<u>Testing Report</u>

LoginGUI consists of three text fields for a username, IP address, and port number as well a login button to attempt to connect to a server. Our LoginGui itself ensures that a valid username, IP, and port number are provided. If they are not, an error message is shown at the top of the window with a JLabel specifying what is invalid. We manually tested the LoginGUI by providing invalid usernames, IP addresses, and port numbers - simultaneously and one at a time.

LoginGUI Tests
- valid username
  - Contains no special characters or spaces (matches regex)
- invalid username
  - Displays an error and fails to connect
- valid IP address (matches regex)
- invalid IP address
  - Displays an error and fails to connect
- valid port number
  - 0 < portNum < 65535
- invalid port number
  - Displays an error and fails to connect
- server is not up
  - Tells user there is a problem connecting
- valid IP but does not lead to correct server
  - Tells user there is a problem connecting after 10 seconds
- unique usernames
  - Tells user that a username is already taken

Our ClientGUI consists of a File Menu with a Logout Submenu, a table to display available users, and a chat button on the bottom to start a chat with the user. Additionally, one can double-click on a username to start a chat as well. When the user tries to exit the program via the Logout submenu or the X button on the JFrame a confirmation dialog is displayed to ensure the user did not exit on accident. When a new user enters, they are automatically added to the JTable. They are also automatically removed when they exit the program on purpose or due to loss of connection. We manually tested the ClientGUI by ensuring that the following actions behaved appropriately.

ClientGUI Tests
- logout button
  - yes at dialog logs user out
  - no at dialog DOES NOT log users out
- 'X' button
  - yes at dialog logs user out
  - no at dialog DOES NOT log users out
- other user logs in
  - other user appears in table
- other user logs out
  - other user disappears from the table
- unexpected server crash - Yes we actually handle a server crash =]

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Our ChatGUI consists of a large text pane to display user messages, a JTable to display the typing status of each user, the title of the frame also tells you who is in the chat, a send button, a drop down menu to add users not in the chat to the chat, and another text pane to allow users to input a message. You can press the send button or press enter to actually send a message. You can also double-click on the typing status of a user to start a separate chat with a single person. The typing status JTable, title, and drop down menu is dynamically adjusted as users are added to or leave the chat. We manually tested the ChatGUI by carrying out the following actions and confirming that they performed according to the spec.

ChatGUI (2 Participating Users)
- click on other user and press chat
  - Opens up chat with correct typing statuses i.e. no text and the other user does not appear in the drop down menu. Their name is in the title as well.
- close ChatGUI window
  - Actually closes the window, adds user to the drop down menu of the chat, displays a "user has left the chat" message to others, removes user from typing status table.
- other user closes ChatGUI window
  - Other user disappears from typing status table and is added to drop down menu. Name removed from title.
- other user logs out during chat
  - Other user disappears from typing status table, drop down menu, from clientGUI user table, and name removed from title
- other user experiences unexpected failure
  - Other user disappears from typing status table, drop down menu, from clientGUI user table, and name removed from title
- unexpected server crash
  - Displays "server is down for maintainance" error window
- other user starts a chat with you
  - Opens up chat window with typing statuses set to no_text
- type during chat
  - Other user sees is_typing message
- have stopped typing after 5 second
  - Other user sees has_typed message
- sent text during chat
  - Other user sees no_text message and message should appears

ChatGUI (2+ Participating Users)
- new other user added to chat through drop down menu
  - They are removed from the drop down menu and add to typing status table, all other users names are in title as well

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- double click on typing status
  - Opens up a new chat with person double clicked
- type during chat
  - Other users see is_typing message
- have stopped typing after 5 second
  - Other users see has_typed message
- sent text during chat
  - Other users sees no_text message and message should appears
- other user leaves chat
  - Name removed from title, removed from typing status table, added to drop down

We carried out these extra tests to make sure the server can handle many users at once and make sure everything in the ClientGUI and ChatGUIs are displayed correctly regardless of the number of users.

Stress Test (10+ Participating Users)
- 10 other users log in
  - 10 new users appear
- user starts chat with other user, adds 8 other users
  - All 9 other users should appear typing status and title. None appear in drop down menu
- messages get sent to everyone
  - Message is displayed to all users