Project Summary

The structure of this code turned out to be much more complex than I thought. I underestimated the amount of code I would need to just build the User Interface and then I had to add the Client-Server code on top of that. The structure of the code is quite far away from my initial design but keeps the general idea. I had to change a lot of the implementation decisions after realizing that some things didn’t work as I thought. I had to learn about threads in Swing and how each thread has different objects. At first, I tried to communicate through different threads using static variables but then I realized it’s hard to track one single variable throughout all different methods it could jump through. I figured out that to communicate between the User Interface and the server or the client and the server the socket must be used. I thought the socket would only be used for sending messages, but I ended up using it to transfer all data between the client and the server, including the login and logout popups and online list of users. I’d say the hardest part of this assignment was dealing with concurrently running threads. Sometimes one of the UI threads would just freeze and at first, I had no idea what was causing it. After looking into Concurrency in Swing I figured out that I couldn’t block the main thread from running and any other tasks I needed to do needed to be on their own threads. The structure of the tests is very simple. They test specific parts of the code as they are unit tests. For testing the UI, I used the Robot class in Java to automatically click through the UI prompts and thus speeding up testing. For the other tests I just called the methods I was trying to test and checked if they returned correctly or not.

The source code for this project is available at <https://github.com/JasonHolm/cs300>, under the TermProject folder. The code run on any IDE that supports Java 8 and allows multiple instances of the same program to run at once. It also requires that the “ExtraFiles” folder is in the same directory as the TermProject folder.