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Foundations of Programming: Python

Assignment 06

https://github.com/dishiyer/IntroToProg-Python/

Assignment 06: Functions

The fifth assignment focused on creating a script using lists and dictionaries. The assignment further expanded on previous assignments by creating lists and key value pairs to access the list.

Preparing for Assignment

In preparation for completing the assignment, I followed the Assignment04.docx step by step to gather an understanding of the following:

a. Difference between list and dictionary
b. Difference between index and key
c. Reading data from lists and dictionaries
d. Separation of concerns
e. Functions to organize code
f. Templates and scripts
g. Error-handling with try and except
h. GitHub

In order to do so, I reviewed the module video, the references and websites. I also reviewed the textbook material.

Performing the Assignment

I followed the instructions to create the Folders in the C: drive and creating the Assignment starter script. In addition, I installed PyCharm and followed the directions to setup the environment and directory. I tried to use comments in script to remind myself about the organization and purpose of the code. I also watched the videos for the class to get an understanding of what is expected. I finally finished the assignment by uploading to GitHub.

I updated my assignment after reviewing the Assignment module.

Create Python script

I created the Python script using the PyCharm IDE. I tried to add comments to explain the code as well.

```python
# ---------------------------------------------------------------------- #
# Title: Assignment 05
# Description: Working with Dictionaries and Files
#              When the program starts, load each "row" of data
#              in "ToDoToDoList.txt" into a python Dictionary.
#              Add the each dictionary "row" to a python list "table"
# ChangeLog (Who,When,What):
# RRoot,1.1.2030,Created started script
# DIyer, 2/15/2022,Added code to complete assignment 5
# ---------------------------------------------------------------------- #

# -- Data -- #
# declare variables and constants
objFile = "ToDoList.txt"   # An object that represents a file
strData = ""  # A row of text data from the file
dicRow = {}    # A row of data separated into elements of a dictionary {Task,Priority}
lstTable = []  # A list that acts as a 'table' of rows
strMenu = ""   # A menu of user options
strChoice = ""  # A Capture the user option selection


# -- Processing -- #
# Step 1 - When the program starts, load the any data you have
# in a text file called ToDoList.txt into a python list of dictionaries rows (like Lab 5-2)

objFile = open(objFile,"r")
```

```python
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# Description: Working with Dictionaries and Files
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# row" of data
# #              in "ToDoToDoList.txt" into a python
# Dictionary.
# #              Add the each dictionary "row" to a
# python list "table"
# ChangeLog (Who,When,What):
# RRoot,1.1.2030,Created started script
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# 5
# ---------------------------------------------------------------------- #

# -- Data -- #
# declare variables and constants
objFileName = "ToDoList.txt"   # An object that
# represents a file
strData = ""  # A row of text data from the file
dicRow = {}    # A row of data separated into
# elements of a dictionary {Task,Priority}
lstTable = []  # A list that acts as a 'table' of
# rows
strMenu = ""   # A menu of user options
strChoice = ""  # A Capture the user option selection


# -- Processing -- #
# Step 1 - When the program starts, load the any data
# you have
# in a text file called ToDoList.txt into a python
# list of dictionaries rows (like Lab 5-2)

objFile = open(objFileName, "r")
for line in objFile:
    strData = line.split(",")
    dicRow = {"Task": strData[0].strip(), "Priority"
: strData[1].strip()}
    lstTable.append(dicRow)
objFile.close()
```

```python
# -- Input/Output -- #
# Step 2 - Display a menu of choices to the user
while (True):
    print("""
    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
    """)
    strChoice = str(input("Which option would you
like to perform? [1 to 5] - "))
    print()  # adding a new line for looks
    # Step 3 - Show the current items in the table
    if (strChoice.strip() == '1'):
        print("The current items in ToDoList are: ")
        for row in lstTable:
            print(row["Task"] + "(" + row["Priority"
] + ")")
        print("-------------------------")
        continue  # to show the menu
    # Step 4 - Add a new item to the list/Table
    elif (strChoice.strip() == '2'):
        strTask = str(input("What is the task? : ")).
strip()
        strPriority = str(input("What is the priority
? high or low - ")).strip()
        dicRow = {"Task": strTask, "Priority":
strPriority}
        lstTable.append(dicRow)
        print("Current Data in table:")
        # Step 4a - Show the current items in the
table
        print("The current items ToDo are: ")
        for row in lstTable:
            print(row["Task"] + "(" + row["Priority"
] + ")")
        print("--------------------")
        continue  # to show the menu
    # Step 5 - Remove a new item to the List/Table
    elif (strChoice == '3'):
# Step 5a - Allow user to indicate which row to
delete
```

```
69          strKeyToRemove = input("Which TASK would you
    like removed? - ")
70          blnItemRemoved = False  # Creating a boolean
    Flag
71          intRowNumber = 0
72          for row in lstTable:
73              task, priority = dict(row).values()
74              if task == strKeyToRemove:
75                  del lstTable[intRowNumber]
76                  blnItemRemoved = True
77              intRowNumber += 1
78              # end if
79          # end for loop
80          # Step 5b - Update user on the status
81          if (blnItemRemoved == True):
82              print("The task was removed.")
83          else:
84              print("Task does not exist")
85          # Step 5c - Show the current items in the
    table
86          print("The current items ToDo are: ")
87          for row in lstTable:
88              print(row["Task"] + "(" + row["Priority"
    ] + ")")
89          print("----------------------")
90          continue  # to show the menu
91 # Step 6 - Save tasks to the ToDoFile.txt file
92      elif (strChoice == '4'):
93 # Step 5a - Show the current items in the table
94          print("The current items ToDo are: ")
95          for row in lstTable:
96              print(row["Task"] + "(" + row["Priority"
    ] + ")")
97          print("----------------------")
98          # Step 5b - Ask if they want save that data
99          if ("y" == str(input("Save this data to file
    ? (y/n) - ")).strip().lower()):
100             objFile = open(objFileName, "w")
101             for dicRow in lstTable:
102                 objFile.write(dicRow["Task"] + ","
    + dicRow["Priority"] + "\n")
103             objFile.close()
104             input("Data saved to file! Press the [
    Enter] key to return to menu.")
```

```
105         else:
106             input("New data was NOT Saved, but
    previous data still exists! Press the[Enter] key to
    return to menu.")
107
108         continue  # to show the menu
109     elif (strChoice == '5'):
110         break  # and Exit the program
111
112     elif (strChoice > '5'):
113         print('Please enter a valid number from the
    menu')
```

Utilizing the notes from the TA session and understanding how to add data to a list and remove data from a list, I was able to complete the assignment.

Test Script

I tested the script within the IDE using the 'Run' function. The script executed successfully. The test also output the text file.

Below is a PDF output of the "Run" window results from PyCharm.

```
1 C:\_PythonClass\Assignment05\venv\Scripts\python.exe
  C:/_PythonClass/Assignment05/Assigment05_Starter-
  DIyer.py
2
3       Menu of Options
4       1) Show current data
5       2) Add a new item.
6       3) Remove an existing item.
7       4) Save Data to File
8       5) Exit Program
9
10 Which option would you like to perform? [1 to 5] - 2
11
12 Enter Task: chore
13 Enter Priority2
14
15       Menu of Options
16       1) Show current data
17       2) Add a new item.
18       3) Remove an existing item.
19       4) Save Data to File
20       5) Exit Program
21
22 Which option would you like to perform? [1 to 5] - 4
23
24
25       Menu of Options
26       1) Show current data
27       2) Add a new item.
28       3) Remove an existing item.
29       4) Save Data to File
30       5) Exit Program
31
32 Which option would you like to perform? [1 to 5] - 5
33
34
35 Process finished with exit code 0
36
```

ToDoList.txt - Notepad

File   Edit   Format   View   Help

chore,2

Ln 1, Col 1

Run Script

Once I was confident enough, I opened the Command Prompt in Windows and ran the script.

```
C:\_PythonClass\Assignment05>Assigment05_Starter-DIyer.py

    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

The current items in ToDoList are:
Chore(low)
-----------------------

    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

Which TASK would you like removed? - Chore
The task was removed.
The current items ToDo are:
-----------------------

    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

The current items in ToDoList are:
-----------------------
```

My code works as intended and resembles the screenshot in Assignment04.