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Purpose: The purpose of this project was to design and implement two different kinds of stacks with a template base: array queues, and node based queues. This was solely based on a conceptual idea, we were required to develop what would be similar to the standard template library for a stack.

Design:

This project was way more difficult than the last one, however it followed the exact same structure as the last one for its setup, it just designed the program to be around templates and for a stack as opposed to a que for both arrays and nodes. This means, instead of 5 files, I only had to create 3.

For this program I had to develop a 3 separate files, the first to test the other two, the second to set up the array stack, and the third to set up the node stack. The first file was broken into the array tests and the second for the node tests. Because of this I ran through each of the files going with each test in order of the file outside of the functions that were needed for it to be tested.

The array stack was altered from the given stack header with the notes from the lab to turn it into a template based stack. This meant that it could be used for any set of information and would run with any given input as long as the input remained consistent. I then went to developing the function implementations so that they were set up.

The node based stack was used for a dynamic allocation for the stack. It was developed in the same manner, however it needed to include both a copy constructor, along with an assignment operator, and a destructor. This is because the nodes needed to be deleted and only allocated if there was enough memory. Outside of that the only change from the last section I needed to implement was that the classes were templated, which meant that every call with the template needed to have it defined.

Problems:

This problem was way more difficult. Mainly due to lack of definition in the ideas of templates, solely because I forgot to include the definitions of all of the different templates for all of the classes, especially in the Node Stack. Outside of that, my biggest problem was the segmentation faults which were for the most problem fixable through just going back through my code and making sure that calls to different nodes and node parts were not undefined.

Future:

This assignment was difficult because I could not find the time to complete everything. I was unable to find the time to make the best program. I was lax on comments, and I get the feeling that I will not be able to completely solve occasional segmentation faults.