

# MULTIPLAYER CHESS

User Manual  
Version 1.1



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# Glossary

**IP address:** a unique string of characters that identifies each computer using the Internet Protocol to communicate over a network.

**Port number:** A port number is a way to identify a specific process to which an Internet or other network message is to be forwarded when it arrives at a server.

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

**Chess:** a board game of strategic skill for two players, played on a checkerboard. Each player begins the game with sixteen pieces that are moved and used to capture opposing pieces according to precise rules. The object is to put the opponent's king under a direct attack from which escape is impossible (*checkmate*).

**Client:** A user who initiates the communication - sending a request to connect to the server.

# 1 Installation

## 1.1 System Requirements

Operating System: Linux

Internet connection is necessary for online play

## 1.2 Setup and Configuration

1. Download the release tarball from

<https://github.uci.edu/EECS-22L-S-21-Team-Projects/Team03>

2. Navigate to the bin folder using “cd bin”

3. To run the client, type **./gameClient**

4. To run the server, type **./chessGame**

## 1.3 Uninstalling

1. Navigate to the folder containing the chess game folder

2. Run the delete command **rm -rf chess\_client chess\_server**

## 2 Chess V2 - Client

### 2.1 Overview of Features

Users can register the account name and password as well as enter the IP address and Port number.

Users can log in to the app with a registered account and password as well as check the entered account's name and password.

Once the users are logged in, they can see the menu of the chess game and they can enter the number as an option to play the game either with an AI or with another player.

Clients can message other clients by using the messaging feature.

### 2.2 Logging in/registering

By opening up the chess application, you are presented with two options: log in with an account or register with a new account. Press the '1' option to log in with an existing username and password. Press '2' to register for a new account. When registering for a new account, you will be asked for a new, unique username. Then you will be prompted to enter your new password. After entering a new password, you have to confirm it by entering the password again; if it does not match, you will be asked to re-enter a new password. With a new account created or having an existing one, choose the login option and first enter your username followed by your password in order to get into the chess game menu. Logging in and registering are not part of the alpha release; however, you may enter in an username, "test1" or "test2."

```
1.Log in with an existing username.
2.Register for a new account.
-----
```

*Figure 1: Login and Register*

*Displays the option to log in with an existing account or register with for a new account. Not in alpha release.*

### 2.3 Getting Started

Once logged in, the main game menu will be displayed where you may choose between two options. The first option brings you to a menu similar to the single player game of chess. The second option brings you to the message board. These options are not in the alpha release.

----- Main Menu -----	----- Pick an opponent -----
1. Play a game 2. Messaging	<List of online players>

```

-----
1: Player vs player
2: Player vs AI
3: Exit Program
-----
Please make your choice: █

```

*Figure 2: Game Menu*

*After logging in, there is the option to play a multiplayer chess game, play a single player chess game, or exit the chess program.*

## 2.4 Usage Scenario

8	bR	bN	bB	bQ	bK	bB	bN	bR
7	bP	bP	bP	bP	bP	bP	bP	bP
6								
5								
4								
3								
2	wP	wP	wP	wP	wP	wP	wP	wP
1	wR	wN	wB	wQ	wK	wB	wN	wR
	A	B	C	D	E	F	G	H

*Figure 3: Chess Game Board*

*Displays the layout of the chess board in game with the chess pieces in its initial positions.*

By opening up the chess application, you have to enter a username - "test1" or "test2." Then, there are options to message or quit. When in any chess game, each player will be presented with the game board at the very beginning of the game. In the player vs. AI game, you are able to choose which side of the board you play but this game feature is not available. Whenever it is one person's turn, he/she will enter two coordinates with capital letters in chess notation like "B2B4" for moving a white pawn forward two spaces. After inputting the two coordinates with a chess unit on it, the chess board will be updated and printed. A suggested move will also be printed each time before inputting a move as well. In order to castle, you have to move the king to its location - like E1G1 for a white king's side castle; the king will move along with the rook. Each player will go through this process until either side's kings are checkmated

or if there is a stalemate or draw. At any point in the game, you may input “exit,” and you will be taken back to the main menu options. In the player vs. AI game, the AI will move automatically after your inputs. On the other hand, in the player vs. player multiplayer chess game, whenever it is not your turn, a message will be printed out saying that the game is waiting for the opponent's move. For example, if you are on the black side, and it is white side's turn, a printed out message will appear reading “Waiting for White piece to move.” The updated board will be printed out for both players after each turn. Playing the chess game is not developed

```

Psssst... try      G2,G4.
White - Please choose your move(or "exit" to exit current game): B2B4

  +---+---+---+---+---+---+---+---+
8  | bR | bN | bB | bQ | bK | bB | bN | bR |
  +---+---+---+---+---+---+---+---+
7  | bP | bP | bP | bP | bP | bP | bP | bP |
  +---+---+---+---+---+---+---+---+
6  |   |   |   |   |   |   |   |   |
  +---+---+---+---+---+---+---+---+
5  |   |   |   |   |   |   |   |   |
  +---+---+---+---+---+---+---+---+
4  |   | wP |   |   |   |   |   |   |
  +---+---+---+---+---+---+---+---+
3  |   |   |   |   |   |   |   |   |
  +---+---+---+---+---+---+---+---+
2  | wP |   | wP | wP | wP | wP | wP | wP |
  +---+---+---+---+---+---+---+---+
1  | wR | wN | wB | wQ | wK | wB | wN | wR |
  +---+---+---+---+---+---+---+---+
    A   B   C   D   E   F   G   H

Psssst... try      C7,C6.
Black - Please choose your move(or "exit" to exit current game): |

```

*Figure 4: Move Selection*

*Displays the user input move, suggested move, and updated board after each move.*

## 3 Chess V2 - Server

### 3.1 Overview of Features

Server can manage user account information including account name, password, IP address and Port number as well as user status.

Server can check a new user sign-up and accept existing log in.

Server can listen to the request of the user and respond with necessary information.

### 3.2 Usage Scenario

Once the server is started, the chess application will select the port to be used. Once entered, the server will start to listen on that port for connections from clients.

### 3.3 Logging in/registering

Users may register for an account with a username and password. Both the username and password will be created as strings in the server. The username and password will be checked with all the other accounts that exist on the server for if there are any duplicate usernames or passwords. With the username and password, you may enter those strings into the log in. The username and password need to match the strings you used during the registration process. On the server side, it is able to determine how many users are currently registered and logged in with a linked list. The length of the list will determine how many users are registered. There will also be a variable for each account to determine if a user has logged in or not. None of the account information can be kept for the alpha release.

### 3.4 Detailed description of chess integration

In a multiplayer chess game, the white player is the first client to connect to the server. On the black player's terminal, the initial chess board will be printed with the message "Waiting for White piece to move," but this message isn't on the alpha release. From the black player's client, it will be waiting for the white side's input. Once a player enters their move, the input move from the side's client will be sent to the server. From the server, it will handle all the board pieces. That side's input move will be sent to the other side's client. On both sides, the board will get updated with the corresponding move that the other player has made. The same process will occur for each side's turn. The server handles all of the moves. Clients authenticate for only usernames (for alpha release) and send their usernames every time they make a move. When 2 clients are simultaneously connected to the server, a game starts with both players. The chat feature of the multiplayer game has not been developed yet.



# Back Matter

## Copyright

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## Error Messages

- Invalid registered account name. Not in alpha release.  
When inputting an account name has been taken, there will be an error message “ Sorry this username has already been taken. Please choose another valid name.” and ask the user to input another valid name.
- Incorrect password or user name. Not in alpha release.  
When inputting a password or username that do not match each other, there will be an error message “Invalid username or password. Please try again” and ask the user to input the username and password again.
- Invalid menu input character. Not in alpha release.  
When inputting an invalid character from menu options, there will be an error message : “Invalid option !” and the user has to input again. The menu will be printed again.

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