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IT FDN 110 B - Foundations of Programming, Python
Assignment 05

Continuing CD Inventory & GitHub

Introduction

In this assignment, we learned more about using Lists and how to use Dictionaries. We also created our GitHub account.

Labs

LAB05-A

The initial starter code was trying to manage the CD inventory, allowing the user to add CDs, write to a file, read from a file, and display the data, using Lists.

The code that I wrote asks the user for input and appends it to a list, writes data to a `.txt` file, reads and imports data from a `.txt` file, and displays the data from the file, as well as data input by the user.

LAB05_A.py

```
1  #-----#
2  # Title: Lab05_A.py
3  # Desc: Script to write and read data to a CD inventory
4  # Change Log: (Who, When, What)
5  # SRomo, 2020-Aug-09, Created File
6  # SRomo, 2020-Aug-09, Add code for each option
7  #-----#
8
9  # Declare variables
10
11  strChoice = '' # User input
12  lstTbl = [] # list of lists to hold data
13  lstRow = [] # list of data row
14  strFileName = 'CDInventory.txt' # data storage file
15  objFile = None # file object
16
17  # Get user Input
18  print('Write or Read file data.')
19  while True:
20      print('\n[a] add data to list\n[w] to write data to file\n[r] to read data from file')
21      print('[d] display data\n[exit] to quit')
22      strChoice = input('a, w, r, d, or exit: ').lower() # convert choice to lower case at time of input
23      print('\n')
24
25      if strChoice == 'exit':
26          break
27
28      if strChoice == 'a': # no elif necessary, as this code is only reached if strChoice is not 'exit'
29          # Add data to list in memory
30          strName = input('What is the album name? ')
31          strArtist = input('Who is the artist? ')
32
33          lstRow = [strName, strArtist]
34          lstTbl.append(lstRow)
35
36          print("\nYour data was added to inventory.")
37
38          pass
39
40      elif strChoice == 'w':
41          # List to File
42          if lstTbl == []:
43              print('There is no data to add to the file.')
44
45          else:
46              objFile = open(strFileName, 'a')
47
48              for row in lstTbl:
49                  objFile.write(str(row[0]) + ',' + row[1] + '\n')
50
51              objFile.close()
52
53              print("\nYour data was added to the file.")
54
55          pass
56
57      elif strChoice == 'r':
58          # File to print
59          objFile = open(strFileName, 'r')
60          for row in objFile:
61              lstRow = row.strip().split(',')
62              lstTbl.append(lstRow)
63
64          pass
65
66      elif strChoice == 'd':
67          # Display data
68          if lstTbl == []:
69              print('There is no data to list.')
70
71          else:
72              print('Artist, Title')
73              for row in lstTbl:
74                  print(*row, sep=', ')
75
76          pass
77      else:
78          print('Please choose either a, w, r or exit!')
```

Figure 01 - LAB05-A code

```
In [182]: runfile('/Users/sonia/FDNPpython/Mod_05/LAB05_A.py', wdir='/Users/sonia/
FDNPpython/Mod_05')
Write or Read file data.

[a] add data to list
[w] to write data to file
[r] to read data from file
[d] display data
[exit] to quit

a, w, r, d, or exit: a

What is the album name? folklore
Who is the artist? Taylor Swift
Your data was added to inventory.

[a] add data to list
[w] to write data to file
[r] to read data from file
[d] display data
[exit] to quit

a, w, r, d, or exit: r

[a] add data to list
[w] to write data to file
[r] to read data from file
[d] display data
[exit] to quit

a, w, r, d, or exit: d

Artist, Title
folklore, Taylor Swift
Runrig, The Big Wheel
Michael Jackson, Bad

[a] add data to list
[w] to write data to file
[r] to read data from file
[d] display data
[exit] to quit

a, w, r, d, or exit: exit

In [183]: |
```

Figure 02- LAB05-A results

LAB05-B

In this lab, we replaced the lists from Lab A to dictionaries and used a list of dictionaries, rather than a list of lists. The code got a bit more complex because I had to ensure the dictionaries had keys and values, which is more complicated than just comma separated values.

In this lab, I also realized I forgot to clear `lstTbl` when displaying the data (which was part of Dirk's example). Without clearing the table, the display might show what was read from the file + what the customer input in memory, which could lead to duplicate rows. I had added data, wrote the data to the file, read the data from the file and then printed the table, which printed duplicate info for the newly added data.

/Users/sonia/FDNPpython/Mod_05/LAB05_B.py

LAB05_B.py

```
1  #-----#
2  # Title: LAB05_B.py
3  # Desc: Script to use dictionaries to write and read data to a CD inventory
4  # Change Log: (Who, When, What)
5  # SRomo, 2020-Aug-09, Created File
6  # SRomo, 2020-Aug-09, Replaced lists with dictionaries
7  #-----#
8
9  # Declare variables
10
11 strChoice = '' # User input
12 lstTbl = [] # list of dictionaries to hold data
13 dictRow = {} # list of data row
14 strFileName = 'CDInventory.txt' # data storage file
15 objFile = None # file object
16
17 # Get user Input
18 print('Write or Read file data.')
19 while True:
20     print('\n[a] add data to list\n[w] to write data to file\n[r] to read data from file')
21     print('[d] display data\n[exit] to quit')
22     strChoice = input('a, w, r, d, or exit: ').lower() # convert choice to lower case at time of input
23     print('\n')
24
25     if strChoice == 'exit':
26         break
27
28     if strChoice == 'a': # no elif necessary, as this code is only reached if strChoice is not 'exit'
29         # Add data to list in memory
30         dictRow['album'] = input('What is the album name? ')
31         dictRow['artist'] = input('Who is the artist? ')
32         lstTbl.append(dictRow)
33         print("\nYour data was added to inventory.")
34
35         pass
36
37     elif strChoice == 'w':
38         # List to File
39         if lstTbl == []:
40             print('There is no data to add to the file.')
41
42         else:
43             objFile = open(strFileName, 'a')
44             for row in lstTbl:
45                 objFile.write(dictRow['album'] + ',' + dictRow['artist'] + '\n')
46             objFile.close()
47             print("\nYour data was added to the file.")
48
49         pass
50
51     elif strChoice == 'r':
52         # File to print
53         lstTbl.clear()
54         objFile = open(strFileName, 'r')
55         for row in objFile:
56             lstRow = row.strip().split(',')
57             dictRow = {'artist':lstRow[0], 'album':lstRow[1]}
58             lstTbl.append(dictRow)
59         objFile.close()
60
61         pass
62
63     elif strChoice == 'd':
64         # Display data
65         if lstTbl == []:
66             print('There is no data to list.')
67
68         else:
69             print('Artist, Title')
70             for row in lstTbl:
71                 print(*row.values(), sep=', ')
72
73         pass
74     else:
75         print('Please choose either a, w, r or exit!')
76
```

Figure 03 - LAB05-B code

```
In [219]: runfile('/Users/sonia/FDNPython/Mod_05/LAB05_B.py', wdir='/Users/sonia/
FDNPython/Mod_05')
Write or Read file data.

[a] add data to list
[w] to write data to file
[r] to read data from file
[d] display data
[exit] to quit

a, w, r, d, or exit: a

What is the album name? red rag top
Who is the artist? tim mcgraw
Your data was added to inventory.

[a] add data to list
[w] to write data to file
[r] to read data from file
[d] display data
[exit] to quit

a, w, r, d, or exit: r

[a] add data to list
[w] to write data to file
[r] to read data from file
[d] display data
[exit] to quit

a, w, r, d, or exit: d

Artist, Title
folklore, t swift

[a] add data to list
[w] to write data to file
[r] to read data from file
[d] display data
[exit] to quit

a, w, r, d, or exit: exit
```

Figure 04 - LAB05-B results

Regarding question #4 of LAB05-B, the script output in the PDF file, to make it more efficient, the program should only display the values using `row.values()` rather than the keys and values.

GitHub account creation

We also set up our GitHub accounts this week. I've used GitHub to access other peoples' repositories, but haven't created my own before. The link to my first repository, which also contains this week's homework, is [here](#).

Homework

I first went through and adjusted all the list code to dictionary code, including creating the dictRow upon user input for adding a CD, printing row.values() instead of row in inventory, etc.

I then added the load data from LAB05-B.

Lastly, I added the delete row file. I had the for loop in the code, but was trying to use del or pop instead of .remove(). Because I was looking at rows in the table, del and pop weren't working.

The other area I struggled with in this week's homework was checking whether a value already existed when adding a CD or deleting a CD, and thus my code doesn't check whether an ID is currently in the list. I tried:

```
for row in lstTbl:
    if strID in row['id']:
        print('This ID already exists, please choose another ID.')
        break
    else:
        dictRow = {'id':strID,'album':strTitle,'artist':strArtist}
        lstTbl.append(dictRow)
```

The above code wouldn't create the dictRow nor add it to the list.

Summary

This week, I learned how to use and create dictionary rows in a list to create a 2D dictionary. I also learned how to use GitHub by uploading my program and pdf to my first repository.

Appendix

Full source code:

```
1. #-----#
```



```

2. # Title: CDInventory.py
3. # Desc: Script to store CD inventory in a list of dictionaries
4. # Change Log: (Who, When, What)
5. # SRomo, 2020-Aug-09, Created File
6. # SRomo, 2020-Aug-11, Added delete code
7. # SRomo, 2020-Aug-11, Updated append to write in the txt file
8. #-----#
9.
10. # Declare variables
11.
12. strChoice = '' # User input
13. lstTbl = [] # list of dicts to hold data
14. dictRow = {} # dictionary of data row
15. strFileName = 'CDInventory.txt' # data storage file
16. objFile = None # file object
17.
18. # Get user Input
19. print('The Magic CD Inventory\n')
20. while True:
21.     # 1. Display menu allowing the user to choose:
22.     print('[l] Load Inventory from file')
23.     print('[a] Add CD')
24.     print('[i] Display Current Inventory')
25.     print('[d] Delete CD from Inventory')
26.     print('[s] Save Inventory to file')
27.     print('[x] exit')
28.
29.     strChoice = input('l, a, i, d, s or x: ').lower() # convert choice to lower case
    at time of input
30.     print()
31.
32.     if strChoice == 'x':
33.         # 5. Exit the program if the user chooses so
34.         break
35.
36.     if strChoice == 'l':
37.         # read data from a file and append it to the in-memory list
38.         objFile = open(strFileName, 'r')
39.         for row in objFile:
40.             lstRow = row.strip().split(',')
41.             dictRow = {'id':lstRow[0], 'album':lstRow[1], 'artist':lstRow[2]}
42.             lstTbl.append(dictRow)
43.         objFile.close()
44.
45.         pass
46.
47.     elif strChoice == 'a': # no elif necessary, as this code is only reached if
        strChoice is not 'exit'
48.         # 2. Add data to the table (2d-list) each time the user wants to add data
49.         strID = input('Enter an ID: ')

```



```

50.     strTitle = input('Enter the CD\'s Title: ')
51.     strArtist = input('Enter the Artist\'s Name: ')
52.
53.     dictRow = {'id':strID,'album':strTitle,'artist':strArtist}
54.     lstTbl.append(dictRow)
55.
56.     print('Your CD was added to inventory.\n')
57.
58.     pass
59.
60.     elif strChoice == 'i':
61.         # 3. Display the current data to the user each time the user wants to display
the data
62.         if lstTbl == []:
63.             print('There\'s no data in the table.\n')
64.
65.         else:
66.             print('ID, CD Title, Artist')
67.             for row in lstTbl:
68.                 print(*row.values(), sep = ', ')
69.             print()
70.
71.         pass
72.
73.     elif strChoice == 'd':
74.         # Delete an entry from the tabl
75.         strID = input('Enter the ID of the CD you\'d like to remove: ')
76.
77.         for row in lstTbl:
78.             if strID in row.values():
79.                 lstTbl.remove(row)
80.
81.         pass
82.
83.     elif strChoice == 's':
84.         # 4. Save the data to a text file CDInventory.txt if the user chooses so
85.         objFile = open(strFileName, 'w')
86.         for row in lstTbl:
87.             strRow = ''
88.             for item in row.values():
89.                 strRow += str(item) + ','
90.             strRow = strRow[:-1] + '\n'
91.             objFile.write(strRow)
92.         objFile.close()
93.
94.         print('Your Inventory was saved to file.\n')
95.
96.         pass
97.
98.     else:

```

```
99.         print('Please choose either l, a, i, d, s or x!')
```

Spyder run screenshots:

```
In [781]: runfile('/Users/sonia/FDNPYthon/Assignment05/CDInventory.py', wdir='/Users/sonia/FDNPYthon/Assignment05')
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

[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
1, folklore, t swift
2, everywhere, tim mcgraw

[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: ocean

Enter the Artist's Name: lady a
Your CD was added to 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: i

ID, CD Title, Artist
1, folklore, t swift
2, everywhere, tim mcgraw
3, ocean, lady a

[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

Your Inventory was saved to file.

[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
1, folklore, t swift
2, everywhere, tim mcgraw
3, ocean, lady a

[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

Enter the ID of the CD you'd like to remove: 2
[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
1, folklore, t swift
3, ocean, lady a

[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
```

Your Inventory was saved to file.

```
[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
```

Terminal run screenshots:

```
[(base) MacBook-Pro:Assignment05 sonia$ python CDInventory.py
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

[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
1, folklore, t swift
3, ocean, lady a

[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: 2
Enter the CD's Title: everywhere
Enter the Artist's Name: tim mcgraw
Your CD was added to 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: i
```

```
ID, CD Title, Artist
1, folklore, t swift
3, ocean, lady a
2, everywhere, tim mcgraw

[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

Your Inventory was saved to file.

[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

(base) MacBook-Pro:Assignment05 sonia$
```