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Course: Foundations of Programming Python
Assignment 05
GitHubURL: https://github.com/mitsuyojp/Intro-To-Prog-Python

The Steps in Performing the Assignment Script

Introduction

In Module 5, we learned creating scripts using Lists and Dictionaries. We also learned some basics about error handling, functions, script templates and GitHub! Assignment 05 is about creating a script that saves the user input data to the dictionary and the table. Also, about saving this data to the file, and remove the data from the file when the user wants to do so.
It was a challenging assignment. I'd like to explain the steps I took in performing this assignment.

What are steps?

Here are the steps provided in the assignment starter Python file.

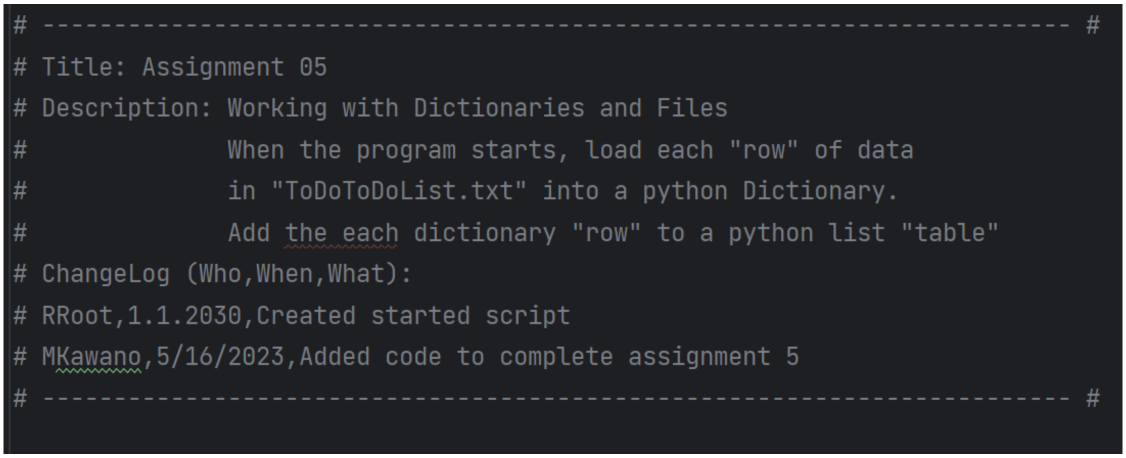
```
#--Data--#
#Declare variables and constants

#--Processing--#
#Step1-When the program starts, load the any data you have in a text file called ToDoList.txt into a python list of dictionaries rows(likeLab5-2)

#--Input/Output--#
#Step2-Display a menu of choices to the user
#Step3-Show the current items in the table
#Step4-Add a new item to the list/Table
#Step5-Remove a new item from the list/Table
#Step6-Save tasks to the ToDoList.txt file
#Step7-Exit program
```

I followed these 7 steps but there are many small steps between these.
Here are the steps I took to write this assignment script.

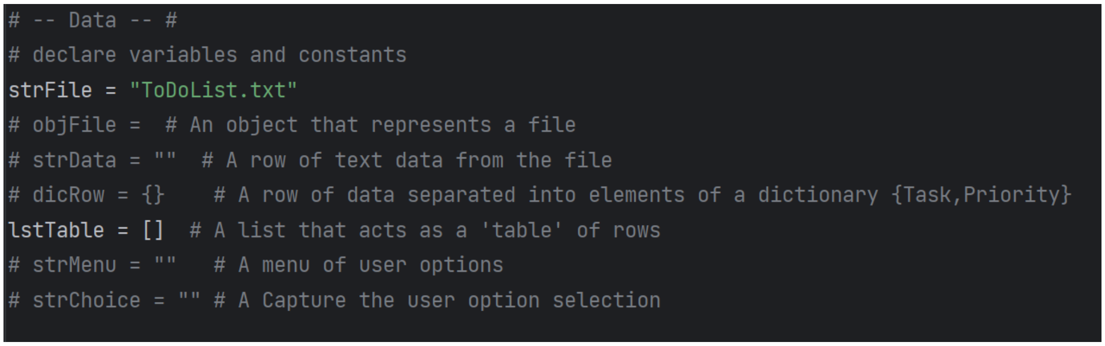
1. **Script Header**
   As always, I wrote(modified) this script header first. We created a script template in this module, so from now on, I can just use the template and modify some parts.



```
# ---------------------------------------------------------------------- #
# 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
# MKawano,5/16/2023,Added code to complete assignment 5
# ---------------------------------------------------------------------- #
```

Figure 1 A screenshot of Header of Python Script (PyCharm)

2. **Data, declare variables and constraints**
   First I declare variables I use in this script. I kept two lines of script and commented out the rest as below since these variables don’t need to be declared.



```
# -- Data -- #
# declare variables and constants
strFile = "ToDoList.txt"
# objFile =  # 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
```

Figure 2 A screenshot of the script of declaring variables (PyCharm)

3. Load the data from a text file into python list of dictionaries rows. (#Step1)

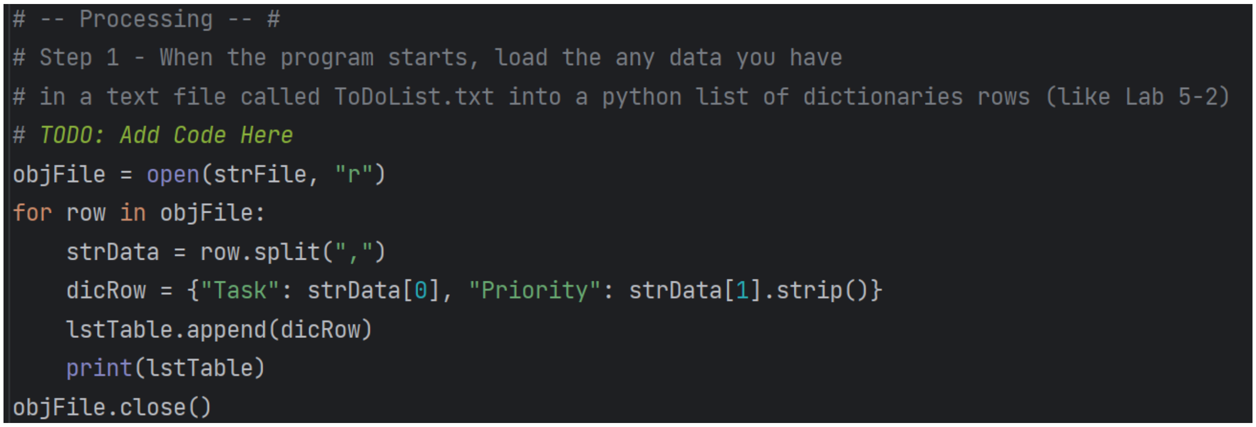
Now I have to work on the processing part. Here is the instruction in the Python Starter file.

#--Processing--#
#Step1-When the program starts, load the any data you have in a text file called ToDoList.txt into a python list of dictionaries rows(likeLab5-2)

Here is the script I wrote.

1. Open the text file.
2. Split the row with “,”
3. Add these data to the dictionary (dicRow)
4. Add these dicRow to the table(lstTable)
5. Close the text file.

Errors --- I didn’t create the text file first, so I had an error that Python can’t open the file since it doesn’t exist. I created ToDoList.txt file and the error has been resolved.



```python
# -- 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(strFile, "r")
for row in objFile:
    strData = row.split(",")
    dicRow = {"Task": strData[0], "Priority": strData[1].strip()}
    lstTable.append(dicRow)
    print(lstTable)
objFile.close()
```

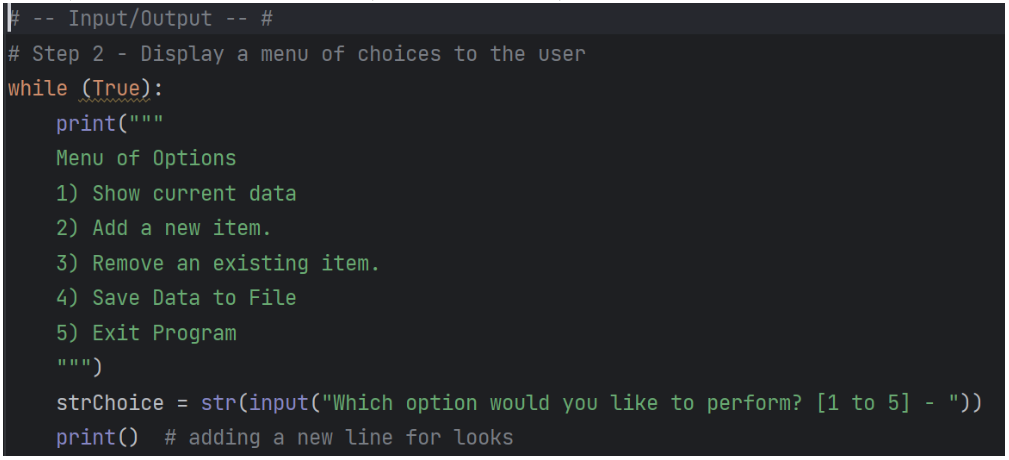
Figure 3 A screenshot of getting data from strFile (TodoList.txt) into a Python list of dictionary rows (PyCharm)

4. Display a menu of choices to the user (#Step2)

Next step is showing the menu of choices to the user. Here is the instruction in the Python Starter file.

#--Input/Output--#
#Step2-Display a menu of choices to the user

All scripts were already written in the starter file, so I didn't change anything this part. Here is the script of this step.



```
# -- 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
```

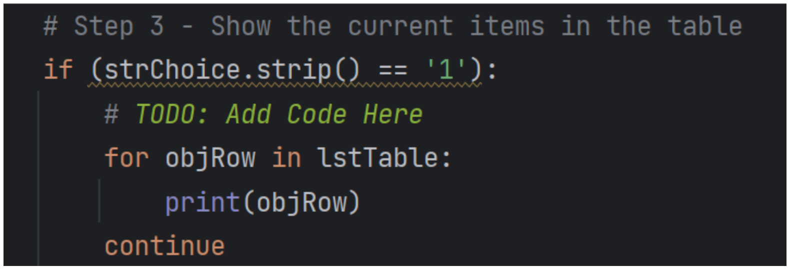
Figure 4 A screenshot of displaying a menu (Pycharm)

5. Show the current items in the table (# Step 3)

Next, I have to show the current items in the table. Here is the instruction in the Python Starter file.

#Step3-Show the current items in the table

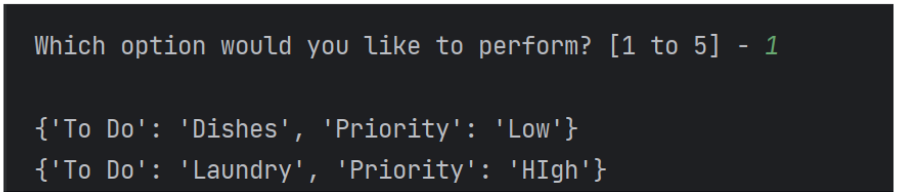
This is the script I wrote first.



```
# Step 3 - Show the current items in the table
if (strChoice.strip() == '1'):
    # TODO: Add Code Here
    for objRow in lstTable:
        print(objRow)
    continue
```

Figure 5 A screenshot of showing the current items (PyCharm)

Here are the test results.



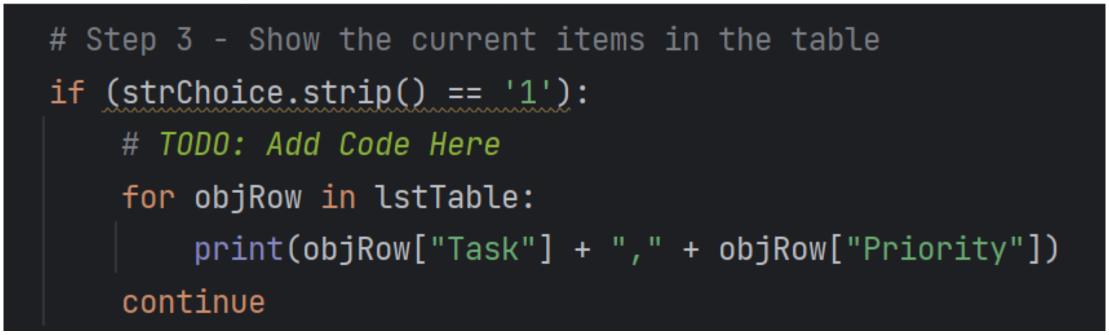
```
Which option would you like to perform? [1 to 5] - 1

{'To Do': 'Dishes', 'Priority': 'Low'}
{'To Do': 'Laundry', 'Priority': 'HIgh'}
```

Figure 6 A screenshot of the current items (PyCharm)

Yes, it's working! But this list is not user friendly…

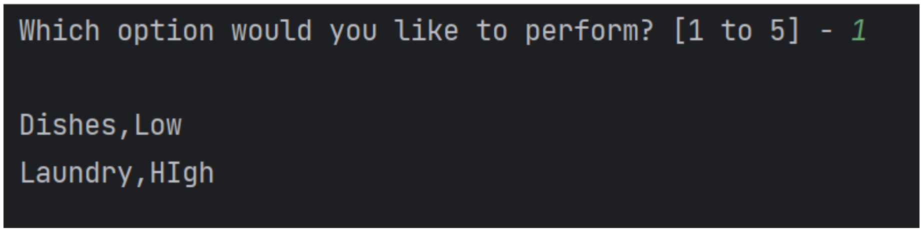
I made some changes to make the output more user friendly. Here is the revised script.



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

Figure 7 A screenshot of revised script #Step3 (PyCharm)

Here are the test results.



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

Dishes,Low
Laundry,HIgh
```

Figure 8 A screenshot of the current items (PyCharm)

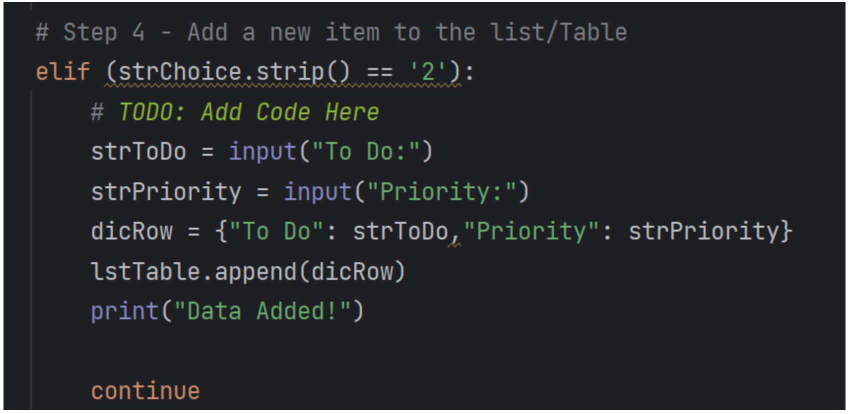
Yes, it’s working and now, it looks way better than the previous version.

6. Add a new item to the List/Table (# Step 4)

Next step is adding new item to the Dictionary/Table. Here is the instruction in the Python Starter file.

#Step4-Add a new item to the list/Table

Here is the script I wrote.



```
# Step 4 - Add a new item to the list/Table
elif (strChoice.strip() == '2'):
    # TODO: Add Code Here
    strToDo = input("To Do:")
    strPriority = input("Priority:")
    dicRow = {"To Do": strToDo,"Priority": strPriority}
    lstTable.append(dicRow)
    print("Data Added!")

    continue
```

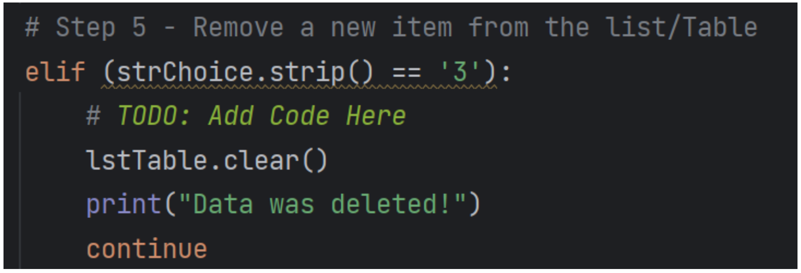
Figure 9 A screenshot of adding new item (PyCharm)

7. Remove a new item from List/Table (# Step 5)

Next step is removing new item from the List/Table. Here is the instruction in the Python Starter file.

#Step5-Remove a new item from the list/Table

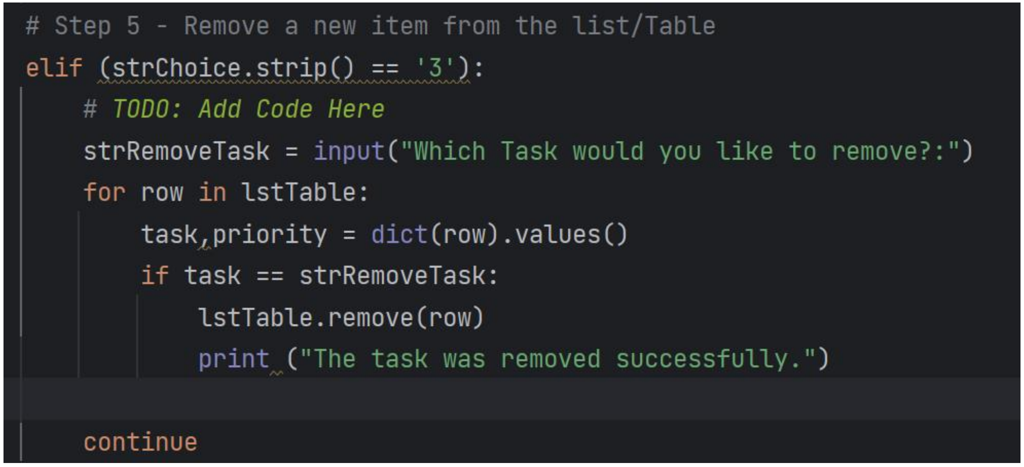
This step is very hard, and I couldn’t do well. I researched and wrote a script like below.



```
# Step 5 - Remove a new item from the list/Table
elif (strChoice.strip() == '3'):
    # TODO: Add Code Here
    lstTable.clear()
    print("Data was deleted!")
    continue
```

Figure 10 A screenshot of the script I wrote for #step5 (PyCharm)

I tested the script and learned that this code clears all the data in the table. Here is the revised script I wrote.

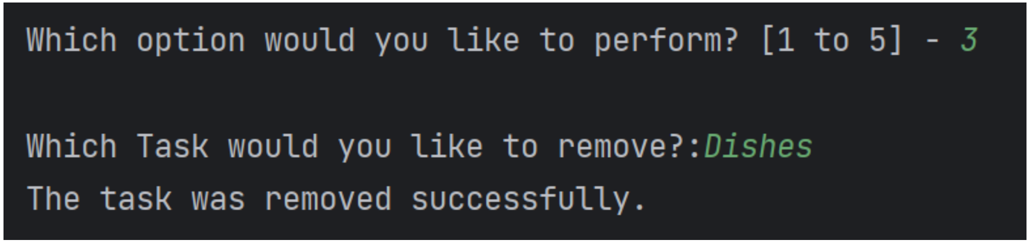


```
# Step 5 - Remove a new item from the list/Table
elif (strChoice.strip() == '3'):
    # TODO: Add Code Here
    strRemoveTask = input("Which Task would you like to remove?:")
    for row in lstTable:
        task,priority = dict(row).values()
        if task == strRemoveTask:
            lstTable.remove(row)
            print ("The task was removed successfully.")

    continue
```

Figure 11 A screenshot of removing one item #step5 (PyCharm)

Here is the test result. It worked successfully!

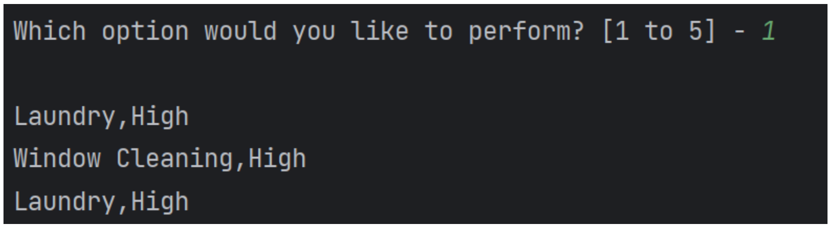


```
Which option would you like to perform? [1 to 5] - 3

Which Task would you like to remove?:Dishes
The task was removed successfully.
```

Figure 12 A screenshot of the test result (PyCharm)

To make sure the script worked correctly, I checked current data. "Dishes" Tasks are gone now, that means the script successfully removed the task the user input.



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

Laundry,High
Window Cleaning,High
Laundry,High
```

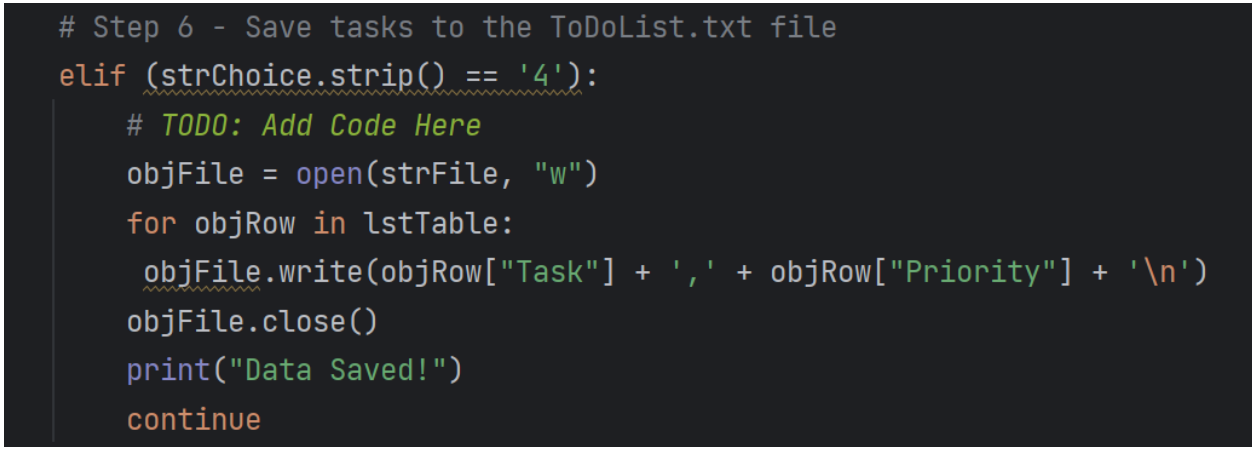
Figure 13 A screenshot of current data. (PyCharm)

8. Save tasks to the ToDoList.txt file (# Step 6)

Next step is saving the data to the txt file. Here is the instruction in the Python Starter file.

#Step6-Save tasks to the ToDoList.txt file

Here is the script I wrote.

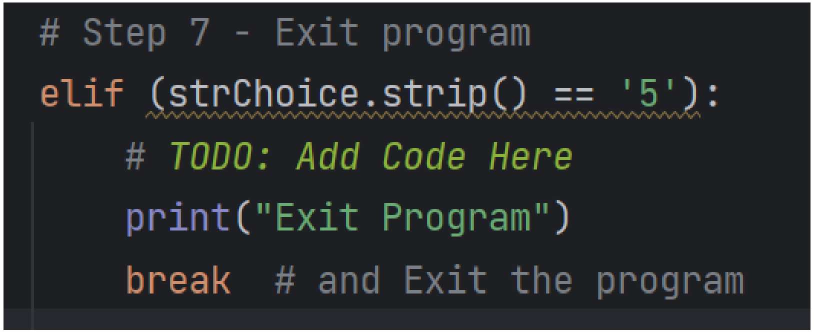


```
# Step 6 - Save tasks to the ToDoList.txt file
elif (strChoice.strip() == '4'):
    # TODO: Add Code Here
    objFile = open(strFile, "w")
    for objRow in lstTable:
     objFile.write(objRow["Task"] + ',' + objRow["Priority"] + '\n')
    objFile.close()
    print("Data Saved!")
    continue
```

Figure 14 A screenshot of saving tasks to ToDoList.txt file (PyCharm)

9. Exit program (# Step 7)

The last step is exiting program when user enter number five.

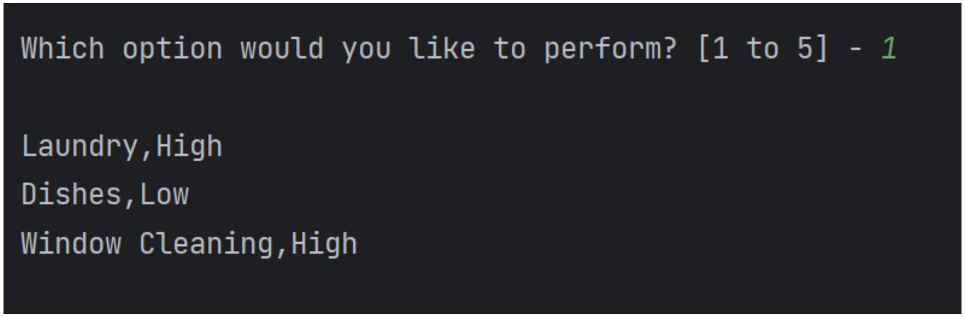


```
# Step 7 - Exit program
elif (strChoice.strip() == '5'):
    # TODO: Add Code Here
    print("Exit Program")
    break  # and Exit the program
```

Figure 15 A screenshot of the script to exit the program (PyCharm

10. Run and test the script.

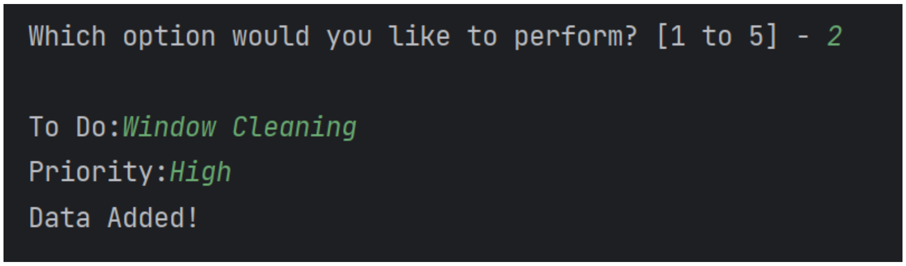
Now time to test the script. It runs successfully!



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

Laundry,High
Dishes,Low
Window Cleaning,High
```

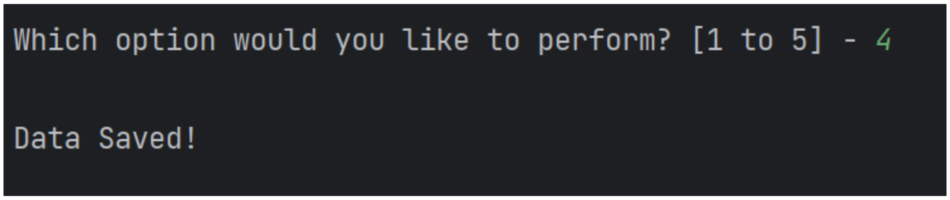
Figure 16 A screenshot of running script (PyCharm)



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

To Do:Window Cleaning
Priority:High
Data Added!
```

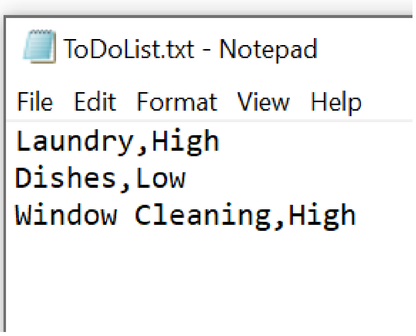
Figure 17 A screenshot of running script (PyCharm)



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

Data Saved!
```

Figure 18 A screenshot of running script (PyCharm)



```
Laundry,High
Dishes,Low
Window Cleaning,High
```

Figure 19 A screenshot of saved data file (ToDoList.txt)

Summary

Here is the summary of steps in creating this script.

1. Script Header
2. Data, declare variables and constraints.
3. Load the data from a text file into python list of dictionaries rows. (#Step1)
4. Display a menu of choices to the user (#Step2)
5. Show the current items in the table (# Step 3)
6. Add a new item to the List/Table (# Step 4)
7. Remove a new item from List/Table (# Step 5)
8. Save tasks to the ToDoList.txt file (# Step 6)
9. Exit program (# Step 7)
10. Test and run the script.