ZotChat

User Manual Version 1.0.0

University of California, Irvine - EECS 22L SOFTWARE ENGINEERING
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TEAM 5 - 4OUR
HE, JINGTIAN
RAMOS, ROY
TANG, JOHNATHAN
TRINH, BRYAN
ZHU, KEVIN
ZOU, ZIHAO

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TABLE OF CONTENTS

CHAT GLOSSARY

Client:

    A laptop, desktop computer or workstation that is capable of obtaining information and applications from a server via the internet, intranet, extranet etc.

Internet Protocol Address:

    Also known as an *IP address*, is a numerical label assigned to each device connected to a computer network that uses the Internet Protocol for communication. Serves two functions: host or network interface identification and location addressing.

Instant Messaging:

    A type of online chat that offers real-time text transmissions over the Internet for two or more than two people.

Register:

    One of a small set of data holding places that are part of the computer processor. Registers may hold an instruction, a storage address, or any kind of data.

Repository:

    A central location in which data is stored and managed.

Send:

    cause (a message or computer file) to be transmitted electronically to another user

Server:

    A computer or computer program which manages access to a centralized resource or service in a network.

Thread:

    The smallest sequence of programmed instructions that can be managed independently by a scheduler, which is typically a part of the operating system.

CHESS GLOSSARY

Capture:

To remove a piece from the board via a legal move. Also called **Take**, but not **Kill**.

Castling (kingside and queenside):

A move in which the king and a rook are moved at the same time. It moves the king from the center to a flank where it usually is safer, and it develops the rook. It is the only time two pieces are moved in a turn. Castling can be done on either the kingside (notated 0-0) or the queenside. See **Figure 1** on Page 4 for additional details.

Check:

An attack on the King. "Check" does not need to be announced. The player who is checked needs to: capture the attacking piece, move the king to an unattacked square, or interpose a piece between the attacker and the king.

Checkmate:

An attack on the King where there is no way for the checkmated to finish his turn and no longer have the King attacked. The player who is checkmated loses the game.

Draw:

A game that ends without a victory for either player. Most drawn games are draws by agreement. A position is said to be a draw (or a "drawn position" or "theoretical draw") if either player can, through correct play, eventually force the game into a position where the game must end in a draw, regardless of the moves made by the other player.

En passant:

[from French, "in the act of passing"] The rule that allows a pawn that has just advanced two squares to be captured by an enemy pawn that is on the same rank and adjacent file. The pawn can be taken as if it had advanced only one square. Capturing *en passant* is possible only on the next move. See **Figure 2** on Page 4 for additional details.

First player:

The expression "the first player" is sometimes used to refer to White. See **Figure 2** below for more details.

Illegal Move:

A move that is not permitted by the rules of chess. In traditional chess, an illegal move can be moving a piece into check, jumping over pieces with a Bishop, moving 5 spaces on a Knight, instead of 4, etc.

Move:

A full move is a turn by both players, White and Black.

Pins:

When a piece is attacked but cannot legally move, because doing so would expose the player's own king to the attack; or when a piece is attacked and *can* legally move out of the line of attack, but such a move would expose a more valuable piece (or an unprotected piece) to capture.

Resign:

Forfeiting the game. Generally, a player resigns when checkmate is inevitable to not play out the game to its fullest extent.

Stalemate:

A position counting as a draw, in which a player is not in check but cannot move except into check. In case of a draw, neither player wins.

1.0 Instant Messaging

A type of online chat that offers real-time text transmissions over the Internet. Generally, Instant Messaging users must know each other's username or screen name to initiate an Instant Messaging (IM) session or to add them to their contact list or their friend list. Once the intended recipient has been identified and selected, the sender opens an IM window to begin the session.

1.1 Usage Scenario

For IM'ing to work, both or all intended users must be online at the same time.
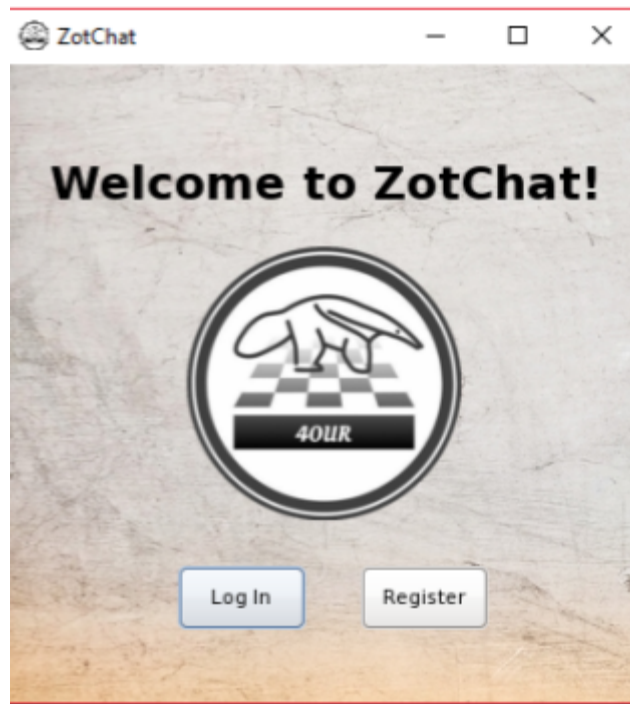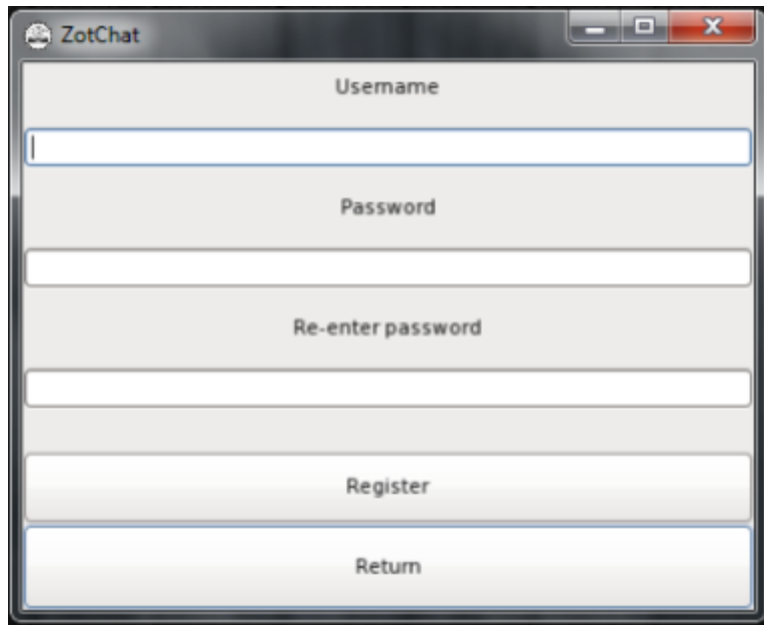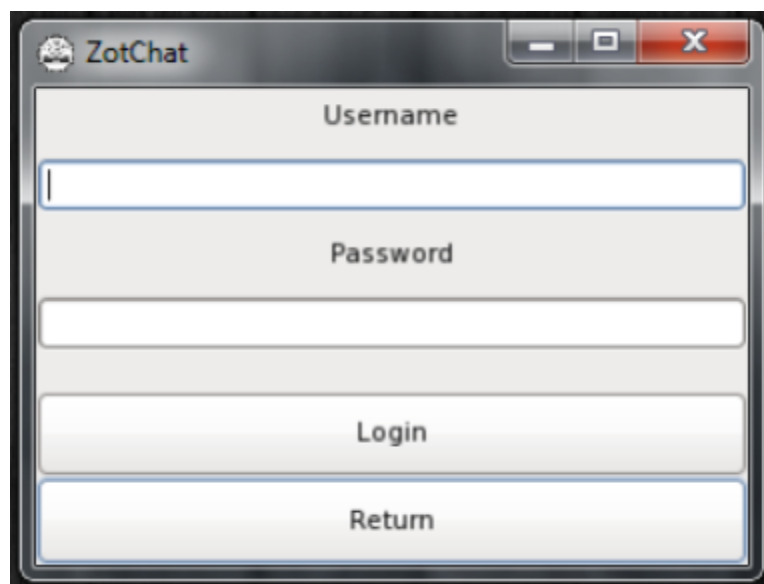
Figure 1:

Initial screen for ZotChat

Figure 2:

Account Registration

Figure 3:

Chat login screen

Figure 4:

Sample chat window with a friend

Figure 5:

Sample chess game

1.2 Goals

The goal of this software is to create a functional chat application that allows for account creation and saving of data to a server. Additionally, the application will support client to client data transfer through functions such as friend requests, messaging, requests to play chess, as well as playing chess in a live player versus player game. All of these functions are functional and should be updated routinely so that the client will pull the most recent feed.

1.3 Features

Before using the Instant Messaging feature, each will be able to create their own username and password to log in to the server. Users will then be able to send and receive requests to chat or play a game of chess with other users online via username. If a user chooses to remove someone on their contact list, the removed user will no longer be able to chat with that user unless a new contact request is made and approved. However, if your contact wants to remove you from their contact list, the other person will be notified and can no longer message that particular contact, until a contact request is sent.
A list of features is shown below:
- Unique account information login screen
- Adding/Removing Contacts
- Controlling a server and rerouting information from client to client
- Changing Password after the initial registration process
- Chess game allowing the users to play with another user
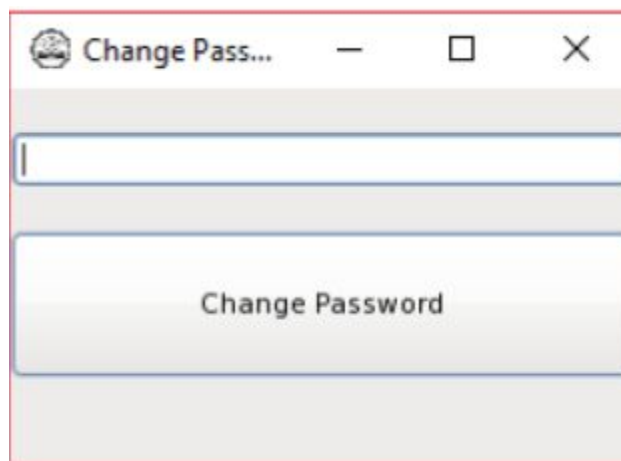
Figure 6:

Example of add friend pop-up window

Figure 7:

Example of change password pop-up window

2.0 Installation

2.1 System Requirements

Minimum Requirements:

- CPU: Intel Core i3-3210 3.2 GHz / AMD A8-7699 APU 3.1 GHz or equivalent
- RAM: 4GB
- GPU: Nvidia GeForce 700 Series or AMD Radeon Rx 200 Series with OpenGL 4.5
- Storage: 4GB HDD
- OS: GNU/Linux 32-bit

Recommended Requirements:

- CPU: Intel Core i7-8700 3.2 GHz
- RAM: 16GB DDR4-2666
- GPU: Nvidia GeForce RTX 2080
- Storage: 480GB M.2 SSD, 2TB HDD
- OS: GNU/Linux 64-bit

2.2 Setup and Configuration

To launch the application:
- Download the tar.gz file
- Untar the tar.gz file using an untar application (preferably WinZip for Windows)
- Launch the application

2.3 Uninstalling

To uninstall the application:
- Close the application window
- Delete the tar.gz file
- If necessary, delete the folder where the contents of the tar.gz file were unpacked
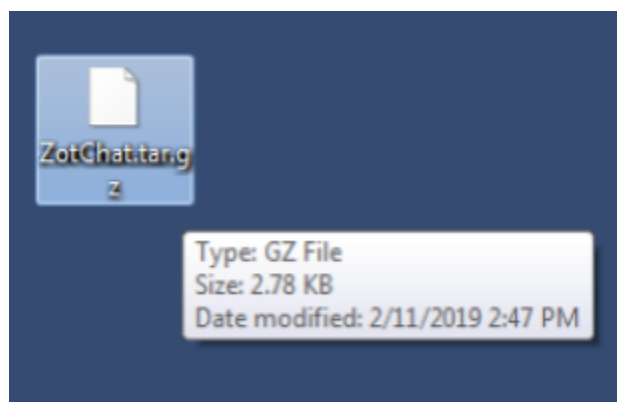
Figure 8:

An example of ZotChat.tar.gz file

3.0 Chat/Multiplayer Chess Program Functions and Features

3.1 Client and Server Communications

The provider will be able to listen and respond to any user apps request. To manage user accounts, the host will store the information as well as the status of all users.
Information of each user will include account username, password, IP address, and port number. The server will also be able to send back a response to the client.

3.2 Logging in and Registering

The user app provides account and password input fields and allows users to sign-up if it is their first time or login to their existing account. For new users, their newly created username and password will be transmitted to the server which will then be verified to check if there are any redundancies in multiple usernames. For returning users, they can log in and become online if they enter the correct credentials, given that they exist in the server.

After successful login, the user will be able to access other allowed users status and TCP/IP addresses based on the server. The user will be able to manage their friend list by sending and receiving friend requests from other users. Furthermore, they will be able to delete an existing contact, terminating the ability to chat and/or interact with that user. Once two contacts have friended both ways, they will be able to initiate a game of chess with live chat by connecting to another user's TCP/IP address.
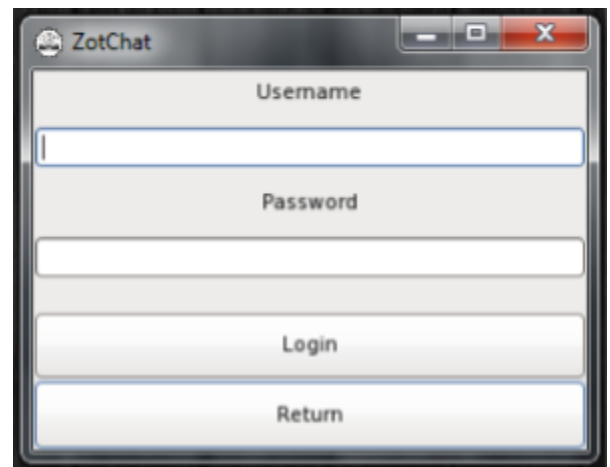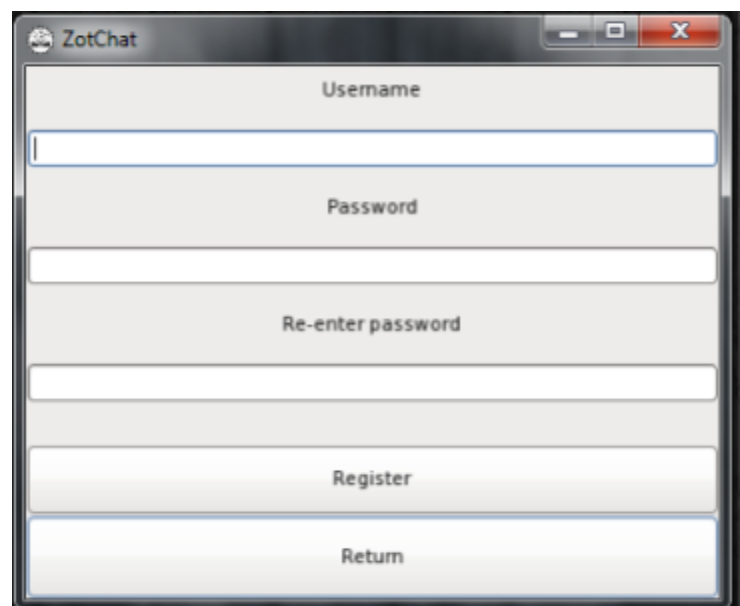

Figure 9:

Login screen for ZotChat

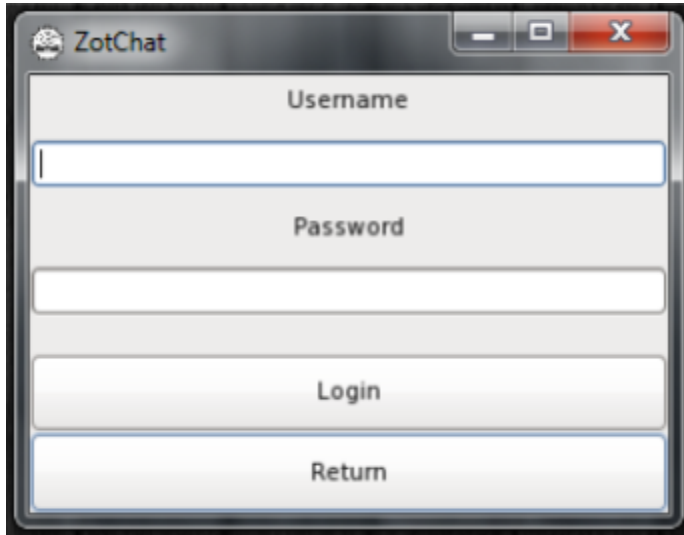**Figure 10:**

Account Creation

3.3 ZotChat Functions and Features

Figure 11:

User can input their account information to log in

3.3.1 User Login Screen

ZotChat has individual accounts for each person, allowing the individual user to have privacy and unique information only available to them. Such information includes a contact list, message history, etc.

3.3.2 Removing Contacts

ZotChat allows for users to remove certain people off of their contact list. Since they are removed, they will not be able to send/receive messages from the removed contact, except for a contact request.

Figure 12:

"Unfriend" removes someone from their

contact list and removes their message history

Figure 13:

User can add other users to their contact list

3.3.3 Adding Contacts

ZotChat also allows users to add other users to their personal contact list for messaging. A contact request must be accepted on the receiving end for any form of communication to start.

3.3.4 Server Info Forwarding

ZotChat has two components: client and server interface. The client can contact other clients through messaging the server and the server reroutes the information to the intended recipient. In a way, everything has to go through the server first before making its way to the destination.

Figure 14:

The server communicates with the user after user sends request to recipient.

Figure 15:

The Server has a list of each account information with varying

contact information list, and selects the logged-in input to check

3.3.5 Server Contact Storing

ZotChat has the contact information and message history of all contacts. The information for each client is unique and no other client can possess the same information as the individual.

3.3.6 Changing Password

The ZotChat team recognizes the fact that users may desire to change their password after registering. ZotChat allows the users to change their password through just a click of a button. The new password is updated in the ZotChat database.
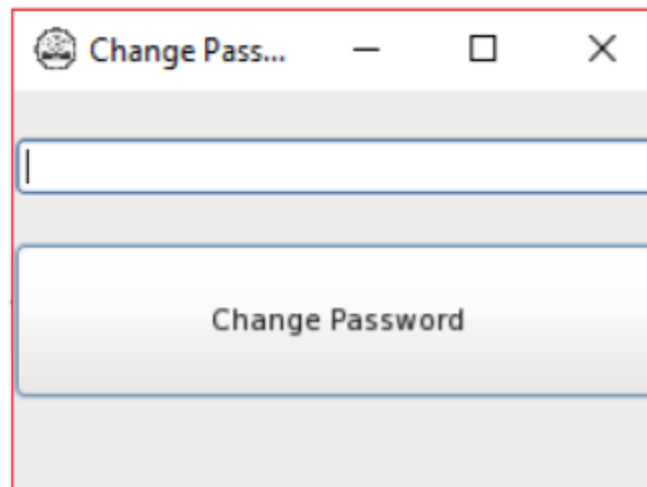

Figure 16:

Users are prompted to enter their new password in the Change

Password window

3.4 ZotChess Game Integration

Additionally, users can send requests to each other to play a game of chess. This will use our product ZotChess, trademark pending, as a platform to play the friendly game of chess. Certain features of ZotChess includes:

Figure 17:

This is how the game will look like once

you have selected your game mode

3.4.1 Basic GUI

ZotChess features a fully functional graphical user interface (GUI) that allows the user to interact with the chessboard by clicking on which piece will be moved and the tile where the piece would be moved.

Figure 18:

When a King is in Check, "check" appears in the top right

corner of the board. In this case, White King is being checked

by Black Queen

3.4.2 Check Notification

Another neat addition to the feasibility of ZotChess is the Check Notification. If one of the kings is being checked, Check appears in the top right corner of the board. Once the king is at a safe position on the board, the notification would then disappear.

3.4.3 End User

After the intense game of chess, an end screen appears, asking whether or not the user would like to play another game. If yes, a menu appears to ask the user if they would like to play a Player VS Player or a Player VS AI and follows the procedures afterward. If the user selects no, then the program quits.

Figure 19:

End User Screen reveals the winner

4.0 Copyright

5.0 Error Messages

In case of any error messages, please reference the table below for common error messages.

If the error message is not listed below, please contact the developer. The developer's information regarding phone number, address, and email is at the bottom of the page.

Error Message	How To Fix
Connection Lost	Connection with the server is not stable, please check with your network provider for more information regarding connection.
Any error message shows while connecting to the server. The following tips can fix most of the errors.	1. Restart your computer 2. Relaunch the application 3. Verify that you have inputted the correct address for the connection 4. Verify that the network capacity has not been reached, if so then wait until traffic dies down
Invalid Move	You made an illegal move, please try again.
Any error message shows while installing the game. The following tips can fix most of the errors.	1. Restart your computer. 2. Reinstall the game. 3. Clean the download cache. 4. Put the game's file folder into white list. 5. Contact with developers for further help.
Core dumped	Please contact the developer.
Other Error Messages	Please contact the developer.

University of California, Irvine
The Henry Samueli School of Engineering
EECS 22L - SOFTWARE ENGINEERING PROJECT IN C LANGUAGE

E4130 Engineering Gateway, Irvine, CA 92697
+1 (949) 824-5333

6.0 Index