dictionary of data row
strFileName = 'CDInventory.txt'  # data storage file
objFile = None  # file object


#Create file and load existing data (if any)into memory first
print('The Magic CD Inventory\n')
print('Current inventory is:')

#Load in previously saved data to memory, if any, create a file if not
objFile = open(strFileName, 'a')
objFile.close()
print()
objFile = open(strFileName, 'r')
for row in objFile:
    print(row)
```

[1] https://highlight.hohli.com/index.php

```
    lstRow = row.strip().split(',')
    dictRow= {'ID': int(lstRow[0]), 'Album': lstRow[1], 'Artist': lstRow[2]}
    dictTbl.append(dictRow)
objFile.close()

# Get user Input and run menu items
while True:
    # 1. Display menu allowing the user to choose:
    print('MENU')
    print('[l] load Inventory from file\n[a] Add CD\n[i] Display Current Inventory')
    print('[d] delete CD from Inventory\n[s] Save Inventory to file\n[x] exit')
    strChoice = input('l, a, i, d, s or x: ').lower()  # convert choice to lower case at time of input
    print()

    if strChoice == 'x':
        # Exit the program if the user chooses so
        break
    if strChoice == 'l':
        # Load existing data from file (similar to above)
        objFile = open(strFileName, 'r')
        for row in objFile:
            print(row)
        objFile.close()

    elif strChoice == 'a':
        # Add data to the table as a dictionary(2d-list) each time the user wants to add data
        strID = (input('Enter an ID: '))
        strTitle = input('Enter the CD\'s Title: ')
        strArtist = input('Enter the Artist\'s Name: ')
        intID = int(strID) #change the stringID to an integer
        dictRow = {'ID':intID, 'Album':strTitle, 'Artist':strArtist} #pack the dictionary with user input
        dictTbl.append(dictRow)  #append the newly created dictionary to the existing 2d table
        print(dictRow)
        confirm = input('Is this correct? Y/N: ')
        if confirm.lower() == 'y':
            print()
            print('Great - Back to Menu')
            print()
        elif confirm.lower() == 'n':
            print()
            print('If you\'d like to delete a CD from the inventory, press [d].')
            print()
        else:
            confirm = input('Is this correct? Y/N: ')
            print('Great - Back to Menu')


```

```
78.     elif strChoice == 'i':
79.         # Display the current data to the user each time the user wants to display the data
80.         print('ID, CD Title, Artist')
81.         for row in dictTbl:
82.             print(*row.values(), sep=', ')
83.         print()
84.
85.     elif strChoice == 'd':
86.         # Allow the usser to delete an entry
87.         selection = int(input('Which ID would you like to delete? '))
88.         for row in dictTbl:
89.             if selection == row['ID']:
90.                 dictTbl.remove(row)
91.                 print('You have removed your data...remember to Save.\n')
92.
93.
94.     elif strChoice == 's':
95.         # Save the data to a text file CDInventory.txt if the user chooses so
96.         objFile = open(strFileName, 'a')
97.         for row in dictTbl: #for each dictionary in the 2d table
98.             strRow = ''
99.             for item in row.values(): #for each item in the dictionary that are values
100.                     strRow += str(item) + ', '
101.                 strRow = strRow[:-2] + '\n'
102.                 objFile.write(strRow)
103.             objFile.close()
104.             print('Your data is saved.')
105.             print()
106.         else:
107.             print('Please choose either l, a, i, d, s or x!')
108.
109.
```