

Kings of Chess

Version 3.0 (Alpha Release Phase)



Team 15

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Glossary

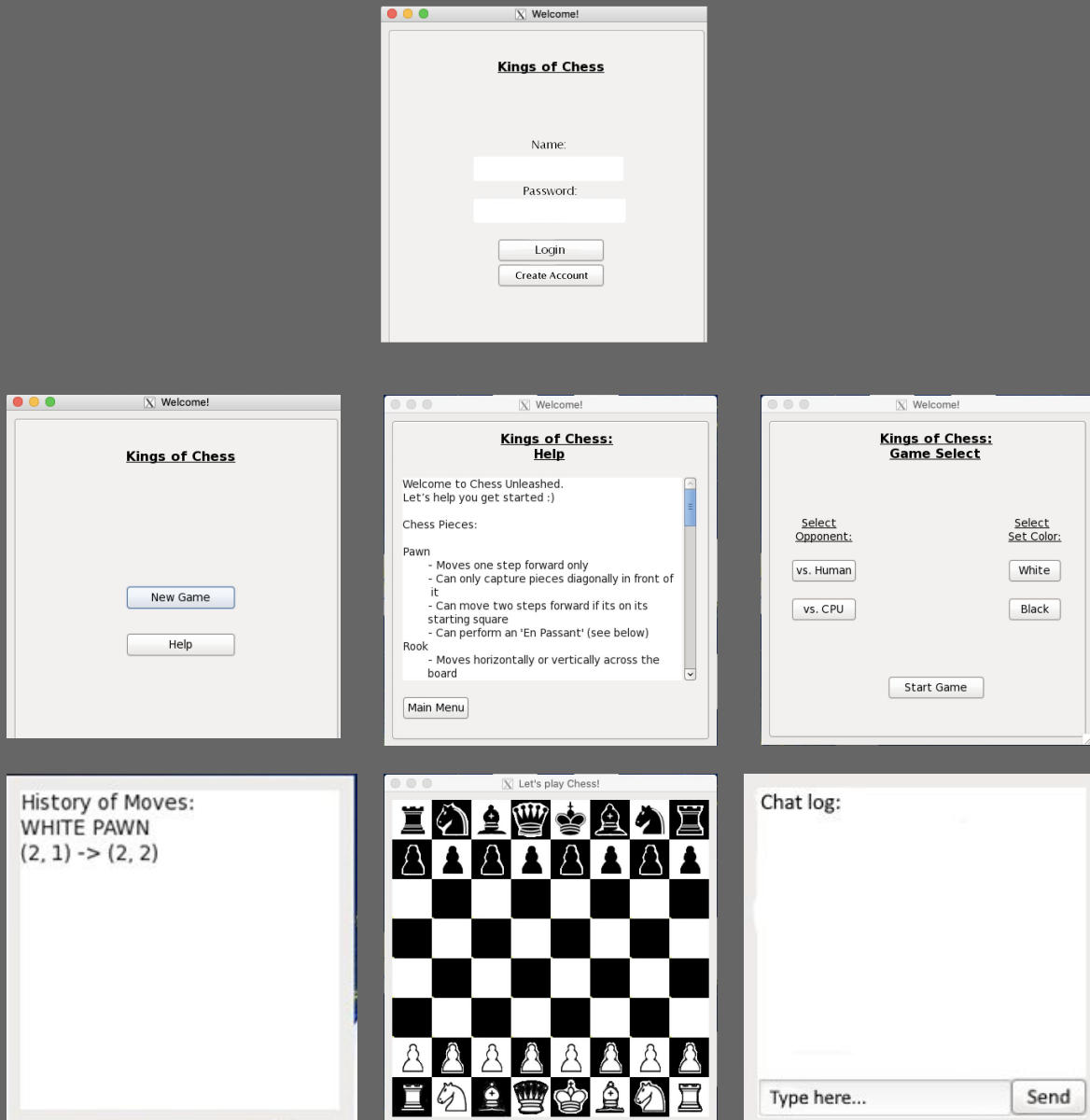
Instant Messaging Terms

- Instant Messaging:
 - A form of messaging where the users can directly contact each other in a real-time conversational format.
- Server:
 - The backend of a networking application. This handles all of the processing and logic allowing users to connect with each other or to the internet.
- Client:
 - The frontend of a networking application. This handles all of the user interaction and will be what the user uses and sees.
- Socket:
 - A point of contact at which a server or client can connect to one another
- Datagram Packet:
 - A packaging of information that is specifically designed to send between server and client
- Internet Protocol (IP):
 - This is the protocol foundation for internet communication between server and client. TCP is based on this protocol.
- Transmission Control Protocol (TCP):
 - A way in which a server and client communicate. Establishes a connection to the server and client and checks the Datagram Packet to be sent for errors. If everything checks out, the packet is sent
- User Datagram Protocol (UDP):
 - Another way in which a server and client communicate. Does not check for a connection to the server to be made, and simply just sends the datagrams without checking for

Chess Kings

Usage Scenario:

This is an example of what standard gameplay will look like. A player will login or create an account. Then they will select a new game and select their set color and their opponent. Then they will take turns playing against their opponent until the game is completed or the player quits the game. While playing, the user can also view their previously made moves as well as chat with the other opponent.



Goals

Primary Objective - To be able to play a game of chess with real-time communication with your opponent

Secondary Objective - To capture your opponent's king, putting it in a checkmate and avoid your own king from getting captured

Features

- Fully Functional Online Gameplay
- Instant Messaging Capability
- Human vs Human
 - Offline and Online Opponents
- Human vs Computer
 - 3 Computer Difficulties
- Set Selection
- Special Moves:
 - Castling
 - En Passant
 - Pawn Promotion

Installation

System Requirements

- Windows, Mac, or Linux OS
- GCC Compiler
- Math Library
- Stable Internet Connection
- Storage space to store game files
- Access to the UCI EECS Servers

Setup and Configuration

Load up your GCC Compiling software.

Create a directory to hold the project (if desired).

Download the game .tar package into your desired folder.

Extract all the game files from the .tar package

- `gtar -xvzf Chess_Kings.tar.gz`

Read the readme if you need additional help

- `vi README.md`

Go to the bin folder

- `cd bin`

Now you can run the game whenever you want from bin folder by typing

- `./ChessKings`

Uninstalling

Go to the root directory (if you are in /bin)

- `cd ..`

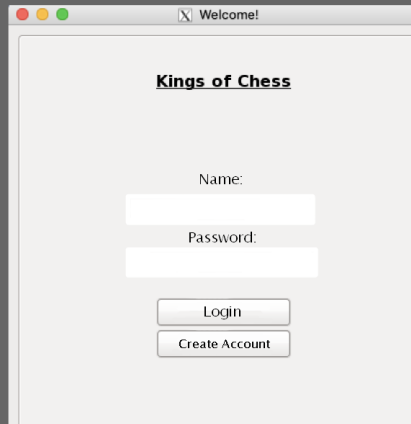
Remove generated game files

- `rm -rf *`

Chat Functions and Features

Basic Function Calls:

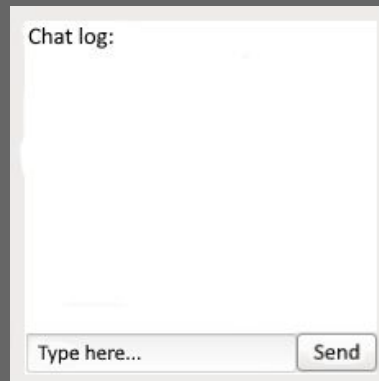
Login Menu:

A screenshot of a graphical user interface window titled "Welcome!". The window has a standard macOS-style title bar with red, yellow, and green window control buttons. The main content area is white and contains the text "Kings of Chess" in a bold, black, serif font. Below this, there are two input fields: the first is labeled "Name:" and the second is labeled "Password:". Both fields are empty and have a light gray border. Below the password field, there are two buttons: "Login" and "Create Account", both with a light gray background and a thin black border.

- Username/Password:
 - Input:
 - Username: Plain-text Field Input
 - Password: Hidden-text Encrypted Field Input
 - Output:
 - None
- Login:
 - Input: Button Click
 - Output: Establishes connection to server and validates User, and then takes User to the online Main Menu Screen
 - Errors:
 - User Not Found: Will tell the user to verify login credentials and try again
 - Invalid Server Connection: Will notify the player that the server is down and encourage the user to play an offline game
- Create Account:
 - INPUT: Button click
 - OUTPUT: Creates a new account on the Server
 - Errors:
 - User Already Exists: Will tell the user to verify login credentials and try again

- Select Opponent:
 - Input: Clickable Dropdown Menu
 - Select your opponent from a list of contacts
 - Output: None
- Select Set Color:
 - Input: Button Click - Select Black or White
 - Output: None
 - NOTE: This function is only valid for the user starting the game, the opponent will automatically be assigned the other color
- Start Game
 - Input: Button Click
 - Output: Starts New Game
 - Error
 - Invalid Server Connection: Will notify the player that the server is down and return them to main Login Screen

Game Chat:

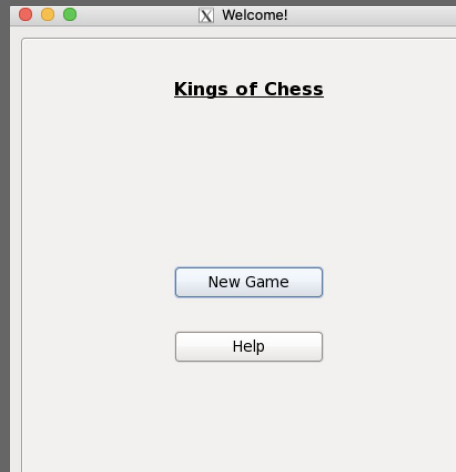


- Send Message:
 - Input:
 - Single Line Text Field Input
 - Send Button
 - Output:
 - Sends a Message to the Opponent and Displays it in the Chat Box
 - Errors:
 - Invalid Server Connection:
 - Will notify the user that the server connection is not working

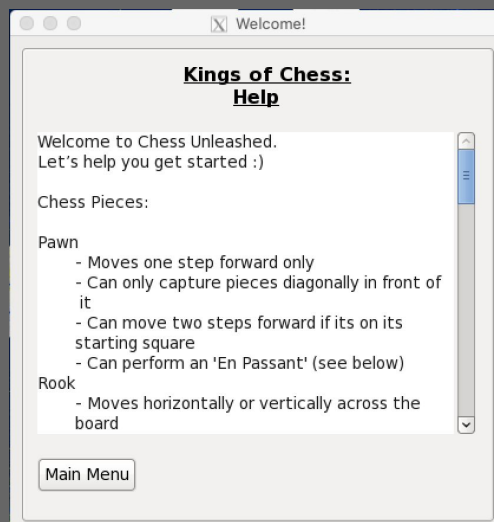
Chess Functions and Features

Basic Function Calls:

Menu (Offline)



- Start Game:
 - INPUT: Select Buttons
 - Users will press New Game to start a game, which will lead them to the game select menu
 - Users will press Help to enter the help screen
 - OUTPUT:
 - Move onto Game Select menu or Help menu



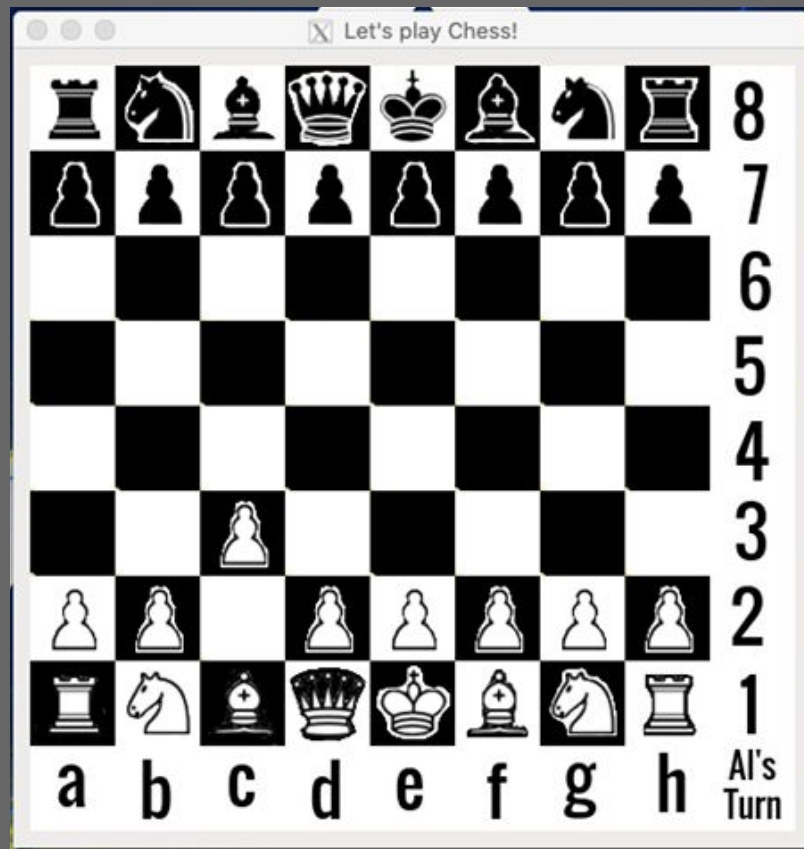
- Help:
 - A list of Chess Pieces, Terms, and Special Moves
 - INPUT: Press Main Menu to Exit

- OUTPUT: Return to Main Menu



- Set Color Select: Player decides if they want to play as White or Black
 - INPUT: Press White or Black
 - OUTPUT: None
- Opponent Select: Player selects who they want to play against
 - INPUT: Press Human to play against a Human Opponent or CPU to play against the CPU
 - Press Start Game to start playing
 - OUTPUT: None
- Difficulty Select: Player sets the difficulty of the AI
 - Input: Click on Easy, Medium, or Hard
 - OUTPUT: None
- Start Game: Button to start the game
 - INPUT: Click the Start Game button after clicking other menu buttons to select opponent, color, and difficulty
 - OUTPUT: Starts Game

Game



- Piece Select: Player selects what piece they would like to move
 - INPUT: Click the piece you want to move
 - OUTPUT: None
- Move Piece: Player selects what position they would like to move to
 - INPUT: Click the square you want to move to
 - OUTPUT:
 - Piece is moved
 - If the piece captures another piece when it moves, a capture message is displayed "(PIECE 1) has captured (PIECE 2)"
 - ERRORS:
 - Illegal Move Error: will result in a redo of the move
- AI Move: When the player desires the AI to make its move
 - INPUT: Click the AI's Turn square in the bottom right
 - OUTPUT:
 - Piece is moved

- If the piece captures another piece when it moves, a capture message is displayed "(PIECE 1) has captured (PIECE 2)"



- Promote: If a pawn reaches the 8th rank, then player can choose what piece to promote to
 - INPUT: Click on piece type you wish to promote your pawn to
 - OUTPUT: Piece is changed to the desired piece type
- En Passant: Pawn is able to capture another pawn that just double stepped "in passing" as if it only moved one space.
 - PRECONDITIONS: opposing pawn just double stepped right next to a pawn
 - INPUT: Click the pawn you want to use to capture, then click the diagonal square that the opposing pawn just double stepped over.
 - OUTPUT: Pawn moves to the diagonal square and captures the opposing pawn past it.

