

Name
Advanced Programming in C++
Lab Exercise 4/8/2025

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 by 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.