



Chess User Manual

v1.3

By: ZotMeUp[©] (Team 7)

Development Team:

Anson Do
Arian Reyes
Xianzhang Li
Adrian Gomez
Kevin Huang

Affiliation:

University of California Irvine
Department of EECS

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Glossary

B

Bishop: A chess piece that can move diagonally across the board.

C

Castling: A special move in the game of chess involving the king and either of the original rooks of the same color. It is the only move in chess (except promotion) in which a player moves two pieces at the same time. Castling consists of moving the king two squares towards a rook on the player's first rank (row), then moving the rook onto the square over which the king crossed. Castling can only be done if the king has never moved, the rook involved has never moved, the squares between the king and the rook involved are not.

Check: If a King is threatened with capture, but has a means to escape, then it is said to be in check.

Checkmate: When a King cannot avoid capture then it is checkmated and the game is immediately over.

E

En passant: A special pawn capture which can occur immediately after a player moves a pawn two squares forward from its starting position, and an enemy pawn could have captured it had the same pawn moved only one square forward. The opponent captures the just-moved pawn as if taking it "as it passes" through the first square. The resulting position is the same as if the pawn had moved only one square forward and the enemy pawn had captured normally. The en passant capture must be done on the very next turn, or the right to do so is lost. Such a move is the only occasion in chess in which a piece captures but does not move to the square of the captured piece. If an en passant capture is the only legal move available, it must be made.

K

King: A chess piece that can move in any direction, but only one step at a time. Also, the king must never move into check. There is also a special "castling" move for the king.

Knight: A chess piece that can jump to eight different squares which are two steps forward plus one step sideways from its current position.

P

Pawn: A chess piece that can move only forward towards the end of the board, but captures sideways. From its initial position, a pawn may make two steps, otherwise only a single step at a time. If the pawn reaches the end of the board, it is automatically promoted to another piece (usually a queen). There is also a special "en passant" move for the pawn.

Q

Queen: A chess piece that can move horizontally, vertically, and diagonally across the board.

R

Rook: A chess piece that can move horizontally and vertically across the board.

1. Computer Chess

1.1 Usage Scenario

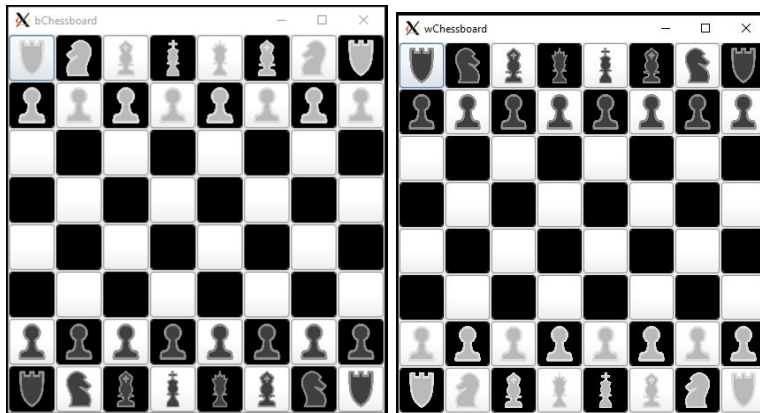
Initial Setup of the Game. Choose type of gamemode:

- a) Player vs Player
- b) Player vs AI
- c) AI vs AI

Choose which color piece to play:

- d) White
- e) Black

After selections, the chessboard will appear:



MAKE SURE NOT TO MOVE CHESSBOARD WINDOW. IN CERTAIN SCENARIOS A NEW WINDOW WILL BE MADE IN PLACE OF THE OLD CHESSBOARD.

A NEW BOARD WILL BE PRINTED IN PvP IF THERE A PLAYER MADE A SPECIAL MOVE.

A NEW BOARD WILL BE PRINTED IN PvAI WHENEVER AI MAKES A MOVE.

When a pawn is promoted, it automatically selects the Queen piece.

1.2 Goal

The goal of this program is to learn chess. The goal of chess is to capture the other player's king. This capture is never actually completed, but once a king is under attack and unable to avoid capture, it is said to be checkmated and the game is over. The program will allow it's user to play chess on a virtual chessboard either against a computer or against another user locally.

1.3 Features

Player vs Player:

A gamemode where you can play chess with another human being.

Player vs AI:

A gamemode where you can test your ability against a computer.

AI vs AI:

A gamemode where the user can see the computer play against itself.

Choose your color:

The player can choose which color the chess pieces will be. White pieces will start before black pieces.

Log:

Keeps a history of the moves made by both players.

2. Installation

2.1 System Requirements

Linux OS

A keyboard and monitor

Intel CPU(2GHz or above)

512MB of Ram(Minimum 256MB)

350MB of Disk Space

2.2 Setup and configuration

1. Connecting to the UCI Linux server with your account, you may need the UCI VPN if you are out of campus.
2. Using the “cd” command to change the directory to find the file.
3. Extract the file with the command **"tar -xvzf Chess_V1.0.tar.gz"**.
4. Go to the bin folder, and to begin the game, run ./chess on the command line.

2.3 Uninstalling

1. Using “cd” to find the fold where the file is.
2. Using “rm -r Chess” to delete the file.

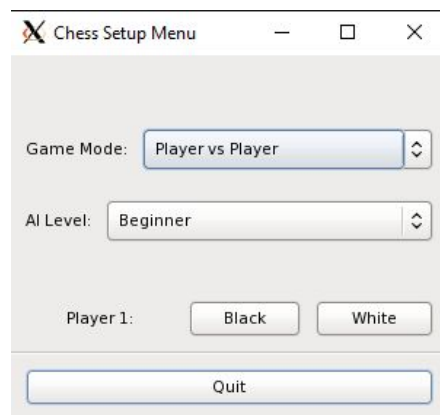
3. Chess Program Functions and Features

3.1 Game Regulation

The game needs to follow official rules of chess.

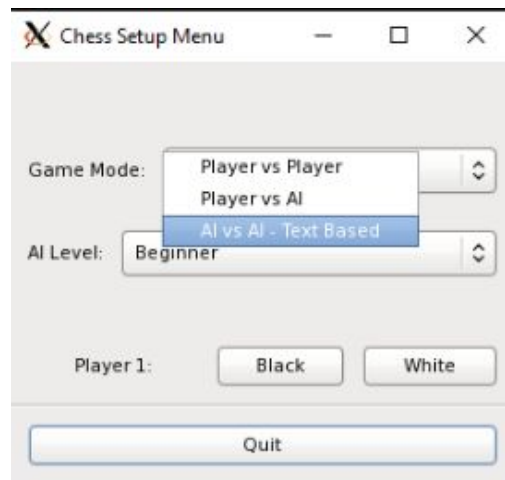
3.2 GUI

The program shows a game interface where the player is given the ability to see the whole game board and make moves. The user is given the option to move where they want to place each piece in the board. If a user attempts to insert a piece into an invalid location, then the piece will not be inserted onto the board and the piece will be placed back to its initial position.



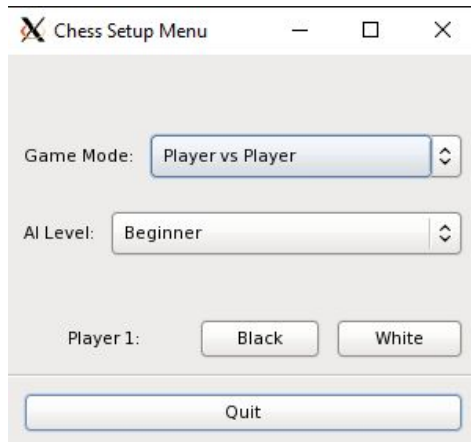
3.3 Human User vs. Computer Player

The program supports the option to have an interactive player(human user) and an automatic player (computer) within a game, which will automatically decide if it's 1 or 2 players.



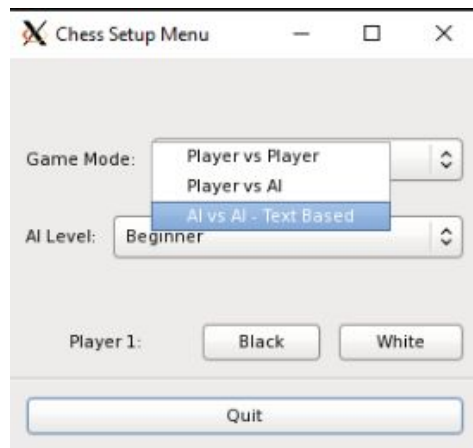
3.4 Choose Board Side

The human user has the option to choose which side they wish to play on. They are given the options of black or white.



3.5 AI vs AI

This allows the user to see the computer play a game of chess against itself.



3.6 Human Readable Log

The program keeps track of all moves made throughout the game and stores them into a human readable log so users can have access to this data via text file.

To access the Log.txt file, change the directory “cd” to bin. Here you will find the chess executable, a bunch of PNGs, and a Log.txt file. In order to view this, you need enter “vim Log.txt” into the command line, and a log of the previous games played will appear.

- Goals of Chess were from
https://www.flyordie.com/games/help/chess/en/games_rules_chess.html
- All rights reserved. This program and the accompanying materials are made available by ZotMeUp®. Illegal distribution of this software is forbidden.

5. Error Messages

Error	Meaning	How to Resolve
100	User has tried an illegal chess move.	Make sure you follow the basic rules of chess when making a move.

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