## Unit Tests

Unit tests are run through the Eclipse IDE.

To run the unit tests, clone the github repository into eclipse, either by manually loading the files or by importing directly from github. From within the project structure pane, select the testing package, right click, and run all as Junit tests. The results of the tests can then be seen in the right hand pane.

## System Testing

The goal of the system test is to ensure that every action initiated by the user of a client is correctly interpreted from the UI, sent to and processed by the server, and the correct response is sent and handled by the client.

As this is still a relatively early version of the software, the scope of the needed tests are much narrower than the will be in the full system. The system currently has two message/response pairs to test: Registering and logging in.

The system test is most concerned with the intermediate steps in the unit testable modules, such as ensuring that worker threads are able to properly utilize SQL queries, and that the UI can correctly use Client Connection to send messages to the server.

The test is best performed on a single computer to ensure that there are no network errors that may negatively impact the tests. The computer should be running JRE 8.0 or newer, or the equivalent OpenJDK implementation. The database should have a pre-built and populated table of known users to facilitate testing. Once started, if the client or server terminates, the other must be as well and the tests restarted.

### To Perform a System Test

Start the testing database, populated by known users

Start the server, noting the selected port and hostname of the computer, ensuring it is connected to the testing database and that debug messages are on.

In a separate process, start the client, ensuring that it is given the same hostname/port number to ensure connection.

Submit a registration request from the client for a valid new username, while monitoring the server debug console, ensuring that the information received is the same as that submitted, that the response is correctly created, and matches the response received by the client.

Repeat, using an already taken username

Repeat, instead sending a login request for a non-existent user

Repeat, instead trying to login with an incorrect username/password combination

Repeat, instead trying to login with a correct username/password combination.

Close the Client and terminate the server

Terminate the database