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Date: February 18, 2023
Course: IT FDN 110 A

Assignment 06 Functions and Classes

Introduction

I learned to organize codes into Functions and Classes. While the concept is intuitive, I had to study what these portions of the script do: processing, input/output, and main body.

Functions

A function groups one or more statements. It often has associated parameters that we can pass values into for processing. The values we pass are called arguments.

Classes

A class groups functions, variables, and constants. We often organize Classes according to the high-level steps - Processing data, Input from/Output to users, etc.

Global and Local Variables

If we declare a Variable in an overall body of the script, it is a global variable, and we can use it anywhere in the script. We can also declare a Variable within a function. That is a local variable, and we can use it only inside that function.

Assignment with Starting Template

I got an error message from an earlier version of starter code. I resolved it by:

- Observe the portion that worked in starter code
- Pick out what I knew worked from Assignment 5, and simplified the portion of the start code in Assignment 6. Through that I got a better idea how “return” works.
- After I was able to add data to the list, I followed similar logic for the rest.

I added a try/except if it cannot find a file to inform users to place the file in the working folder.

```
try:    # try/except to ask folks to place a starting to-do list file if it doesn't exist
    file = open(file_name, "r")
    for line in file:
        task, priority = line.split(",")
        row = {"Task": task.strip(), "Priority": priority.strip()}
        list_of_rows.append(row)
    file.close()
    return list_of_rows
except:
    print()
    print("Such file doesn't exist. Please place the file in the working folder.")
    print()
```

Listing 1 Try/Except to give meaningful message

```
/Users/charleslin/Documents/PythonClass/Assignment06/venv/bin/python /U

Such file doesn't exist. Please place the file in the working folder.

******* The current tasks ToDo are: *******
*******************************************
```

Figure 1 The result of List 1 when it cannot detect the file

For removing a record, I experimented with the Boolean item remove flag that Professor Root included in Assignment 5 Answer. However my script did not remove what I wanted to remove, and it removed 2 rows instead of 1. So I kept my method from Assignment 5 that only takes into account the first occurrence. The print message is within the for loop, so a message will print out for each row.

```python
    @staticmethod
    def remove_data_from_list(task, list_of_rows):
        """ Removes data from a list of dictionary rows

        :param task: (string) with name of task:
        :param list_of_rows: (list) you want filled with file data:
        :return: (list) of dictionary rows
        """
        # TODO: Add Code Here!
        for row in list_of_rows:
            if row["Task"].lower() == task.lower():
                list_of_rows.remove(row)

        # Update user on the status
                print("The task was removed.")
            else:
                print("I'm sorry, but I could not find that task.")

        return list_of_rows

        """ I tried using the Boolean way to remove multiple rows below,
            but it deletes more than what I wanted.
        """

        # blnItemRemoved = False  # Use this to verify that the data was found and removed
        # for row in list_of_rows:
        #     task, priority = dict(row).values()
        #     if task == task:
        #         list_of_rows.remove(row)
        #         blnItemRemoved = True
        #
        # # Update user on the status
        # if blnItemRemoved == True:
        #     print("The task was removed.")
        # else:
        #     print("I'm sorry, but I could not find that task.")
        # return list_of_rows
```

Listing 2 Function on removing data

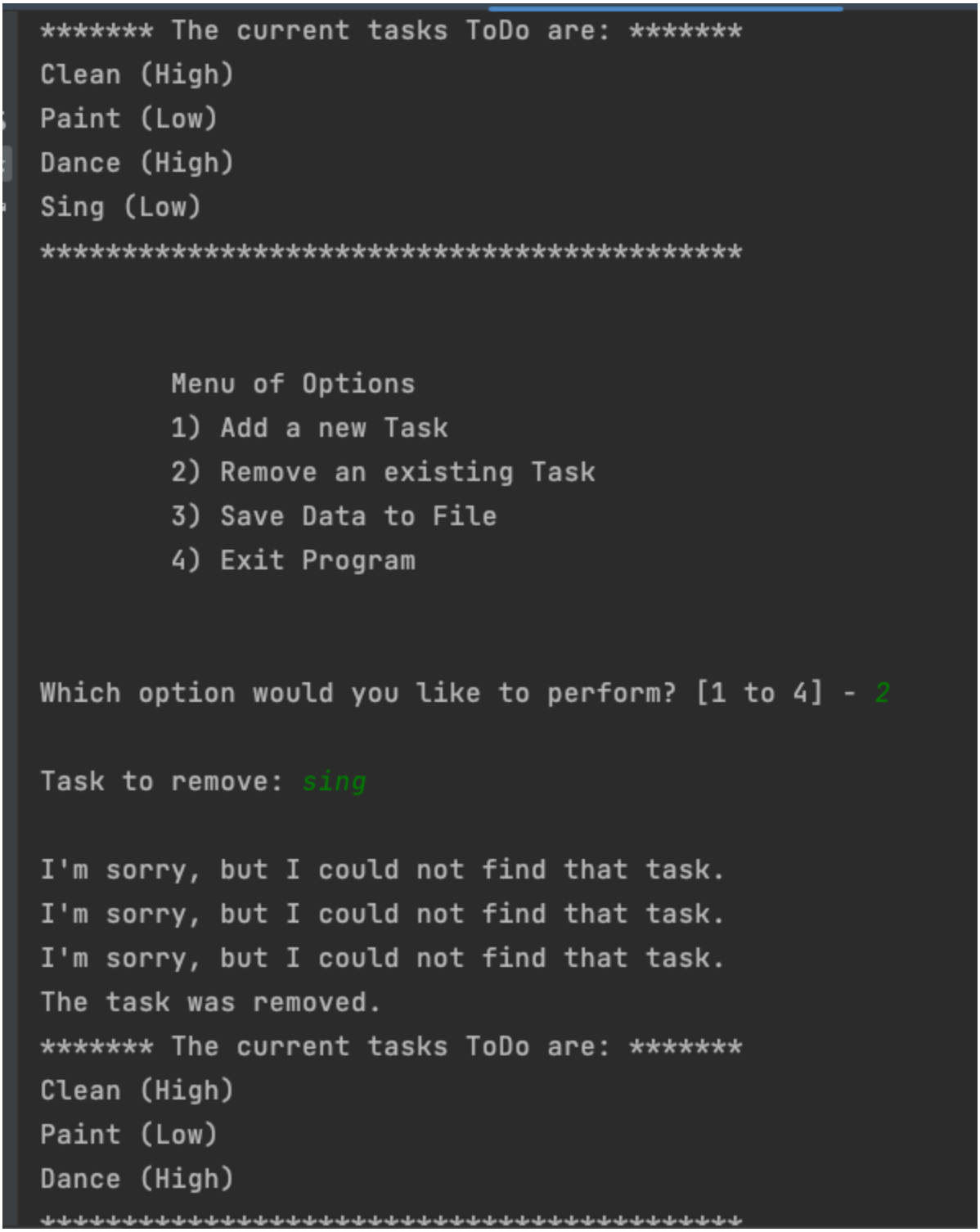

Figure 2 The result of Listing 2 with multiple prints

It took me a while to understand how and what variables are passing through functions, and the lines that call the functions. I'm getting the gist, but I need more practice to cement the understanding.

Running via Terminal yielded the same outcome.

```
******* The current tasks ToDo are: *******
Clean (High)
Paint (Low)
Dance (High)
Sing (Low)
Rest (High)
*******************************************


        Menu of Options
        1) Add a new Task
        2) Remove an existing Task
        3) Save Data to File
        4) Exit Program


Which option would you like to perform? [1 to 4] - 3

Tasks written to file!

******* The current tasks ToDo are: *******
Clean (High)
Paint (Low)
Dance (High)
Sing (Low)
Rest (High)
*******************************************


        Menu of Options
        1) Add a new Task
        2) Remove an existing Task
        3) Save Data to File
        4) Exit Program


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

Goodbye!
```

Listing 3 Sample output on Terminal

PyCharm Debugger

I tested the debugger and step into the code to see what it returned, and saw what step over did. I can imagine its usefulness, but I wasn't sure what I was reading or if I was doing it right.

GitHub Webpage

The instructions are fairly straight forward for publishing my GitHub page. However, adding a theme wasn't apparent, so I didn't choose a different page theme.

Summary

I have a good sense of Function and Class. I used all the materials from class notes, weekly Q&A, review notes, and books to deconstruct my code from Module 5 and organized it in Functions and Classes.