CS 112 Assignment 9b

Submit your finished code to the Dropbox. You will need to pass off the assignments with the TA or tutor during their office hours (their information is in the CS 112 Course Information section of the Table of Contents), or the instructor in class. Follow the formatting guide which is also found in the CS 112 Course Information section.

Read the instructions carefully. Make sure your output matches the example run.

Objectives:

In this assignment you will learn how to do the following:

- Parse through strings using:
  - Indexes
  - Slices
  - The 'In' operator
- Justify text displayed to the screen
- Remove whitespace from strings

Program: Multi-function shopping list - Enhanced

For this assignment you will be updating your 9a assignment to make the shopping list more interesting. Open your Assignment 9a.py file and save it as Assignment 9b.py using your own program file naming conventions.

Assignment 9b is all about string methods. Instead of simply entering items into a list, your users will now add items and the corresponding amounts desired into the list as a single string using the format '<item>:<amount>'. Your program will need to parse the string to get the proper formatting as described below and shown in the example run. **String formatting must appear exactly as shown in the example run.**

Make the following updates to Assignment 9a:

add_Items()

1. Require the user to use a ':' when entering new items into the list with the following format: <item>:<amount> Your program should check to be sure that each new item contains a ':' If the item does not contain a ':', display a helpful message indicating the required format as shown in the example run.
2. Remove any leading or trailing spaces before and after the <item> AND <amount>. Do this before adding the item to the list. Example: If the user enters the string '   apples   :   6   ', then 'apples:6' should be added to the list.

delete_Items()

1. Note that the show_Items() function's signature has changed. When a user tries to delete an item that does not exist in the list, you will still call the show_Items() function but you will now have to send additional arguments to that function. See the description for show_Items() to determine what arguments to send.

show_Items()

1. Change your showItems() function to take three additional parameters in addition to the list. These parameters will be the listTitle, leftWidth and rightWidth. Your function signature should look something like this:

   ```
   def showItems(myList, listTitle, leftWidth, rightWidth):
   ```

2. When calling the showItems() function from anywhere else in your program, use these values for the three new arguments:
   - Arg 2: 'Shopping List'
   - Arg 3: 20
   - Arg 4: 6

3. Follow the example in the book to print out your Shopping List to look like the following:

   ```
   ----------Shopping List----------
   Apples……………………     6
   Oranges…………………….   10
   ```

sort_Items()

1. No change

Key program requirements:

- Output must look exactly like the example run.
- String manipulation should follow what you learned in Chapter 6.
- Failure to pass arguments correctly, return data as indicated or manipulate strings as instructed in the assignment will greatly affect your score regardless of pass off.
- Use of global variables is NOT allowed.

Hints:

1. All the methods you need for string manipulation can be found in Chapter 6.
2. The chapter indicates that methods used on lists can also be used on strings but it does not explicitly go over the .index method. The ‘index’ method finds the character passed to it as an argument and returns the index where that character can be found in the string. Example:

   ```
   spam = ‘Hello, World’

   commaIndex = spam.index(‘,’)
   ```

   then commaIndex would contain the integer 5 since spam[5] is where the first ‘,’ can be found.

3. Although the printing of the list follows the format shown in the chapter, you are NOT using the Dictionary data structure in your program (we skipped chapter 5). You may glean some hints by looking at that section of the chapter but if you copy it into your program, it will not work.

Example run on next page.

Example Run

```
1. Add Items
2. Delete Items
3. Show Items
4. Sort Items
5. Exit
Please enter a command: 1

Add an item to the list <item:amount>: Oranges
Invalid Entry.  No ':' found.  Entry must be in the form '<item> : <amount>'

Add an item to the list <item:amount>: Oranges:10
"Oranges:10" has been added to the list.

Add an item to the list <item:amount>:          Eggs    :     24
"Eggs:24" has been added to the list.

Add an item to the list <item:amount>: Apples   :   12
"Apples:12" has been added to the list.

Add an item to the list <item:amount>:
3 items have been added to your Shopping List.

1. Add Items
2. Delete Items
3. Show Items
4. Sort Items
5. Exit
Please enter a command: 3

------Shopping List-------
Oranges............    10
Eggs...............    24
Apples.............    12

1. Add Items
2. Delete Items
3. Show Items
4. Sort Items
5. Exit
Please enter a command: 4


---Sorted Shopping List---
Apples.............    12
Eggs...............    24
Oranges............    10

1. Add Items
2. Delete Items
3. Show Items
4. Sort Items
5. Exit
Please enter a command: 2

Delete an item from the list <item:amount>: Eggs

"Eggs" is not an item in the list.  Please try again.

------Shopping List-------
Apples.............    12
Eggs...............    24
Oranges............    10

Delete an item from the list <item:amount>: Eggs:24
"Eggs:24" has been removed from the list.

Delete an item from the list <item:amount>:
1 items have been deleted from your Shopping List.
```

```
1. Add Items
2. Delete Items
3. Show Items
4. Sort Items
5. Exit
Please enter a command: 3

------Shopping List-------
Apples.............    12
Oranges............    10

1. Add Items
2. Delete Items
3. Show Items
4. Sort Items
5. Exit
Please enter a command: 5
>>>
```