CS410P

LAB 7L

Purpose

The purpose of this assignment is to give you practice with writing while loops and introduces you to lists.

Problem

Write a program that receives a series of numbers from the user and allows the user to press the Enter key to indicate that inputs are done. As each number is input, it is stored into a list.
After the user presses the Enter key, the program should print the total number of items in the list and the list itself in sorted (ascending) order.
As long as the list has at least one item in it:

- Print the sum, average, maximum and minimum values of the entire list using methods/functions supported by the list object
- Use index slicing and print the first half of the list.
- Only using a while loop, print one item of the list at a time within the loop

Inputs

Any input other than a number or the Enter key should be caught using an exception with an appropriate error message and the program should continue seeking input.

Hint for stopping input

An easy way to capture whether the Enter key was pressed or not is to initially accept the input as a string, and then convert it to integer, all within a Try block:

```
try:
    input_string = input("Enter a Number:")
    number = int(input_string)
```

If it causes an exception, in your except clause you can check for either the value of the input_string variable to be an empty string (which is two double quotes without anything in it) or the length of the string being zero (the function len can be used). If it's not an empty string but invalid input (like non-numeric input) you must continue to seek input after a proper error message.

Grade Key

A	Comments (including Name, brief description about program)	**5**
B	Input is accepted until the ENTER key is pressed (using while loop)	**20**
C	Exception Handler catches all non-numeric input and program continues	**20**
D	List size correct (2 points), accurately prints every number that's input by the user in sorted order (8 points)	**10**
E	Accuracy of Sum, Average, Maximum, Minimum (5 points each)	**20**
F	First half of list printed correctly by using indexing/slicing	**10**
G	Each list item printed correctly within a while loop (tab separator used)	**15**

Sample Output 1

```
(Press the ENTER key to terminate input)

Enter a Number:77

Enter a Number:abc
Invalid Input, please try again

Enter a Number:-3

Enter a Number:5

Enter a Number:-102

Enter a Number:11

Enter a Number:
Size of list: 5
[-102, -3, 5, 11, 77]
Sum: -12
Average: -2.4
Maximum: 77
Minimum: -102
First Half of List: [-102, -3]
List items printed using a while loop:
-102    -3      5       11      77
```

Sample Output 2

```
(Press the ENTER key to terminate input)

Enter a Number:10

Enter a Number:0

Enter a Number:-3

Enter a Number:55

Enter a Number:33

Enter a Number:20

Enter a Number:30

Enter a Number:-52

Enter a Number:-1

Enter a Number:
Size of list: 9
[-52, -3, -1, 0, 10, 20, 30, 33, 55]
Sum: 92
Average: 10.22
Maximum: 55
Minimum: -52
First Half of List: [-52, -3, -1, 0]
List items printed using a while loop:
-52     -3      -1      0       10      20      30      33      55
```

Sample Output 3

```
(Press the ENTER key to terminate input)

Enter a Number:
Empty List
```