

Chess Requirements Document

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Introduction

Chess is a classic board game that has been played for thousands of years. More recently, it was added to Vermont Technical College's Knight's Party Table, although without consistent rules. The following document details the required rules and regulations necessary for Chess to function properly on the Knight's Party Table.

Key Concepts

Chess is a board game that is composed of several types of pieces played on a checkerboard. The pieces, including Bishops, King, Queen, Knight, Rooks, and Pawns, each navigate the board in a unique way, and must adhere to certain rules. While the foundations for Chess have been implemented in the Knight's Party Table, much like Checkers, the rules have not. The following must be implemented for the project to succeed:

Enforcements for the following rules

- Players pieces must move in their respective patterns
 - Pawns can only move forward, up to two squares on their first move and one square following that. They can only capture opposing pieces if they are diagonal to the pawn.
 - Rooks can move as many spaces horizontally and vertically as the board allows. They can take the first opposing piece that intersects their path.
 - Bishops are similar to Rooks, however they can only move diagonally.
 - Knights can only move in an 'L' shape - either three squares vertically and two horizontally, or vice versa. They can only capture opposing pieces if they land on them at the end of their move.
 - Kings can only move one square at a time, in any direction. A King cannot place itself in danger of being in check. King's can capture opposing pieces, but only if they are within one square, and their capture does not endanger the King.

- Queens can move in any direction any amount of squares. Queens capture any opposing pieces that they land on.
- If a King is in danger of being taken, it is in check. If there are no more options for a player without being in check, that is checkmate, and the game ends.
- When a player takes another piece, that piece is removed from the board.
- When a player moves a pawn to the opposing side of the board, that pawn can become any piece.
- If all pieces are removed from the board besides both Kings, the game is a draw, as neither King can defeat the other without placing both in check.
 - If all pieces are removed from the board besides one King, the one King remaining is the loser.

Use Cases

Starting a Game

Goal

The user will successfully start a game of Chess.

Other Resources Needed

No other resources are needed to start a game of Chess.

User Action

After starting the Knight's Party Table, the user will select "Chess" from the list of games shown to them. The second user will then select the option to confirm the game.

Product Action

The product will display the list of available games to the user. After the user selects "Chess" from the list, the product will display a confirmation window to the other player.

Playing a Game

Goal

The users will play a game of Chess, taking each others pieces in an attempt to claim victory.

Other Resources Needed

No other resources are needed to play a game of Chess.

User Action

The user will select a piece they wish to move, and then select a square that they wish to move that piece to. The second user will then do the same.

Product Action

The product will move the selected piece to the given location. If the given location violates the rules of Chess, the product will not allow the user to move it to that location.

Finishing a Game**Goal**

The player will either win or lose a game.

Other Resources Needed

No other resources are needed for a player to finish a game.

User Action

The user will either take the last of their opponent's pieces, or they will lose their last piece to their opponent.

Product Action

When one of the players has lost all their pieces, or their king is in checkmate, the product will display three windows - one to the winner, one to the loser, and one to the public screen - with the appropriate message congratulating and consoling, as well as showing the victor to the crowd. The product will then ask the users whether or not they wish to play another game of Chess, or go back to the game menu.

Functional Requirements

For further clarification, the following are requirements necessary for the Chess game to function as designed:

- Two Players

Non-Functional Requirements

The following are non-functional requirements for the Chess game:

Platform

Chess will run on the Knight's Party Table. The Knight's Party Table will run the following:

Windows 10 Home Edition

Performance

Chess will run within a reasonable amount of time, reasonable being dictated by the definition found in the project scope document.

Reliability

Any form of a system crash is unacceptable. Users are using the product to play Chess, not constantly reboot the Knight's Party Table.