Project #: _____3
Semester: _____2
Name: Sam DeCook

I. Requirements: Restate the problem specification and any detailed requirements in your own words.

We were tasked with creating a linked list implementation which stored only positive sorted integers. We created constructors, the big three, some Boolean functions, and overloaded the addition and subtraction operators.

II. Design: How did you attack the problem? What choices did you make in your design, and why? Show class diagrams for more complex designs.

Our teacher recommended creating each function in the order they were defined in the .h file because they built on each other. I generally followed that principle, though I wrote some of the Boolean functions out of order because they were easier to write than the big three for example.

III. Security Analysis: State the potential security vulnerabilities of your design. How could these vulnerabilities be exploited by an adversary? What would be the impact if the vulnerability was exploited?

I don't know if there is any security flaws in this program. The only input it allows are integers and arrays of integers, and to my knowledge, you can't do much with that. It is a simple class so I don't think there are any vulnerabilities.

IV. Implementation: Outline any interesting implementation details in your solution.

I found the output operator (<<) to be a fence-post problem, which I learned about in the AP coding class I took in high school. Being able to recognize this problem type early, I saved myself a good amount of time.

V. Testing: Explain how you tested your program, enumerating the tests if possible. Explain why your test set was sufficient to believe that the software is working properly, i.e., what were the range of errors for which you were testing.

I tested my program in Xcode, using a combination of looking at the variables and their location in memory and the test file, and then I tested it in ZyBooks when I thought a function was working.

VI. Summary/Conclusion: Present your results. Did it work properly? Are there any limitations? NOTE: If it is an analysis-type project, this section may be significantly longer than for a simple implementation-type project.

My class works as it should and there are no memory leaks as shown by DrMemory. One sort of limitation is that I had to end up copying two pieces of code from the copy constructor and destructor into my assignment operator. I couldn't figure out how to call them in the assignment operator or how to make helper functions in my .cpp

file and just ran out of time. So my program could be more efficient if I was able to figure either of those out.

VII. Lessons Learned: List any lessons learned. For example, what might you have done differently if you were going to solve this problem again?

Programming and debugging in Xcode makes life so much easier. I wasn't forced to submit to ZyBooks every time I wanted to test something and when I did, I could actually see what went wrong and that sped up my work tenfold it seemed. I don't know if I would have done anything differently the next time around, I feel like I was able to complete this homework efficiently and quickly.