Daniel White

November 16, 2021

Foundations of Programming: Python

Assignment 05

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

To Do List Program

Introduction

In this module we learned about dictionaries and what distinguishes them from lists. Moreover, we learned how to use them in conjunction. Building off of the previous modules we created a program that presents the user with a menu, records their input and saves it to file.

Program Design

Upon starting the program the first task is to read a file and put that information into memory. After that we begin the while loop and present the user with a menu of options. The first option is to show current data which at first would be the data loaded to file. Second option is to add new data, which in this case will be a task and a priority. These inputs will be loaded into a dictionary object and will represent one row of data. These rows will be added to form a table. Third option is to remove a piece of data. To do this I prompted the user to input which task they would like to remove then I remove the entire row containing that task. Fourth option is to save to file and the fifth is to exit where the while loop is finally broken. The program running successfully is shown 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"
# ChangeLog (Who,When,What):
# RRoot,1.1.2030,Created started script
# <Daniel White>,<11.15.21>,Added code to complete assignment 5
# ------------------------------------------------------------------------ #
```

```
# -- Data -- #
# declare variables and constants
strFile = 'ToDoList.txt' # data storage file
objFile = None   # file handle
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
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(strFile, "r")
for line in objFile:
    lstData = line.split(",")
    dicRow = {"task": lstData[0].strip(), "priority": lstData[1].strip()}
    lstTable.append(dicRow)
objFile.close()

# -- 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("Your Current Data is:")
        for row in lstTable:
            print(' ', row["task"], ',', row["priority"], sep='')
        continue
    # Step 4 - Add a new item to the list/Table
    elif (strChoice.strip() == '2'):
        print("Type in a 'Task' and 'Priority' for your To Do List")
        strTask = str(input("Enter a Task: "))
        strPriority = str(input("Enter a Priority: "))
        dicRow = {"task": strTask, "priority": strPriority}
        lstTable += [dicRow]
        continue
    # Step 5 - Remove a new item from the list/Table
    elif (strChoice.strip() == '3'):
        strData = input("Task to Remove: ")
        for row in lstTable:
            if strData == row["task"]:
                lstTable.remove(row)
```

```
        continue
    # Step 6 - Save tasks to the ToDoToDoList.txt file
    elif (strChoice.strip() == '4'):
        objFile = open(strFile, "w")
        for row in lstTable:
            objFile.write(str(row["task"]) + "," + str(row["priority"]) +
"\n")
        objFile.close()
        print("The Data was Saved!")
        continue
    # Step 7 - Exit program
    elif (strChoice.strip() == '5'):
        print("Your To Do List is Complete")
        break  # and Exit the program
```

Figure 1. The To Do List Script

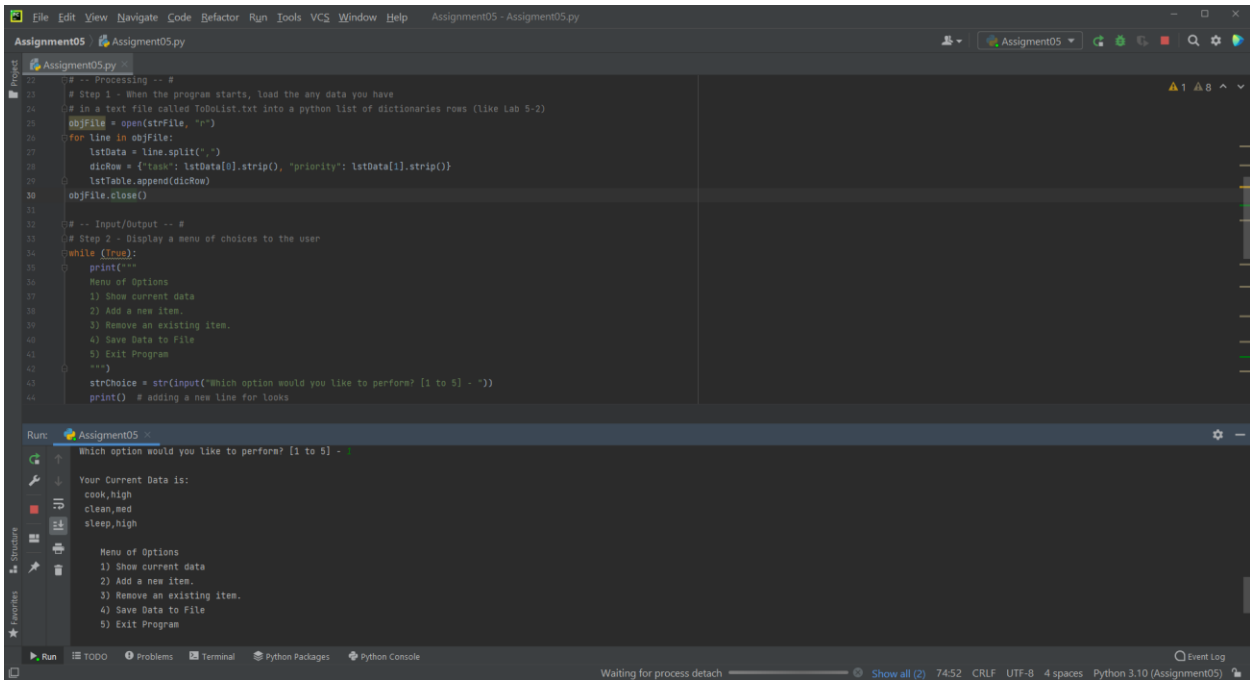

Figure 2. The To Do List program running successfully within PyCharm

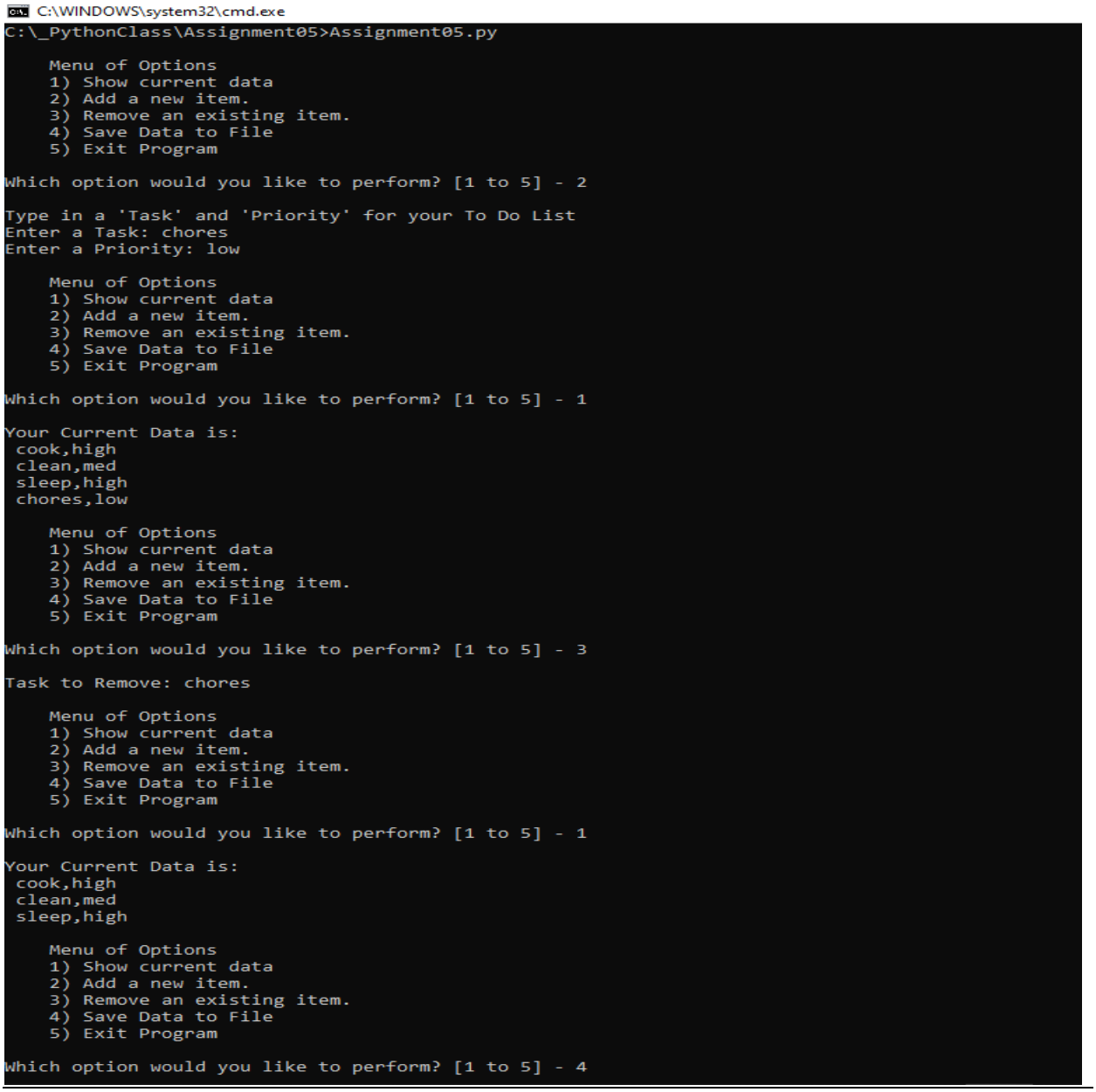

Figure 3. The To Do List program running successfully within CMD

Summary

In this module we created a program where a user is able to assemble a to do list. The persistent list is first loaded into memory from file then the user has the options of modifying the list through a series of options presented by a menu. A While loop was chosen for this operation. User input was loaded into a dictionary object and represented one row of data. These rows were combined to form a table. The user was able to show current data, add or remove data, store to file and exit to break the loop.