**Network Programming Design Document**

***Description of Project Design***

For this networking module we were asked to design and write a simple network based chat application and a simple network game using the Java Socket API. Design and implementation were left to the student to decide.

To meet the requirements above this application consists of 2 programs that were created using eclipse:

1. *ChatClient.java/ChatServer.java* Programme -

This aspect of the application allows multiple clients on different threads to take part in a live chat with a single server.

1. *GuessClient.java/GuessServer.java*  Programme -

This aspect of the application allows the running of multiple clients by passing the server a thread allowing them to take part in a number guessing game with the server.

Both programs within this application are hardcoded to run on the localhost IP: “127.0.0.1” & Port “5000”. If the client cannot connect to the server or connection is lost during the program, an exception is thrown indicating that the connection failed and to recheck if the server is running.

***Instructions for running the Application***

Instructions for using the following programs in this Application –

*ChatClient.java/ChatServer.java* Programme:

* Open up a new Terminal window or in Eclipse terminal console.
* Run Server (java ChatServer.java).
* Run Client (java ChatClient.java) – One can run multiple of these in different terminal windows and the server is capable of seeing all of the clients messages in the console.
* Client Prompted to enter a username.
* Chat between Server and Client is now initiated – Client begins by inputting a message in the console and then this message is displayed on the server console/ Server responds to Clients message and this reply is displayed on client console. This messaging goes back and forth until a user wants to end the connection and quit.
* To terminate connection with the Server, the Client enters ‘quit’ and the program exits ( which can be done at any time)..
* To end Server Connection, Server enters ‘quit’ and the program exits ( which can be done at any time).

*GuessClient.java/GuessServer.java* Programme

* Open up a new Terminal window or in Eclipse terminal console.
* Run Server Side for the Guessing Game (java GuessServer.java).
* Run Client Side for the Guessing Game (java GuessClient.java) – One can run multiple of these in different Terminal windows and server is capable of initiating a game with each of its connected clients.
* Client prompted to enter a username.
* Client can play guessing game or exit by entering quit ( which can be done at any time).
* If the Client user decides to play the number guessing game they are prompted to guess the random number generated by the server (between 1 and 100).
* The Server responds by returning pre-set responses and hints (too low!/ too high!) in response to the number inputted by the user Client until the user correctly guesses what the random number generated by the server was and then exits the program.

***Bibliography***

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