Assignment Report

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This program consists of two main parts: server part and client part. As for server part, it contains 4 java files: **server.java** (contains the main method to start the server program), User.java (used to store user information), **ServerSideThread.java**(used to receive socket connections), **ClientSideThread.java**(used to received message from clients). As for client side, it contains 3 java files: **Client.java**(used to start the client program and to receive commands from the terminal), **ClientUser.java**(used to store user information) and **MessageThread.java**(used to receive messages from the server side).

In general, this program utilize a tool named multi-thread, which allows the program to do multiple work at the same time(at least looks like at the same time).

When server starts, it will generate a ServerSideThread which is used to monitor socket connections from the client sides. When a socket connection establishes, a ClientSideThread will be created to monitor the message sent by clients. And also, it may send messages to the MessageThread of the client sides.

When a client connects to the server side, it is required to input his user's name and his password. And send this information to the server side to check the validation. If the password and the user's name are correct, the client side will create a MessageThread to receive the messages sent by the server. The users can send commands or messages by the client.java which is used to receive information from the terminal as well.

Apart from that, I also use Timer and Task to calculate the time and execute certain tasks when times up.

About the improvement and extensions, I hope to implement a better UI so that this program could be more friendly to the users. It won't be hard to implement this improvement by using some UI structure such as ExtJS etc. In addition, I hope to add a function which allows users to send pictures to each other, which is necessary for an instant messaging application. But it's not quite easy. I need to

store the picture in the server side and store the path in the database so that it will be flexible for the clients to retrieve those pictures.