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IT FDN 110 A Wi 23: Foundations of Programming: Python

Assignment 05

My To Do List

Introduction

This "To Do List" assignment was the most challenging yet. Using someone else's starter code was helpful but also challenging. I have an extensive real life "To Do List" and the challenge of getting all the pieces of this assignment to come together in a week left me scrambling to finish it on Valentine's Day. Luckily after 15 years of marriage and two kids, my partner and I can be mutable in our dinner plans.

Lists and Dictionaries

In previous assignments we have worked with lists and tuples. This week we added in dictionaries. The main difference between the two is:

1. It is possible to retrieve the data from within a list by using its index number (0,1,2,3 etc.). or creating a slice.

2. In a dictionary you can retrieve data by using the key to get a specific value return.

The dictionary can then be appended into a table to create a comma separated values list of data.

Breaking Down the Steps

The pieces of the starter code that broke the program down into steps were all things that we have worked with before. I needed to go back over my previous assignments to remember the specifics about how the different parts of each code block fit together. At one point a few indents were messed up and I had to recopy the starter code file to get everything realigned properly! Having the variables already declared was probably the most helpful piece of the starter code because it helped me keep all the variable straight in each code block.

Adding to the Starter Code

I opted for the try / except code block becase that was how Randal had presented the example text in class. It helped to give some context to the code If the original file did not exist. It specifically called out the fact that there was no file and I needed to create one. Once the file existed then the data could be read from the user input held in memory until it was captured by writing it to a file.

My To Do List Script

I created the ToDoList.txt file and added the code to complete the script.

```
1   # ------------------------------------------------------------------ #
2   # Title: Assignment 05
3   # Description: Working with Dictionaries and Files
4   #               When the program starts, load each "row" of data
5   #               in "ToDoList.txt" into a python Dictionary.
6   #               Add each dictionary "row" to a python list "table"
7   # ChangeLog (Who,When,What):
8   # RRoot,1.1.2030,Created started script
9   # FHourigan,02/13/2023,Added code to complete assignment 5
10  # ------------------------------------------------------------------ #
11
12  # -- Data -- #
13  # declare variables and constants
14  objFile = "ToDoList.txt"   # An object that represents a file
15  strData = ""  # A row of text data from the file
16  dicRow = {}    # A row of data separated into elements of a dictionary {Task,Priority}
17  lstTable = []  # A list that acts as a 'table' of rows
18  strMenu = ""   # A menu of user options
19  strChoice = "" # A Capture the user option selection
20
```

Figure 5.1: The Script Header and the Data Section

```
20
21
22  # -- Processing -- #
23  # Step 1 - When the program starts, load the any data you have
24  # in a text file called ToDoList.txt into a python list of dictionaries rows (like Lab 5-2)
25  try:
26      objFile = open("ToDoList.txt", "r")  # Read Data from File if it exists
27      for row in objFile:
28          lstRow = row.split(",")
29          dicRow = {"Task": lstRow[0], "Priority": lstRow[1].strip()}  #Create a dictionary {key:value}
30          lstTable.append(dicRow)
31          print(dicRow)
32          print(dicRow["Task"] + "," + dicRow["Priority"])
33      objFile.close()
34  except:
35      print("""File Not Found, Create a file file
36      called ToDoList.txt first.""")
37
38
```

Figure 5.2: The Processing Section - Step 1

```
38
39   # -- Input/Output -- #
40   # Step 2 - Display a menu of choices to the user
41   while (True):
42       print("""
43       Menu of Options
44       1) Show current data
45       2) Add a new item.
46       3) Remove an existing item.
47       4) Save Data to File
48       5) Exit Program
49       """)
50       strChoice = str(input("Which option would you like to perform? [1 to 5] - "))
51       print()  # adding a new line for looks
```

Figure 5.3: The Processing Section - Step 2

```
52       # Step 3 - Show the current items in the table
53       if (strChoice.strip() == '1'):
54           if len(lstTable) == 0:
55               print(" ---- No Data in File ---- ")
56           else:
57               for dicRow in lstTable:
58                   print(dicRow["Task"] + "," + dicRow["Priority"])
59           continue
60       # Step 4 - Add a new item to the list/Table
61       elif (strChoice.strip() == '2'):
62           dicRow = {"Task": input(" Please Enter a Task: "), "Priority": input(" Please Enter the Priority: ")}
63           lstTable.append(dicRow)
64           print(" Your data was added to ToDoList.txt, select choice 1 to see the current data in the file...")
65           continue
66       # Step 5 - Remove a new item from the list/Table
67       elif (strChoice.strip() == '3'):
68           strData = (input("Row of Task and corresponding Priority to remove: "))
69           for row in lstTable:
70               if dicRow["Task"].lower() == strData.lower():
71                   lstTable.remove(dicRow)
72                   print(" -- Row Removed -- ")
73               else:
74                   print(" Row Not Found ")
75           continue
```

Figure 5.4: The Processing Section – Steps 3, 4, & 5

```
76          # Step 6 - Save tasks to the ToDoToDoList.txt file
77          elif (strChoice.strip() == '4'):
78              objFile = open("ToDoList.txt", "w")
79              for dicRow in lstTable:
80                  objFile.write(dicRow["Task"] + ',' + dicRow["Priority"] + '\n')
81              objFile.close()
82              print("-- Data Recorded to Text File -- \n")
83              continue
84          # Step 7 - Exit program
85          elif (strChoice.strip() == '5'):
86              print(" -- Good Bye -- ")  # Exit the program
87              break  # and Exit the program
```

Figure 5.5 The Processing Section – Steps 6 & 7

```
"C:\UWIntroPython\Module05 - Lists and Dictionaries\venv\Scripts\python.exe" "C:\UWIntroPython\Module05
File Not Found, Create a file file
    called ToDoList.txt first.

    Menu of Options
    1) Show current data
    2) Add a new item.
    3) Remove an existing item.
    4) Save Data to File
    5) Exit Program

Which option would you like to perform? [1 to 5] - 1

  ---- No Data in File ----

    Menu of Options
    1) Show current data
    2) Add a new item.
    3) Remove an existing item.
    4) Save Data to File
    5) Exit Program

Which option would you like to perform? [1 to 5] - 2

 Please Enter a Task: Gym
 Please Enter the Priority: Low
 Your data was added to ToDoList.txt, select choice 1 to see the current data in the file...

    Menu of Options
    1) Show current data
    2) Add a new item.
    3) Remove an existing item.
    4) Save Data to File
    5) Exit Program

Which option would you like to perform? [1 to 5] - 2

 Please Enter a Task: Homework
 Please Enter the Priority: High
 Your data was added to ToDoList.txt, select choice 1 to see the current data in the file...
```

Figure 5.6A The Script executed in the PyCharm Shell – Part 1

```
 Your data was added to ToDoList.txt, select choice 1 to see the current data in the file...

    Menu of Options
    1) Show current data
    2) Add a new item.
    3) Remove an existing item.
    4) Save Data to File
    5) Exit Program

Which option would you like to perform? [1 to 5] - 3

Row of Task and corresponding Priority to remove: Gym
 Row Not Found
 Row Not Found

    Menu of Options
    1) Show current data
    2) Add a new item.
    3) Remove an existing item.
    4) Save Data to File
    5) Exit Program

Which option would you like to perform? [1 to 5] - 4

-- Data Recorded to Text File --

    Menu of Options
    1) Show current data
    2) Add a new item.
    3) Remove an existing item.
    4) Save Data to File
    5) Exit Program

Which option would you like to perform? [1 to 5] - 5

 -- Good Bye --

Process finished with exit code 0
|
```

Figure 5.6B The Script executed in the PyCharm Shell – Part 2

```
Command Prompt                                                    —   □

Microsoft Windows [Version 10.0.19044.1645]
(c) Microsoft Corporation. All rights reserved.

C:\Users\fhouriga> Python "C:\UWIntroPython\Module05 - Lists and Dictionaries\Assignment\Assigment05_FHourigan.py"
File Not Found, Create a file file
    called ToDoList.txt first.

    Menu of Options
    1) Show current data
    2) Add a new item.
    3) Remove an existing item.
    4) Save Data to File
    5) Exit Program

Which option would you like to perform? [1 to 5] - 1

 ---- No Data in File ----

    Menu of Options
    1) Show current data
    2) Add a new item.
    3) Remove an existing item.
    4) Save Data to File
    5) Exit Program

Which option would you like to perform? [1 to 5] - 2

 Please Enter a Task: Gym
 Please Enter the Priority: Low
 Your data was added to ToDoList.txt, select choice 1 to see the current data in the file...

    Menu of Options
    1) Show current data
    2) Add a new item.
    3) Remove an existing item.
    4) Save Data to File
    5) Exit Program

Which option would you like to perform? [1 to 5] - 2

 Please Enter a Task: Homework
 Please Enter the Priority: High
 Your data was added to ToDoList.txt, select choice 1 to see the current data in the file...
```

Figure 5.7A The executed code in the Command Prompt Window – Part 1


```
Which option would you like to perform? [1 to 5] - 2

 Please Enter a Task: Homework
 Please Enter the Priority: High
 Your data was added to ToDoList.txt, select choice 1 to see the current data in the file...

    Menu of Options
    1) Show current data
    2) Add a new item.
    3) Remove an existing item.
    4) Save Data to File
    5) Exit Program

Which option would you like to perform? [1 to 5] - 3

Row of Task and corresponding Priority to remove: Gym
 Row Not Found
 Row Not Found

    Menu of Options
    1) Show current data
    2) Add a new item.
    3) Remove an existing item.
    4) Save Data to File
    5) Exit Program

Which option would you like to perform? [1 to 5] - 4

-- Data Recorded to Text File --

    Menu of Options
    1) Show current data
    2) Add a new item.
    3) Remove an existing item.
    4) Save Data to File
    5) Exit Program

Which option would you like to perform? [1 to 5] - 5

 -- Good Bye --

C:\Users\fhouriga>
```

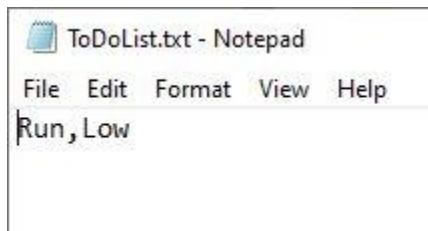*Figure 5.7B The executed code in the Command Prompt Window – Part 2*

Figure 5.8 The final text file

Summary

This week I had some difficulty with the try/except code and getting it to work properly. I also had some issues with indents and other python syntax. Removing the data was challenging as well and I'm still not clear why I get a double print of the "Row not found" message. I ran out of time to debug this issue, but My code still ran so I can come back and look at it again later. The code snippets and how they work together are getting more challenging but the resources for help and guidance so far have led me to be successful.