

4th Assignment

Linked List

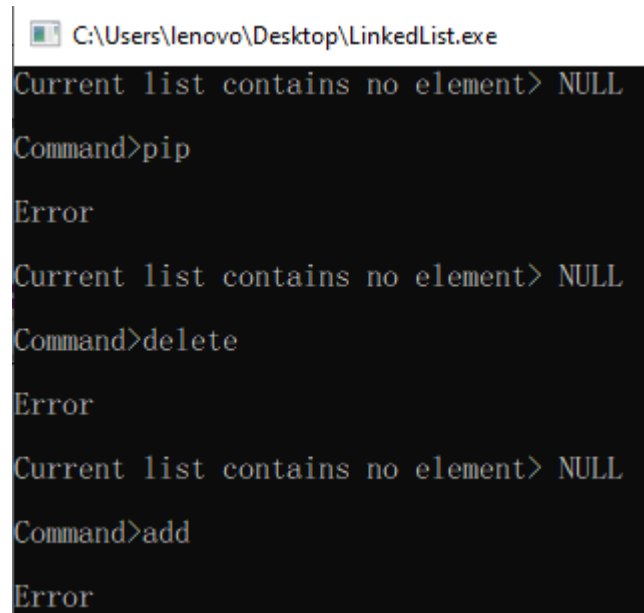
Self-Assessment: 100 ทำงานสำเร็จได้ด้วยตนเอง สามารถประยุกต์งานให้เข้ากับปัญหาอื่นที่มีลักษณะคล้ายๆกัน สามารถแนะนำ/แก้ปัญหาให้กับผู้อื่นได้

What I've learned: What is linked list? The difference between linked list and array. How can we implement it?

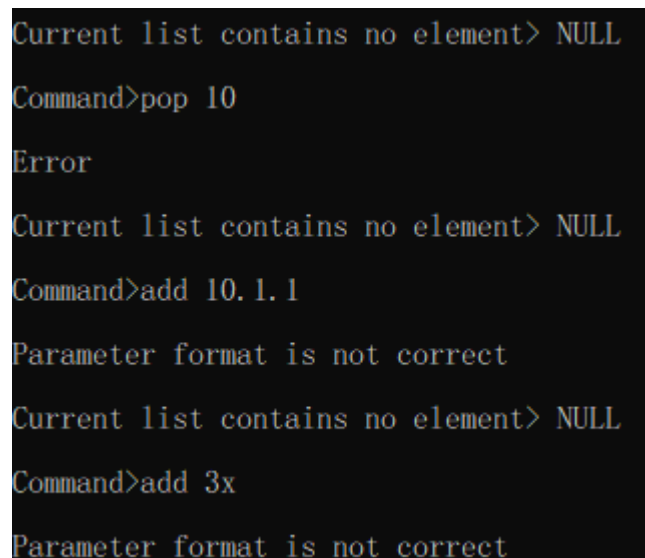
Program components:

- 1) String recognition and verifying
- 2) Linked list operational function

Test cases:



```
C:\Users\lenovo\Desktop\LinkedList.exe
Current list contains no element> NULL
Command>pip
Error
Current list contains no element> NULL
Command>delete
Error
Current list contains no element> NULL
Command>add
Error
```



```
Current list contains no element> NULL
Command>pop 10
Error
Current list contains no element> NULL
Command>add 10.1.1
Parameter format is not correct
Current list contains no element> NULL
Command>add 3x
Parameter format is not correct
```

```
Command>delete 1
The list contains no element. Action cannot be performed
Current list contains no element> NULL
Command>neg
No element to be calculated!
Current list contains no element> NULL
Command>+
No element to be calculated!
```

```
Command>add 30 20 10 20
Current list contains 4 elements> 30.00 20.00 10.00 20.00
Command>peek 0
First data of the list is 30.00
Current list contains 4 elements> 30.00 20.00 10.00 20.00
Command>peek 4
Error. List contains only 4 elements
Only maximum index of [3] allowed
Current list contains 4 elements> 30.00 20.00 10.00 20.00
Command>peek -1
Last data of the list is 20.00
```

```
Current list contains 4 elements> 30.00 20.00 10.00 20.00
Command>delete 30
30.00 found! Confirmation required (y to confirm)
y
Current list contains 3 elements> 20.00 10.00 20.00
Command>delete 100
100 not found
Current list contains 3 elements> 20.00 10.00 20.00
Command>delete 20
20.00 found! Confirmation required (y to confirm)
n
20.00 found! Confirmation required (y to confirm)
y
Current list contains 2 elements> 20.00 10.00
```

```
Command>delete 20
20.00 found! Confirmation required (y to confirm)
y
Current list contains 1 elements> 10.00
Command>delete 10
10.00 found! Confirmation required (y to confirm)
y
Current list contains no element> NULL
Command>delete 10
The list contains no element. Action cannot be performed
Current list contains no element> NULL
Command>push 10
Current list contains 1 elements> 10.00
```

```
Command>push 20

Current list contains 2 elements> 20.00 10.00

Command>push 30

Current list contains 3 elements> 30.00 20.00 10.00

Command>pop

Current list contains 2 elements> 20.00 10.00

Command>pop

Current list contains 1 elements> 10.00

Command>pop

Current list contains no element> NULL

Command>pop

Error
```

```
Command>sort

No element to be sorted

Current list contains no element> NULL

Command>rec

No element to be calculated!

Current list contains no element> NULL

Command>sqrt

No element to be calculated!

Current list contains no element> NULL

Command>add 9.5 50.5 20 -5 -20 2

Current list contains 6 elements> 9.50 50.50 20.00 -5.00 -20.00 2.00
```

Current list contains 6 elements> 9.50 50.50 20.00 -5.00 -20.00 2.00

Command>+

Current list contains 5 elements> 60.00 20.00 -5.00 -20.00 2.00

Command>-

Current list contains 4 elements> -40.00 -5.00 -20.00 2.00

Command>*

Current list contains 3 elements> 200.00 -20.00 2.00

Command>/

Current list contains 2 elements> -0.10 2.00

Command>rec

Current list contains 2 elements> -10.00 2.00

Command>neg

Current list contains 2 elements> 10.00 2.00

Command>pow

Current list contains 1 elements> 1024.00

Command>sqrt

Current list contains 1 elements> 32.00

Command>+

No element to be calculated!

Current list contains 1 elements> 32.00

Command>-

No element to be calculated!

Current list contains 1 elements> 32.00

```
Command>*
No element to be calculated!
Current list contains 1 elements> 32.00
Command>/
No element to be calculated!
Current list contains 1 elements> 32.00
Command>pow
No element to be calculated!
Current list contains 1 elements> 32.00
Command>pop
Current list contains no element> NULL
```

```
Current list contains no element> NULL
Command>insert 300
Current list contains 1 elements> 300.00
Command>insert 100
Current list contains 2 elements> 100.00 300.00
Command>insert 800 400
Current list contains 4 elements> 100.00 300.00 400.00 800.00
Command>add 200
Current list contains 5 elements> 100.00 300.00 400.00 800.00 200.00
Command>insert 500
Error, Current list hasn't been sorted
Current list contains 5 elements> 100.00 300.00 400.00 800.00 200.00
```

```

Command>sort

Current list contains 5 elements> 100.00 200.00 300.00 400.00 800.00

Command>insert 500

Current list contains 6 elements> 100.00 200.00 300.00 400.00 500.00 800.00

Command>help

List of commands
1)ADD [list] add data to the list
2)INSERT [list] add sorted input to the list, sorted list required
3)PUSH [n] insert an element to the first index of the list
4)PEEK [n] display the element at [n] index
5)DELETE [n] search and delete the element, deletion will required a permission, multiple deletion can be performed
6)SEARCH [n] search and display the element
7)SQRT calculate square root of the first element
8)REC calculate an inverse fraction of the first element
9)NEG calculate a negative value of the first element
10)+ - * / add subtract multiply or divide 2nd element by the 1st one
11)POW raise the 2nd element to the power of 1st element
12)LIST display all elements in the list
13)SORT sort the list
14)HELP display the command list
15)END terminate the program

9)NEG calculate a negative value of the first element
10)+ - * / add subtract multiply or divide 2nd element by the 1st one
11)POW raise the 2nd element to the power of 1st element
12)LIST display all elements in the list
13)SORT sort the list
14)HELP display the command list
15)END terminate the program

Current list contains 6 elements> 100.00 200.00 300.00 400.00 500.00 800.00

Command>end

Have a nice day!

Process returned 0 (0x0)   execution time : 126.232 s
Press any key to continue.

```