Main.cpp Linked List testing:

```cpp
#include "SingleLinkedList.h"
#include "Stack.h"

int main() {


    SingleLinkedList<int> list; //Create single linked list

    list.push_front(20); //Pushes 20 to the front of the linked list
    cout << "Front of the list: " << list.front() << endl; //Outputs the front of list

    //Checks if the list is emtpy
    if (list.empty()) {
        cout << "The list is empty" << endl;
    }
    else {
        cout << "The list is not empty" << endl;
    }

    //Adds items to the front of the list
    list.push_front(30);
    list.push_front(2003);
    list.push_front(15);
    list.push_front(87);
    //Adds items to the back of the list
    list.push_back(38);
    list.push_back(95);
    list.push_back(22);


    cout << "The front of the list: " << list.front() << endl;
    cout << "The back of the list: " << list.back() << endl;

    list.pop_front(); //Removes item at the front of the list
    list.pop_back(); //Remvoes item at the back of the list


    cout << "The front of the list: " << list.front() << endl;
    cout << "The back of the list: " << list.back() << endl;

    //Inserts at and index of the list
    list.insert(3, 13);
    list.insert(4, 12);

    list.insert(50, 1); //Will add to the end of the list

    cout << "The back of the list is " << list.back() << endl;
```

```cpp
    //Will remove item at a given index
    if (list.remove(3)) {
        cout << "There was a succesful removal of an item at index 3." << endl;
    }
    else {
        cout << "There is no item at this index" << endl;
    }
    if (list.remove(97)) {
        cout << "There was a succesful removal of an item at index 97." << endl;
    }
    else {
        cout << "There is no item at this index" << endl;
    }


    cout << "The index of 38 is " << list.find(38) << endl;
    cout << "The size of the list is : " << list.find(900) << endl;

    //Goes through and prints out the items in the linked list
    cout << "The items in the list are ";
    for (int i = 0; i < 8; i++) {
        cout << list.front() << " ";
        list.pop_front(); //Gets rid of item at the front of the list
    }
    cout << endl;

    //Checks if the list is empty
    if (list.empty()) {
        cout << "The list is empty" << endl;
    }
```

The output is:

```
Microsoft Visual Studio Debu
Front of the list: 20
The list is not empty
The front of the list: 87
The back of the list: 22
The front of the list: 15
The back of the list: 95
The back of the list is 1
There was a succesful removal of an item at index 3.
There is no item at this index
The index of 38 is 5
The size of the list is : 8
The items in the list are 15 2003 30 12 20 38 95 1
The list is empty
```

Main.cpp Stack testing:

```
82      Stack stack; //Creates stack
83      if (stack.isEmpty()) { //Checks if the list is empty
84          cout << "\nThe stack is empty!" << endl;
85      }
86      stack.pushData(23); //Pushes data onto the stack
87      if (stack.isEmpty()) { //Checks if the stack is empty
88          cout << "The stack is empty!" << endl;
89      }
90      else {
91          cout << "There is Data in the stack" << endl;
92      }
93
94      //Removes item at the front of the list
95      stack.popData();
96      if (stack.isEmpty()) { //Checks if the list is empty
97          cout << "The stack is empty!" << endl;
98      }
99
100     //Adds items to the stack
101     stack.pushData(50);
102     stack.pushData(15);
103     stack.pushData(23);
104     stack.pushData(24);
105     stack.pushData(87);
106
107     cout << "The top value is " << stack.findTop() << endl;
108     cout << "The average is " << stack.average() << endl;
109
110     stack.popData(); //Removes item at the top of the stack
111
112     cout << "The top value after popping is " << stack.findTop() << endl;
113 }
```

The output is:

```
The stack is empty!
There is Data in the stack
The stack is empty!
The top value is 87
The average is 39.8
The top value after popping is 24

C:\Users\viger\OneDrive\UMKC 2024 Spring Semester\CS-303\CS303Assignment2\x64\Debug\CS303Assignment2.exe (process 31968)
 exited with code 0.
Press any key to close this window . . .
```

The terminal output all together is :