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Purpose: The purpose of this project was to learn how to interact with vectors as well as be able to implement recursive functions in a program. This program was also defined to use templated classes, in order to better help us understand templating, but there was mainly alteration of integer based vectors, never really anything outside of that. The main goal of the project was to take in a vector of different integers and use it to sort the vector and find an integer within it.

Design:

This project was a lot easier than the last one for some reason. This probably was due to the reason that I have a better understanding of the idea of vectors, templates, and recursion. My design process was in two parts, the first was to work on the two recursive functions.

The recursive sort function was designed in the manner described in the project description, where for every time two adjacent objects were right next to one another, they would be swapped, and every time they swapped the function would be called again. This was the easiest function to write because it required no return value, and only needed a simple check instruction to determine when and how to repeat itself.

The recursive search function was a bit more difficult as it was used to find an object and return its place in the vector. In order to do this, I found that I needed four inputs for the function. I needed the vector, the value, the start of where to look, and the end of where to look. This allowed me to constantly check with narrower scopes without losing the position of the original vector value.

After I developed the two functions and tested to make sure that they worked I used the different file to create a class in order to template the functions beyond the use of integers. Nevertheless, I tested the function with integers and the provided input file. This class was developed to test the functions and allow me to print out the information needed from the different vectors, as such I created two print functions to print both the copy and the initial vector.

Problems:

My biggest problem in this entire project is not understanding the vague instructions. While I understand that this was more of a task than a project, the task was vague and awkwardly worded. I found myself trying to solve problems that didn't actually exist and ended up having to exhaustively read the instructions multiple times in scrutinous detail. Nevertheless, I was able to finish the project completely and without segmentation faults this time around, and hopefully have done well enough in my understanding in vectors to have done the project correctly.

Future:

If I were to finish this project even further, I would go beyond the initial templating to a complete generalization of the functions in order to better understand the ideas of templates and allow this program to be used with any kind of variable or type.