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February 15, 2022

Foundations Of Programming: Python

Assignment 05 – Lists and Dictionaries

The purpose of this assignment is to work with dictionaries, lists and two-dimensional data.

Dictionaries in Python:

1. Similar to other collections
2. Use “key” subscript instead of index
3. Key is immutable
4. Can not contain multiple items with the same key
5. {...} operator
6. Use of dictionary is more user friendly because of the words instead of numeric indexes

Steps I took in performing Assignment 04:

1. I watched the module video
2. I read Chapter 5 of the book
3. I revied additional web pages and videos
4. I modified the script provided. Filled the missing steps 1 through 7. I found working with someone else’s code quite challenging in terms of variable selection and overall organization.

Notes:

- I used PyCharm for this assignment as Integrated Development Environment.
- Every new input from the user was added to the end of the list variable with “append”.
- Variable “objFile” represents the file “ToDoList.txt”. I don’t provide any path to the file, so Python creates it in the same directory as script.
- I use access mode “w” which means that data in the file will be overwritten.
- I use access mode “r” to read from the file
- Closing the file with function “close” is not mandatory but a good practice.
- ToDoList.bat file was created in order to run this script from the command prompt.

Running script:

```
Assignment05 x
C:\_PythonClass\Assignment05\venv\Scripts\python.exe C:/_P

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

1 .   clean   - low
2 .   study   - med
3 .   cook    - high

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

Input TASK: work
Input PRIORITY: 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] - 1

1 .   clean   - low
2 .   study   - med
3 .   cook    - high
4 .   work    - low

Assignment05 x
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

Item # you want to remove: 2

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

1 .   clean   - low
2 .   cook    - high
3 .   work    - 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] - 4

Data saved into 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
```

Step 1:

Reading from the file. "Split" returns a list of values. Dictionary is created out of them and added to the table "lstTable"

```
# -- 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)
# TODO: Add Code Here
objFile = open("ToDoList.txt", 'r')
for row in objFile:
    lstRow = row.split(",") # Returns a list!
    dicRow = {"Task": lstRow[0], "Priority": lstRow[1].strip()} # Saving current row of data in dic
    lstTable.append(dicRow) # Adds row to table
objFile.close()
```

Step 2:

Menu to the user

```
# -- 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:

Using "for" loop I print list of tasks on the screen. Counter is also used to make this program more convenient for the user. It comes into play in Step 5.

```
# Step 3 - Show the current items in the table
if (strChoice.strip() == '1'):
    # TODO: Add Code Here
    count = 1 # Add a task number for Step #5
    for row in lstTable:
        print(str(count), ". ", row["Task"], " - ", row["Priority"])
        count += 1
    continue
```

Step 4:

"dicRow" temporary variable is used to capture the user's input. "Append" method adds the task to the end of the list.

```

# Step 4 - Add a new item to the list/Table
elif (strChoice.strip() == '2'):
    # TODO: Add Code Here
    task = input("Input TASK: ")
    priority = input("Input PRIORITY: ")
    dicRow = {"Task": task, "Priority": priority}
    lstTable.append(dicRow)
    continue

```

Step 5:

Removal of the data through the variable “delItem” captured from the user.

```

# Step 5 - Remove a new item from the list/Table
elif (strChoice.strip() == '3'):
    # TODO: Add Code Here
    delItem = int(input("Item # you want to remove: "))
    del lstTable[delItem-1] # Adjust index
    continue

```

Step 6:

Saving data to the file. Access mode “w” is used.

```

# Step 6 - Save tasks to the ToDoToDoList.txt file
elif (strChoice.strip() == '4'):
    # TODO: Add Code Here
    objFile = open("ToDoList.txt", "w")
    for i in lstTable:
        objFile.write(str(i["Task"]) + "," + str(i["Priority"]) + "\n"))
    objFile.close()
    print("Data saved into file !")
    continue

```

Step 7:

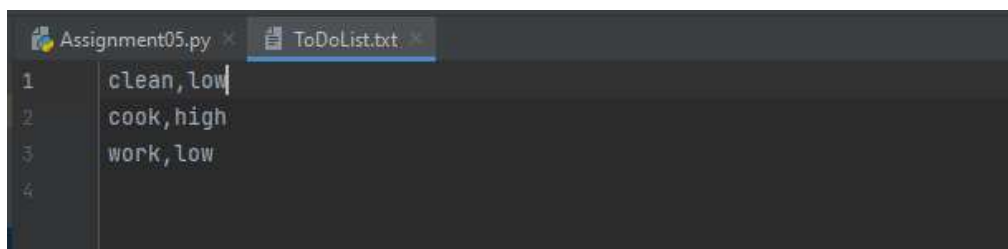
Exit with “break”

```

# Step 7 - Exit program
elif (strChoice.strip() == '5'):
    # TODO: Add Code Here
    break # and Exit the program

```

TXT File:



The screenshot shows a text editor with two tabs: 'Assignment05.py' and 'ToDoList.txt'. The 'ToDoList.txt' tab is active, displaying the following content:

```

1 clean,low
2 cook,high
3 work,low
4

```

Running from CMD:

```
Command Prompt - Python Assignment05.py

C:\_PythonClass\Assignment05>Python Assignment05.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

1 .   clean   -   low
2 .   cook    -   high
3 .   work    -   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] -
```

Summary:

During the work on this assignment, I learned how to work with two-dimensional data including dictionaries. New task of reading from file was performed. Module05 video and notes were very helpful.