**Summary**

In this project I tackled some new concepts. I had never before dealt with Networking before, nor had I ever sent binary files through sockets/pipes. I knew a little bit of the theoretical aspects of both concepts, but I had not applied them yet. By taking the time to better understand both aspects and focus on the design, the coding process was fairly trivial for the exception of one issue with binary files which I resolved after a few days of learning how to handle them.

My first step of the project was to get the basics of Networking down, so I expanded the examples to where I could send strings of variable length. I achieved this by first sending an integer which represented the size of the string being followed. To avoid confusion in the streams, I required that the receiver sent a confirmation byte before accepting the next message. This helped prevent the integer and the message being packaged into one message. This worked great for sending all sorts of information, so long as the message could be converted to a string.

I later learned that binary files cannot be converted directly into a string. This is because binary data is not ASCII, and there can contain non-ASCII characters, and even functions like delete or backspace, which would corrupt the message. Because I was determined to send the messages as strings, I decided to convert the binary data to a hexadecimal string. The receiver would then have to convert the hexadecimal string back into binary data. Another alternative to this solution would have been to send the binary data as simply binary data. While this would have required me to make another method, it probably would have executed faster at runtime.

Once I had all of the networking details buffered out, I tackled the actual specifications of the project. This was by far the easiest part. The Client just had a small program where the user entered various options, and the Server just executed the options. With my dynamic messaging system, I could easily pass a string to the Server telling it what option the Client had chosen. The result from each action was then sent back to the Client in the same manner.

I do not think that this project was too complex, difficult, or complicated. It was simple, and taught the basics of networking. I would very much like to work with a more complex networking project in the future. Luckily for me, there happens to be a networking class which I am taking next semester.