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Foundations of Programming: Python

Assignment 05

Creating a Dictionary Menu

Creating a Task List with a Dictionary Menu

The below script will display a menu of options that allows the user to enter a task and its priority level, display the tasks the user entered, allow the user to delete a task, and allow the user to save their task list before exiting the program. If the user opts to save their data the program will save the information to a text file called ToDoList.txt.

To create the script, start by opening the starter script file and updating the ChangeLog.

```
# ------------------------------------------------------------------------ #
# 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
# PShoup,11.6.2019,Added code to complete assignment 5
# ------------------------------------------------------------------------ #
```

This script will create seven variables:

- strData – row of text data from file
- dicRow – records task list data
- lstTable – dictionary that acts as table of rows
- strMenu – displays menu
- strChoice – captures users menu selection
- objFile – object that houses saved task list data

The script uses six functions; print(), input(), append(), open(), write(), close(). The script evaluates the user's selection by running through a series of while, elif statements that will either receive user input, display data, delete data, or save data to file and exit.

Below is the script that will provide the user with a set of options to enter, display, or save inventory data. At the direction of the user, the program will then save the data to a newly created text file, print a message to confirm the data has been saved, and finally prompt the user to press enter in order to exit the program.

```
# -- 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 dictionary 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 Dictionary.
open(objFile, "a")
objFile = open(objFile, "r")
for row in objFile:
    strData = row.split(",")
    dicRow = {"Task": strData[0], "Priority": strData[1]}
    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("Current Task List: \n", dicRow)
        continue
    # Step 4 - Add a new item to the list/Table
    elif strChoice.strip() == '2':
        strTask = input("What task would you like to add?: ")
        if strTask not in dicRow:
            strPriority = input("What's the task priority level?: (low, medium, high)")
            dicRow[strTask] = strPriority
            print('\n', strTask, "has been added.")
```

```
    else:
        print("\nThat task already exists, try adding a new task or deleting an existing task")
    continue
# Step 5 - Remove a new item to the list/Table
elif strChoice.strip() == '3':
    print("Current Task List: ", dicRow)
    strDelete = input("What task do you want to delete?: ")
    if strDelete in dicRow:
        del dicRow[strDelete]
        print("Updated Task List:", dicRow)
    else:
        print("\nThe task", strDelete, "doesn't exist in the dictionary.")
    continue
# Step 6 - Save tasks to the ToDoToDoList.txt file
elif strChoice.strip() == '4':
    objFile = open("ToDoList.txt", "w")
    objFile.write(str(dicRow))
    objFile.close()
    print("Data saved to file.")
    continue
# Step 7 - Exit program
elif strChoice.strip() == '5':
    print("Exiting program")
    break  # and Exit the program
```

The script should be saved as “Assignment05_Starter.py” in the Assignment05 folder within _PythonClass in the C: drive. Below is a screenshot of the code as created in a project file in PyCharm.

```
# -- 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 dictionary 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 Dictionary.
open(objFile, "a")
objFile = open(objFile, "r")
for row in objFile:
    strData = row.split(",")
    dicRow = {"Task": strData[0], "Priority": strData[1]}
    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("Current Task List: \n", dicRow)
        continue
    # Step 4 - Add a new item to the list/Table
    elif strChoice.strip() == '2':
        strTask = input("What task would you like to add?: ")
        if strTask not in dicRow:
            strPriority = input("What's the task priority level?: (low, medium,
high)")
            dicRow[strTask] = strPriority
            print('\n', strTask, "has been added.")
        else:
            print("\nThat task already exists, try adding a new task or deleting an
existing task")
        continue
```

```
    # Step 5 - Remove a new item to the list/Table
    elif strChoice.strip() == '3':
        print("Current Task List: ", dicRow)
        strDelete = input("What task do you want to delete?: ")
        if strDelete in dicRow:
            del dicRow[strDelete]
            print("Updated Task List:", dicRow)
        else:
            print("\nThe task", strDelete, "doesn't exist in the dictionary.")
        continue
    # Step 6 - Save tasks to the ToDoToDoList.txt file
    elif strChoice.strip() == '4':
        objFile = open("ToDoList.txt", "w")
        objFile.write(str(dicRow))
        objFile.close()
        print("Data saved to file.")
        continue
    # Step 7 - Exit program
    elif strChoice.strip() == '5':
        print("Exiting program")
        break  # and Exit the program
```

Double-clicking Assignment05_Starter.py directly from its file location prompts the script to initiate in a Python shell. Below is the final output after the user inputs an item and its value.

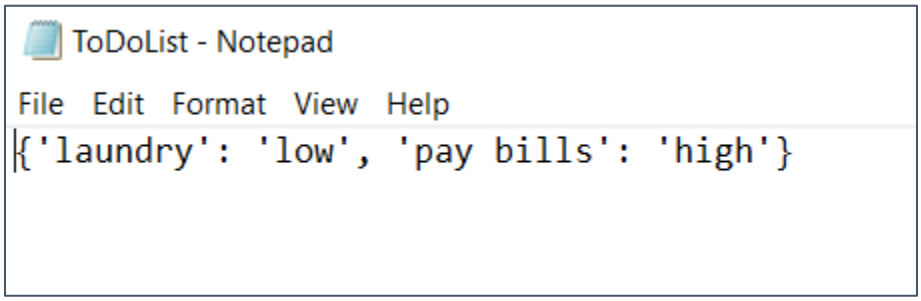
```
Which option would you like to perform? [1 to 5] - 2

What task would you like to add?: vet
What's the task priority level?: (low, medium, high)high

 vet has been added.

    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

Current Task List:
 {'laundry': 'low', 'pay bills': 'high', 'vet': '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] -
```

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

Current Task List:  {'laundry': 'low', 'pay bills': 'high', 'vet': 'high'}
What task do you want to delete?: vet
Updated Task List: {'laundry': 'low', 'pay bills': '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] -
```

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

Data saved to 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
```

Below is the output in the newly created text file ToDoList.txt.



Below is the script as Run directly from PyCharm:

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

Current Task List:
 {'laundry': 'low', 'gym': '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

Current Task List:  {'laundry': 'low', 'gym': 'low'}
What task do you want to delete?:
```

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

Current Task List:  {'laundry': 'low', 'gym': 'low'}
What task do you want to delete?: gym
Updated Task List: {'laundry': '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 to 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

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

Exiting program

Process finished with exit code 0
```