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IT FDN 110 B Au 21: Foundations of Programming: Python

Assignment 05

Modifying Existing Code: Creating a List of Dictionaries

# Introduction

In this assignment I will explain the steps I used to edit a CD Inventory program to create a list of dictionaries instead of a list of lists, as well as to add functionality of loading existing data and deleting an entry. This program incorporates reading and writing data to and from text files, for loops, creating dictionaries, and accessing dictionary values.

# Creating the Code

## Modifying the 2D data structure to use dictionaries (list of dictionaries)

When modifying the existing code to replace the internal data structure of lists with dictionaries, I updated lstRow = [] to dicRow = {}, replaced all instances of lstRow with dicRow and changed the code structure from [] to {}. I also had to update the Save section of the code to just save the ‘values’ of the dictionary. I struggled with how to access the values of each dictionary within the list and ended up using a for loop and assigning variable names to each value in the 3 items.

Adding functionality of loading existing data

I opened the text file in read mode ‘r’, stripped and split the contents of the file by row and input them into a dictionary format. I then appended each row of data in a dictionary format to my outer list and closed the file.

Adding functionality of deleting an entry

This was incredibly difficult and took me several hours before I gave up and googled a helpful program structure. I recall seeing the ‘for I in range(‘ format in the module materials but I do not fully understand how this section of code is working and successfully accessing the dictionary key values.

Other Issues

I also struggled with how to save the data back to the file in a format that did not include the dictionary keys. I ended up using a similar approach as when adding values to the list; assigning variables to each value by using the key name.

# Saving the Script

After writing and testing my code in Spyder, I navigated to the folder in my Home Folder called ‘Python’, in which I created a folder for ‘Assignment\_05’ and saved my text file as CDInventory.py.

# Running the Script

Once I saved my final script, I ran the program successful in Spyder as well as my Terminal.

Text

Description automatically generated

Figure - CDInventory Code in Spyder [1 of 4]

Text

Description automatically generated

Figure - CDInventory Code in Spyder [2 of 4]

Text

Description automatically generated

Figure - CDInventory Code in Spyder [3 of 4]

# Text Description automatically generated

Figure - CDInventory Code in Spyder [4 of 4]

# Graphical user interface, text Description automatically generated

Figure - CDInventory Code in Terminal [1 of 2]

Text

Description automatically generated with medium confidence

Figure - CDInventory Code in Terminal [2 of 2]

# Summary

After completing the assigned reading, labs, and videos in Module 05 I was able to edit and execute a script that replaced a list of lists with a list of dictionaries and had added functionality of loading existing data and deleting a dictionary within the list.

# Appendix

## <https://highlight.hohli.com/index.php> (external[[1]](#footnote-1)) web page

1. *#------------------------------------------#*
2. *# Title: CDInventory.py*
3. *# Desc: Starter Script for Assignment 05*
4. *# Change Log: (Who, When, What)*
5. ***# DBiesinger, 2030-Jan-01, Created File***
6. *# NWoodward, 2021-Nov-14, Modify inner data type list->dict, add del + load functionality*
7. *#------------------------------------------#*
9. *# Declare variabls*
11. strChoice = '' *# User input*
12. lstTbl = [] *# list of dictionaries to hold data*
13. dicRow = {} *# dictionary of data row*
14. strFileName = 'CDInventory.txt' *# data storage file*
15. **objFile = None *# file object***
17. *# Get user Input*
18. **print**('The Magic CD Inventory**\n**')
19. **while** True:
20. ***# 1. Display menu allowing the user to choose:***
21. **print**('**\n**[l] Load Inventory from file**\n**[a] Add CD**\n**[i] Display Current Inventory')
22. **print**('[d] Delete CD from Inventory**\n**[s] Save Inventory to file**\n**[x] Exit')
23. strChoice = input('l, a, i, d, s or x: ').lower() *# convert choice to lower case at time of input*
24. **print**()
26. **if** strChoice == 'x':
27. *# 6. Exit the program if the user chooses so*
28. **break**
29. **if** strChoice == 'l': *# no elif necessary, as this code is only reached if strChoice is not 'exit'*
30. ***# 1. Load existing data***
31. **print**('Loading CD**\'**s from the CD Inventory**\n**')
32. lstTbl = []
33. objFile = open(strFileName, 'r')
34. **for** row **in** objFile:
35. **lstRow = row.strip().split(',')**
36. dicRow = {'ID': int(lstRow[0]), 'CD Title': lstRow[1], 'Artist': lstRow[2]}
37. lstTbl.append(dicRow)
38. objFile.close()
39. **elif** strChoice == 'a':
40. ***# 2. Add data to the table (2D data structure) each time the user wants to add data***
41. strID = input('Enter an ID number: ')
42. strTitle = input('Enter the CD**\'**s Title: ')
43. strArtist = input('Enter the Artist**\'**s Name: ')
44. intID = int(strID)
45. **dicRow = {'ID': intID,'CD Title': strTitle,'Artist': strArtist}**
46. lstTbl.append(dicRow)
47. **elif** strChoice == 'i':
48. *# 3. Display the current data to the user each time the user wants to display the data*
49. **print**('ID, CD Title, Artist')
50. **for row in lstTbl:**
51. **print**(row['ID'],row['CD Title'],row['Artist'], sep=', ')
52. **elif** strChoice == 'd':
53. *# 4. Delete an entry*
54. badCD = int(input('Enter the ID of the CD you would like to delete: '))
55. **for i in range(len(lstTbl)):**
56. **if** lstTbl[i]['ID'] == badCD:
57. **del** lstTbl[i]
58. **break**
59. **elif** strChoice == 's':
60. ***# 5. Save the data to a text file CDInventory.txt if the user chooses so***
61. objFile = open(strFileName, 'w')
62. **for** row **in** lstTbl:
63. strRow = ''
64. idnum = str(row['ID'])
65. **title = row['CD Title']**
66. artist = row['Artist']
67. strRow = idnum + ', ' + title + ', '+ artist + '**\n**'
68. objFile.write(strRow)
69. objFile.close()
70. **else:**
71. **print**('Please choose either l, a, i, d, s or x!')

1. Accessed November 14, 2021 [↑](#footnote-ref-1)