Name
Advanced Programming in C++
Lab Exercise 4/4/2024

Modifications to the NumberList class

In this lab you will modify the NumberList class to add new functionalities.

1. Write a destroyList function that will delete each node from the list and free up memory allocated in the list.

2. Write a reverseList function that rewrites the list in reverse order.

3. Write a copyList function that takes the original list and returns a copy of the list.

4. Test your functions my writing a main function, creating a simple list of numbers, copy the list to another list, then reverse the original list.

Here is the code
1. Add the following prototypes to the NumberList.h file
```
        void destroyList();
        void reverseList();
        void copyList(NumberList &);
```

2. Add the following code to the destroyList function.
```
        ListNode *nodePtr;
        nodePtr = head;

        while (nodePtr != NULL)
        {
                head = head ->next;
                delete nodePtr;
                nodePtr = head;
        }

        head = NULL;
```

3. Add the following code to the reverseList function.

```
ListNode *nodePtr;
vector<double> temp;
nodePtr = head;

while (nodePtr != NULL)
{
        temp.push_back(nodePtr -> value);
        nodePtr = nodePtr -> next;
}

destroyList();

for (int i = temp.size() - 1; i >= 0; i--)
        appendNode(temp[i]);
```

4. Add the following code to the copyList function

```
ListNode *nodePtr;
nodePtr = head;

while (nodePtr != NULL)
{
        other.appendNode(nodePtr->value);
        nodePtr = nodePtr->next;
}
```

When you have completed these modifications and debugged them, submit a copy of your output.