**Project 1 Documentation**

The overall purpose of my program was to be able to sort names alphabetically and by their length, as well as for my personal gain of getting used to C++, as well as learning to translate what I learned from C into C++. I would be able to, with my program, to sort a list of 10 or less names alphabetically, as well as sorting the names by length, from smallest to largest. Once my program sorts the names, it would then print them out onto an output stream, one file for both individual ways of sorting the list.

My design for the program was to incorporate everything I learned from CS 135 and be able to implement that into this program, while also being able to adapt the C language into C++. I start off calling all of the functions I will need in-order for the program to work properly, as well as making the main function as readable as possible. I created a total of 6 functions, 3 given by the project, our string functions, and then 3 which I created. 2 functions were to sort the names.txt, one by length, and the other by the alphabet. I also created a print function, which was used to print the sorted arrays after the sorting function is called, as well as write these sorted lists to an output stream and output files.

A big challenge that I encountered during this project was the inability to incorporate pointers into any of our functions. Pointers became a large part of how everything worked in the CS 135 projects, and all string functions I had every written before had been written with pointers, so it was difficult to adapt these functions with no pointers. I also had to learn new techniques and methods in order to have “correct” coding. In CS 135, I just wrote what worked, this project had me learn to organize my code, as well as have multiple comments on every area I could, ensuring that anyone could read it and know exactly what each function does. I also incorporated the idea of trying to make the main function as small and clear as possible, which at first was a struggle, as I didn’t exactly know how to do that, but in the end, I made functions, such as the printFunc, to ensure that the main was small and clear to anyone who reads it.

If I had more time on the project, I would try to organize the code a lot better than it is at the moment. I have still yet to learn organization techniques for the code yet, I would try to compress more in the main function, such as the original print of the names.txt.