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Foundations of Programming Python

Assignment 05

November 17, 2020

Lists and Dictionaries

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Introduction

This paper details the work that was completed for Assignment 05. I will review the things I needed to do to prepare for the assignment. Then I will discuss writing the script for the assignment. Finally I will share what I learned and try to address some of the questions the instructor posed in the provided assignment overview.

Lecture and Study

After watching the lecture, I read through Chapter 5 of the text. Next I moved on to the supplied webpage and video.

In watching the lecture and completing the reading I answered the following:

What is the difference between a List and a Dictionary? Lists use indexes to store data, Dictionaries use keys.

What is the between an Index and a Key? Indexes use numeric subscripts while keys use character subscripts.

How do you read data from a file into a List? Data is stored and read n sequences

How do you read data from a file into a Dictionary? Data is stored and read in pairs

What is the programming pattern called “Separations of Concerns?” this is a distinct pattern for dividing up a computer program into distinct sections so that each section addresses a separate concern.

How would you use a function to organize your code? Functions can be defined outside the main loop. These functions are smaller parts of the larger main loop but are executed outside the loop. This makes for easier writing of the main loop.

Why is a script template useful? Script templates can be used with pre-defined sections that make starting a new script easier.

Why is error handling using Try-Except recommend? Error Handling helps you manage errors you may not have control over in any other way.

What is GitHub, and why is it used? Github is source control software that is used through the internet to store files and manage revision control.

There is too much information coming in… I’m a little lost right now.

In using the provided script from the assignment, I was able develop complete most of the assignment. The script that was written is presented below:

*# ------------------------------------------------------------------------ #  
# 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"  
# RRoot,1.1.2030,Created started script  
# Ahson Butt,11/17/20, 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(**"ToDoList.txt"**, **"r"**)  
  
*# -- 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'**):  
 objFile = open(**'ToDoList.txt'**, **'r'**)  
 **for** row **in** objFile:  
 dicRow = row.split(**','**)  
 print(dicRow[0] + **'|'** + dicRow[1].strip())  
 objFile.close()  
 **continue** *# Step 4 - Add a new item to the list/Table* **elif** (strChoice.strip() == **'2'**):  
 objFile = open(**'ToDoList.txt'**, **'a'**)  
 strt = input(**'What is your Task: '**)  
 strp = input(**'and your Priority: '**)  
 dicRow = {**'Task'**: strt, **'Priority'**: strp}  
 objFile.write(dicRow[**"Task"**] + **','** + dicRow[**"Priority"**] + **'\n'**)  
 objFile.close()  
 **continue** *# Step 5 - Remove a new item from the list/Table* **elif** (strChoice.strip() == **'3'**):  
 *#* ***TODO: Add Code Here*** objFile = open(**'ToDoList.txt'**, **'r+'**)  
 task = input(**"Delete: "**)  
 **if** task **in** objFile:  
 **del** objFile[task] *#I can't get this part to work...* **else**:  
 print(**"Term not in Dictionary"**) *#my script is not recognizing the data in the file, why?* objFile.close()  
  
 *# Step 6 - Save tasks to the ToDoToDoList.t xt file* **elif** (strChoice.strip() == **'4'**):  
 ObjFile = open(**'ToDoList.txt'**, **'r'**)  
 print(**'File will be saved'**)  
 objFile.close() *#I don't understand how this is different from selection 2* **continue** *# Step 7 - Exit program* **elif** (strChoice.strip() == **'5'**):  
 **break**

Running this script produced the following results in PyCharm:

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

eat|32

fly|e

swim|44

cheat|30

shoving|4

Running|5

Flying|77

wrenching|33

shooting|22

eat|5

fly|2

dive|1

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

What is your Task: reach

and your Priority: 9

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

File will be saved

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

I was not able to figure out how to remove existing data. And I still don’t understand the purpose of “save Data to File”, how is this different to “Add a new Item”?

This exercise was not my best effort. I don’t fully understand the differences between Lists and Dictionaries, or how they are used properly. I’m feeling a little overwhelmed with information at this point.

Running the script through the Terminal produces different results to running the script in PyCharm see Figure 4:

Text

Description automatically generated

Figure 4: Script Run in Terminal

I don’t understand why this is happening in the terminal. It worked fine in PyCharm. I’m not really sure how to troubleshoot this problem.

Learnings

I have missed something in the studying, I’m not understanding the differences between lists and dictionaries.

Summary

This assignment proved frustrating. There was a lot of information presented and I really wasn’t sure what I was doing this time. This felt a lot like hunt and peck for a solution… plug and play until something worked.