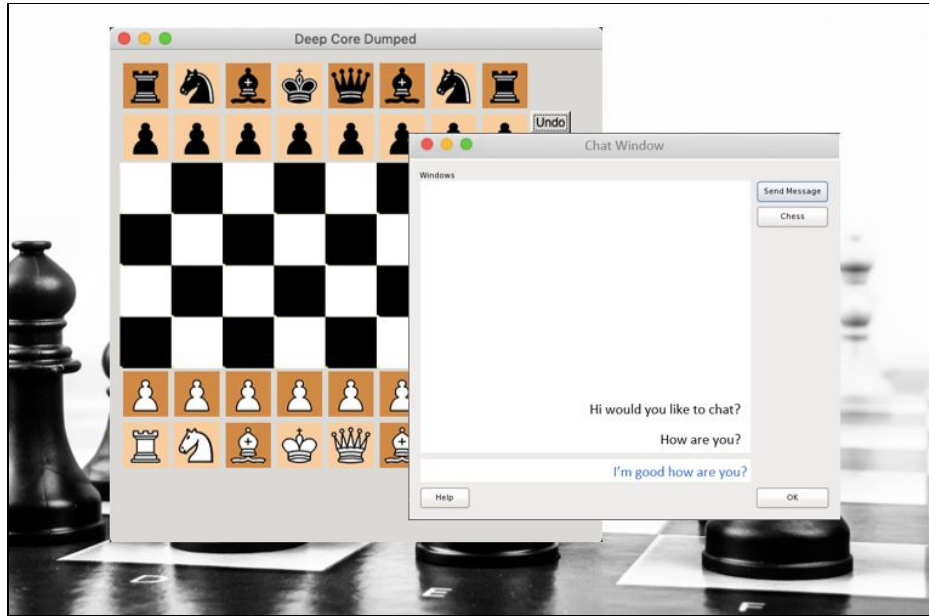# Chat & Chess

User Manual Version 1.0

Software Engineering In C
EECS 22L

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Glossary

- **Account:** A record of the users information, e.g. passwords, chat history, friends

- **Chess Window:** A window for the chess game between the user and other clients

- **Graphical User Interface:** A.K.A. GUI, The graphical and visual aspect of the program allowing the user to interact

- **Message Window:** A window showing the chat between the user and other clients

- **Login Window:** The window the user first sees to login or make an account

- **Online Contacts Window:** The window holding the information for other clients

- **Port Number:** The port that is needed to connect to correct user

- **Register Window:** The window for registering an account to access the main program

- **Server Program:** The program that the server side uses

1 Chat

1.1 Usage Scenario

Chat & Chess is a application that will allow users to connect with and chat with other users as well as request chess games with other users as well Chess functionality is not fully supported in this version. The user can request a game and move the pieces on the board but is not able to coordinate with another user at this time
. The application is linux based and consists of 2 parts, the provider program and the client user application. The provider program is a server application that deployed on the linux server. This application consists of a program that will handle message requests, games, logs of information such as usernames, passwords and message history. The client program is deployed to the client users. The client is allowed initially set up a username and password. Once the client is registered they will then be able to connect with other users, send messages and play chess games. A typical usage scenario is described below.

Provider Usage Scenario:

Server Program:

The provider will be able to run the server program on a linux server in order to enable users to create logins and interact via message and play chess. The server program will record a database of user information including passwords, usernames and message history. To start the server program the provider can go to their linux terminal and type ./ChatServer (portnumber). The port number is an integer value that will specify the port that the server will use to communicate.

Client Usage Scenario:

Login Window:

The first window that appears when the client runs the program is the login window as in Figure 1. If the user is already registered they can just enter the username and password to log in. If the login is entered incorrectly the login window will again appear and the user can try again.
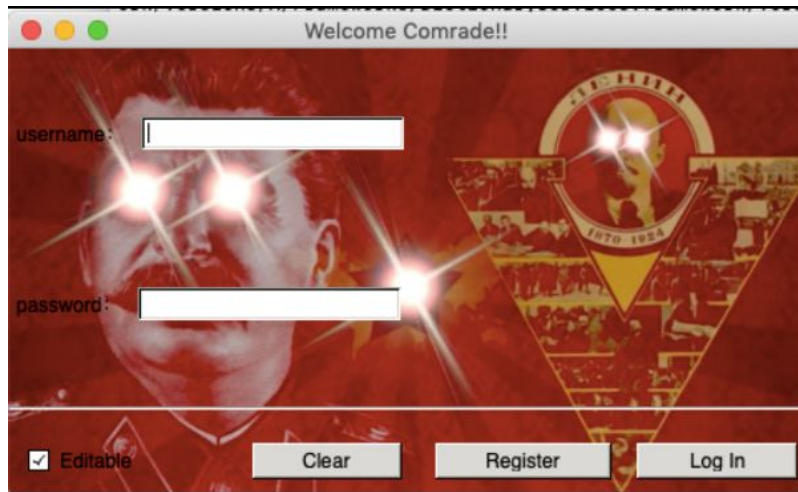
Figure 1: Login Menu

Register Window:

When the user chooses to register a new account, they will be prompted to the register window. The user will enter a unique username that is not already in use between 0 - 8 characters, as well as a password between 0 - 8 characters. The user is asked to type the password twice for verification. After registered successfully, the login window will open so the user can login.
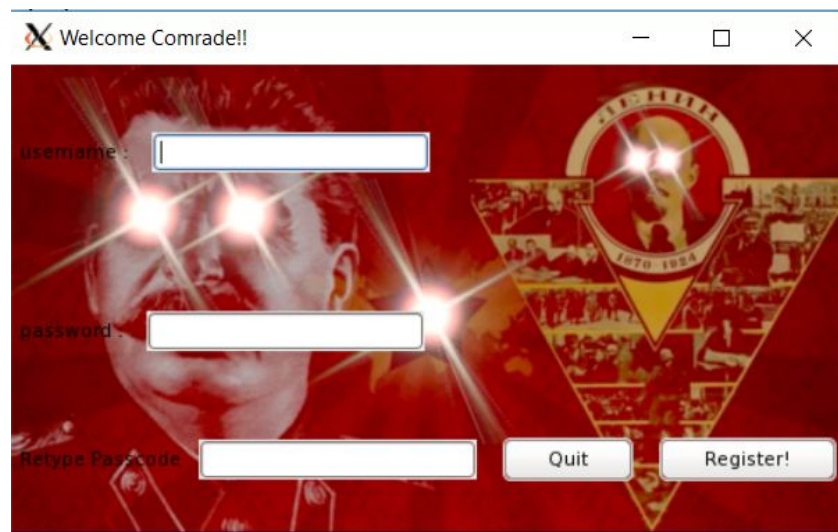

Figure 2: Register Menu

Online Contacts Window:

Once the user has logged in the next window that will open is the online contacts window as in Figure 3. This window will show the contacts that the user has already

made if "friends" is selected. The user can double click on one of these contacts to open a message window. The user is also able to delete a contact or close the window if they wish to do nothing. This window stays open at all times so that the user can open additional message windows at any time. To send a friend request the user can double click on one of the names in the Users list. A window will open to verify that they would like to send the request. To log out at any time the user need only to double click the logout listing.

Figure 3: Friends List/Search

Message Window:
       Once the user selects a contact the message window will open so that they can communicate as in Image 4. The window will allow the user to type in the message that they would like to send at in the bottom field. They can then click send message or hit enter to send the message. The message window shows a history of the messages that have been sent between the users. The user can also request to play a game of chess with

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the user from this window. Once the chess button has been selected a message will print for the other user and if they would like to play they can select accept. The message window also allows the user to delete a friend by selecting the "Delete Friend" button.
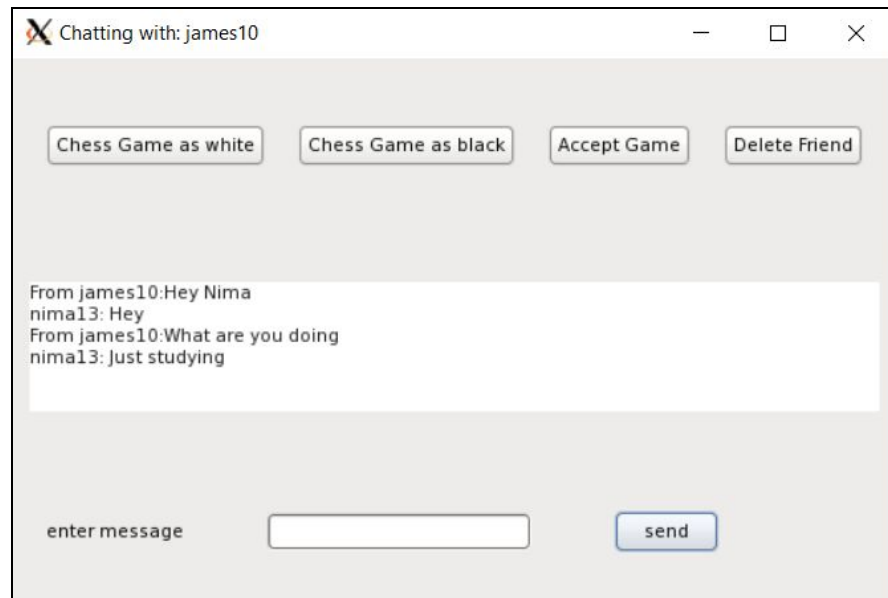

Figure 4: Chat Window

Chess Window:

If the user selects to play a chess game the window for chess will display as in Figure 5. The current version allows the user to request a game and accept a game. The user will select their move by selecting a player and then selecting the square they would like to move the player to. In the current version the chess moves are not coordinated between users.
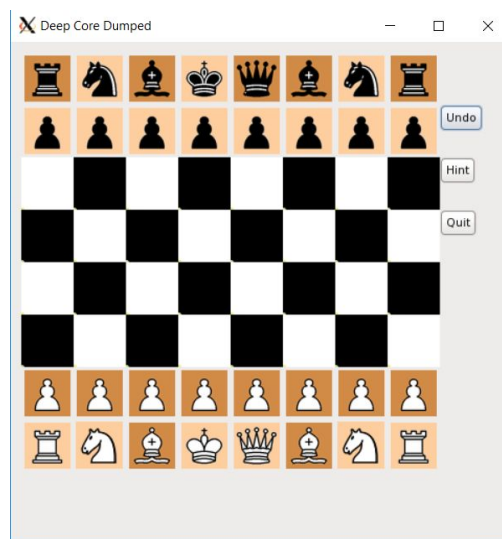
Figure 5: Chess Window

1.2 Goals

The objective of this software is to connect users digitally and be able to interact with one another on a whim. This software should emulate physical interactions and social situations, allowing for people to be connected over the internet. This digital connection allows for people to meet other people, and start a conversation via chat. Users should be able to personalize their social circles, being able to choose who to talk to. Furthermore, there should be a log of the previous conversations between two users, and the GUI interface for this software should make the user interactions smooth.

In essence, the software should be able to replicate a physical interaction digitally, with additional perks that are more easily enjoyed in a digital environment. For instance, accessing and remembering previous conversations is far easier on this software than having interactions in person. Although chess can be played in person, playing chess across this communication software allows the utilization of a smart AI providing assistance with each move, need be. Having conversations digitally, through use of this software, should replicate physical interactions, if not be a better alternative.

1.3 Features

Provider Features:

Account Registration and Login
Accept registration from a new user
Manage user login

Manage User Data/Interaction
Direct user requests including messages and chess games
Update log files for user message logs
Allow provider to see a printable log of interactions between users

Client Features:

Graphical User Interface
All windows appear graphically with buttons and fields for text

Account Registration and Login

       Register a new account

       Login to an account

Contact Management

       View list of other users

       Request to add users (friends) to contact list

       Delete users (friends) from contact list

       Respond to add contact requests, accept/deny

       See user status updates as either ONLINE/OFFLINE

       Send friend requests to users that are offline

Chat Features

       Request to chat with a user in the contact list

       Send a message

       Manage multiple chat threads

       Retrieve message history when a chat window is opened

       Request a game of chess

       Save log of all conversations

Chess Features

       Request a chess game

       Accept a chess game

       Choose color to play

2 Installation

2.1 System Requirements

Hardware: Linux Server
Software Linux: CentOS release 6.10
More, the Linux application: MobaXterm

2.2 Setup and Configuration

The first step to setting up the program is to download the zip file.

Figure 6: Downloading the zip file

Once the file has finished downloading, locate the zip file, for most web browsers the zip file will be placed in the download folder. Next, using an application to view zip files, open and extract all of the contents of zip file. Locate where the zip file was extracted. Once the zip file is extracted, there will be a Chat Program file, we copy and paste the file into our terminal, which is Linux, using the following command: "gtar xvzf chatprogram.tar.gz. Then switching to the directory /chat/bin/chat/. Then type the "make" command to compile the code file to execute. Since only the client portion of the program will be used, to run the executable type "./client" while afterwards specifying the server and the port. Afterwards a window of the client side gui should appear.

If the server portion of the program is needed, run the executable file by typing "./server" into the command line specifying the server and port. Afterwards a window should appear with the server side gui.

2.3 Uninstalling

To uninstall the program, close the program if it is currently open. Once the program as completely closed, we will back to our Linux system. We type the command "rm" to remove the directory, compile "rm Chatroom". If you use the other application which like the MobaXterm, right click and delete the whole file also works.
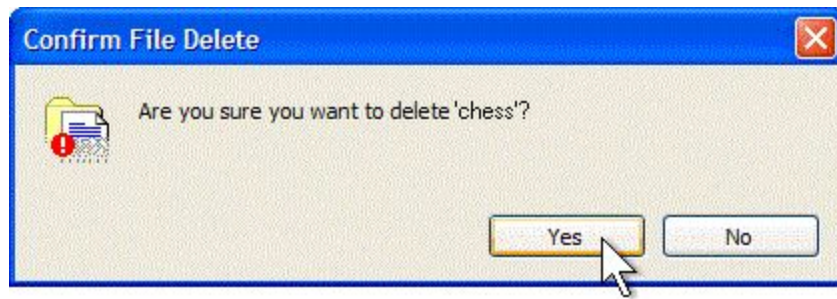

Figure 7: Deleting the chat/chess folder

As for the zip file, remove the folder by right clicking and then clicking delete. Confirm the deletion and the file will be removed from its location and uninstallation will be successful.

3 Program Functions and Features

Provider Features
Account Registration and Login
The provider database provides management of all user data. Usernames and passwords are stored in the database. The database can be accessed in text form in the database directory.

Manage User Data/Interaction
The provider server program provides management of the interactions between users. Connections and data are handled in order to ensure that messages are directed to the correct user accounts. The server program also handles chess game interaction and stores the log files for conversations. The conversations can be viewed as a text file on the server database under the log directory.

Client Features
Login
The user software provides the user the ability to login to the chat application. If the user has already registered a username and password they can enter this information and press the login button to log into the chat application as seen in Image 8. If the login is not correct the user can try again. If the user does not have an account they can select the "register" button to create an account. The user can always press "Clear" to clear all information typed.
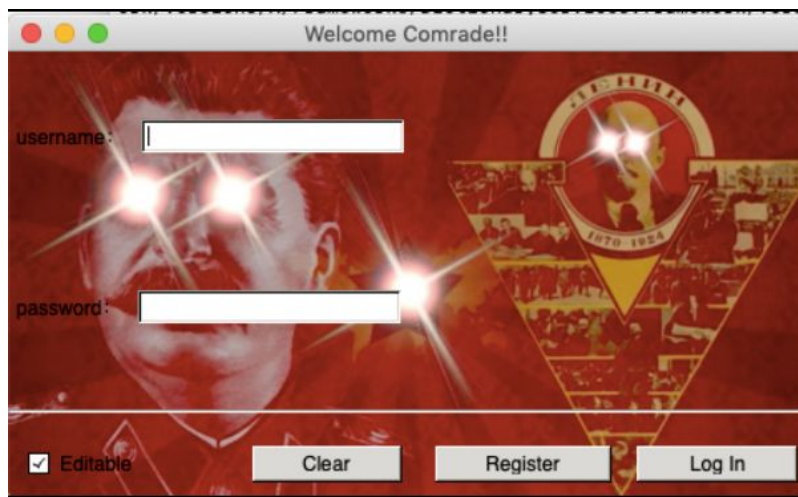

Figure 8: Login Window

Register

      The user software provide user the ability to create an account if they do not have one. If the "register" button in Figure 8 is selected the menu in Figure 9 will display. The user can then enter a username and password and then select register. The username and password are allowed to be up to 8 characters and can include only letters and numbers. The username and password are not case sensitive. The user can always press "Clear" to clear all information typed.
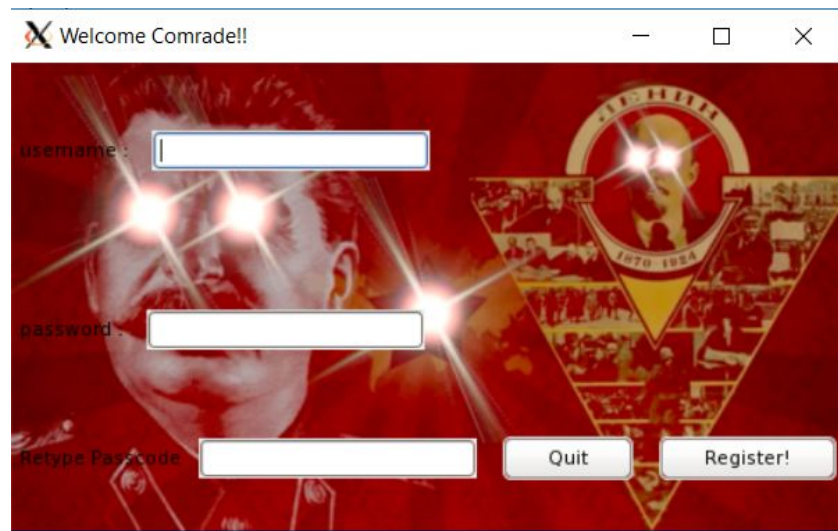

Figure 9: Registration Window

View list of other users

      To view a list of other users the user can select users tab. This tab shows all of the users in the system.

Adding friend

      User can click the users tab shown in Figure 10 and double click on a user to add them as a friend. A window will display asking the user if they would like to send a request to that contact. If they press yes the request will be sent to the other user. The window in Figure 11 will appear to let the user send a request. The status of the user is shown in the window. If the user is offline they will receive the request when they log in again.

Delete friend

      User can delete any friends from his friends list. To delete a friend the user should open the chat window for that friend as shown in Figure 12 and press the "Delete

Friend" button. The friend will no longer appear in the contact list. If the user would like to chat again, the user should add this friend once more.

Figure 10: Friend List and Search Window

Accept/Deny friend request

Once a user has requested to connect with another user the request must be approved. The window in Figure 11 will appear asking the user who has been requested to accept. The user can press "accept" to become friends of close the window if they do not wish to connect.
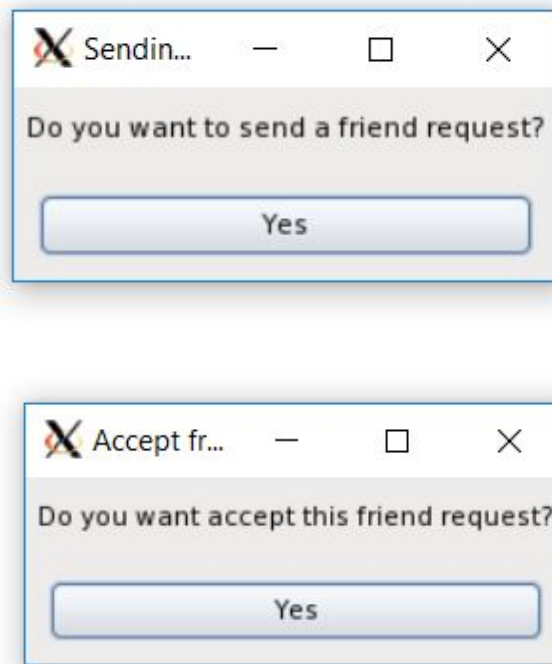
Figure 11: Accept/Deny/Send Request

Request to Chat with friend chosen from contact List

      User can choose to chat with any friend seen from the friend list. To access the friend list the user can select the "MyFriend" dropdown menu in the contact window shown in Figure 10. The list will then display the friends the user has connected with. The friend name can be double clicked to open up a chat window with that friend as shown in Figure 12. The chat window will also appear for the user requested displaying what user wants to chat with them in the window. If the other user does not wish to chat they can simply close the window. The status of all users is shown in the contact list. If the user sends a message to someone who is offline they will receive it the next time when logging in.

Send a message to a user

      Once the user has selected a friend they would like to message they are able to type a message in the message window shown in Figure 12. The user can hit enter or select send message to send the message to the other user. The message is in text form and can be any length.

Save a log of messages

The message application will also save a log of the messages sent. For the user the history will be displayed in the chat window shown in Figure 12.

Play online Chess

User can invite other player to play chess game online. To do this the user can select the "chess" option in the message window as in Figure 12. When the other side approve the invitation, a chess board will open for both users as in Figure 13. Coordination of moves between users is not supported in this version.
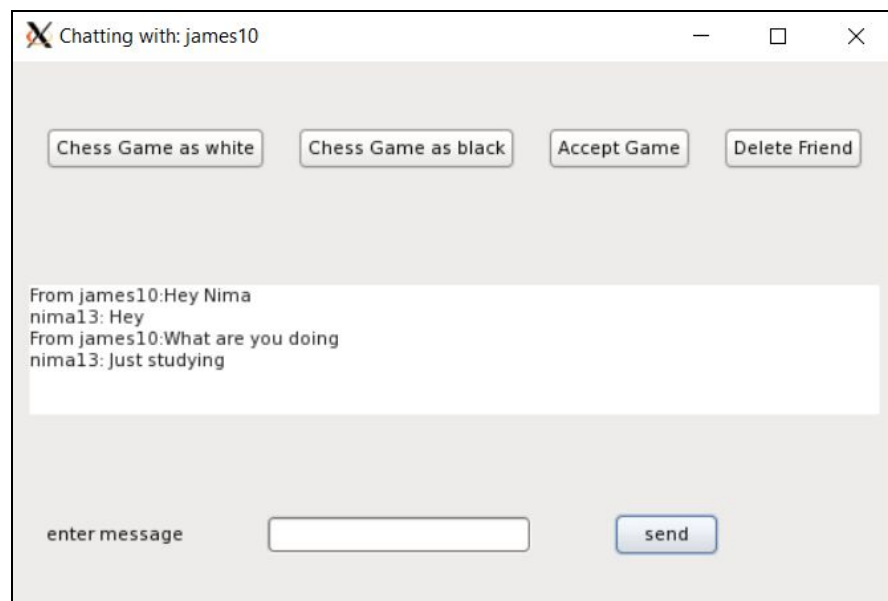

Figure 12: Chat Window

Chess Features Supported in Chat

3.1 Send chess request

The user is able to send a chess request and accept a chess request playing as either black or white side. Once the game is requested and accepted the board will display as in Figure 13. Coordination of moves is not available in this version.
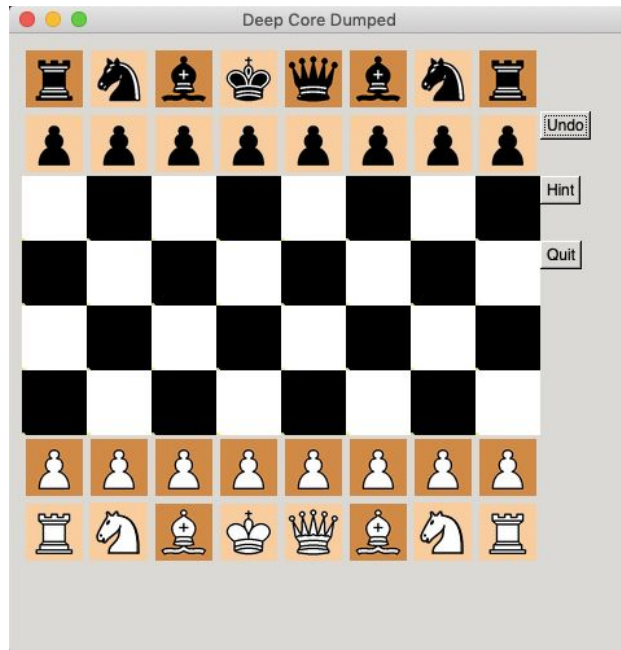
Figure 13: Chess Game Window

Copyright

Error Messages

Username is not registered: user has input their login information incorrectly or is not registered as a user.

Username is registered: when a user wants to register a new user. The new username should be different from any username that has been previously used.

Username not a valid format: a username is not supposed to be a simply space or other especial sign.

Username and password could not be same: for security purposes the password and username should be different.

No contest error: a user cannot sent a empty contest to another.

Chat error: a user could only chat with another user who has already his friend, which means a user must request to add the other user to their contact list first.

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