COMP3331 Assignment Report

- <u>Program Design:</u> The program basically initiates a TCP connection between one server and multiple clients. Whole program is run through two files server and client both of which are coded in python 2.7.13. On the server side, multiple client connection are handled with python built in functionality of "SELECT". A thread has been used to check if any of the client(s) have been offline for the "timeout" duration and a timer has been used to unblock a client after the mentioned amount of time. On the client side, threading is used to create a process which keeps a receiving window open for any incoming messages from the server. So at any moment client can put in a command or receiver a server reply simultaneously.

- <u>Application Layer Message Format:</u> All messages have been sent and received as strings. A whitespace " " has been chosen as a separator to send multiple data.

- <u>How the system works:</u>
  The system works as follows:
  1) Server is started on a port and a timeout and block time are provided as command line args.
  2) Client(s) are started on a different terminal giving the server's IP and port number as command line args.
  3) Then everything depends on how the client(s) interact with their terminal.
  4) To send a command client(s) first have to login first, which happens when they enter their credentials and those credentials are sent to the server which checks if they are correct and responds.
  5) The server side has a process function which separates the first word of every client command (eg: block,whoelse,message) and calls the appropriate method which then generates the reply needed to send to the client.
  6) Server maintains multiple lists and dictionaries to check different details to get the functionality working.

- <u>Possible Improvements:</u> Force logout and logout currently close the client socket which has been a major issue for me. I spent around 2.5 days on this issue and even consulted 2 of our help session tutor but unfortunately they weren't able to solve the issue where if I logout and have to login again. My thread on the client side which keeps receiving messages needs to be stopped and that has been the major problem.

- <u>Areas that don't work:</u> P2P functionality has not been implemented. Wish I had managed my time and skills more efficiently to get that done. Everything else works completely fine.