

WebCheckers domain model

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Bold = noun

Underline = attribute (of some type)

Executive Summary

The application must allow **players** to play **checkers** with **other players** who are currently signed-in. The game user interface (UI) will support a game experience using drag-and-drop browser capabilities for making **moves**.

Beyond this minimal set of features, we have grand vision for how we could further enhance the player experience with some additional features beyond the basic checkers game.

Product Features

MVP Features

Every **player** must sign-in before playing a **game**, and be able to sign-out when finished playing.

Two players must be able to play a **game of checkers** based upon the American rules.

Either player of a **game** may choose to resign, at any point, which ends the game.

Possible Enhancements

Spectator Mode: **Other players** may view an on-going **game** that they are not playing.

Replay Mode: **Games** can be stored and then reviewed at a later date.

AI Player: **Players** may play a game against **the server**.

Multiple Games: A **player** may play more than one **game** at a time.

Asynchronous Play: **Players** can play asynchronously.

Player Help: Extend the Game View to support the ability to request help.

Tournament Play: **Players** can enter into **checkers tournaments** including player statistics.

From https://www.se.rit.edu/~swen-261/projects/WebCheckers/Vision_document.html

American Rules for Checkers

This has been adapted from Standard Laws of Checkers which is a compilation of the American Checkers Federation rules for checkers including tournament play.

The **checkerboard** is an **8x8 grid of light and dark squares** in the famous "checkerboard" pattern. Each player has a dark square on the far left and a light square on his far right. The double-corner sometimes mentioned is the distinctive pair of dark squares in the near right corner.

The **checkers** to be used shall be round and red and white in color. The **pieces** shall be placed on the dark squares. The starting position is with each player having twelve pieces, on the twelve dark squares closest to the player's edge of the board.

The **red player moves** first.

A player must move each turn. If the **player** cannot move, the **player loses the game**.

In each turn, a player can make a simple **move**, a **single jump**, or a **multiple jump move**.

Simple move: Single pieces can move one adjacent square diagonally forward away from the player. A piece can only move to a vacant dark square.

Single jump move: A player captures an opponent's piece by jumping over it, diagonally, to an adjacent vacant dark square. The opponent's captured piece is removed from the board. The player can never jump over, even without capturing, one of the player's own pieces. A player cannot jump the same piece twice.

Multiple jump move: Within one turn, a player can make a multiple jump move with the same piece by jumping from vacant dark square to vacant dark square. The player must capture one of the opponent's pieces with each jump. The player can capture several pieces with a move of several jumps.

If a jump move is possible, the player must make that jump **move**. A multiple jump move must be completed. The player cannot stop part way through a multiple jump. If the player has a choice of jumps, the player can choose among them, regardless of whether some of them are multiple, or not.

When a **single piece** reaches the row of the board furthest from the **player**, i.e the king-row, by reason of a simple move, or as the completion of a jump, it becomes a **king**. This ends the player's turn. The opponent crowns the piece by placing a second piece on top of it.

A **king** follows the same move rules as a single piece except that a **king** can move and jump diagonally forward away from the player or diagonally backward toward the player. Within one multiple jump move, the jumps can be any combination of forward or backward jumps. At any point, if multiple jumps are available to a king, the player can choose among them.

A **player** who loses all of their **pieces** to captures loses the **game**.

From <https://www.se.rit.edu/~swen-261/projects/WebCheckers/American%20Rules.html>

1. Player(s)
2. Checkerboard
3. Checkers
4. King
5. Grid/Square
6. Game
7. Checker Tournament



