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Date: Feb 10

Data Model for Checkers game

Methods:

Player turns:

- The player to go first will be determined by a coin toss. A non-computer player will have the option of choosing tails or heads in the beginning of the game where as the computer will randomly choose one.

- A player alternate turns. A method will be implemented to return whose turn it is.

Legal moves:

- A player may not move an opponent's piece thus when choosing for next move discard squares with any piece.
- A move consists of moving a piece diagonally to an adjacent unoccupied square.
- Only the dark squares of the checkered board are used.
- A piece cannot move or jump backwards unless it's a King.

Game states:

- Black checkers will move first and then white checkers.
- Capturing is mandatory when a space on the other side of the opponent's checker is open. A piece is removed after getting captured.
- A player must continue successive jumps until there is no opportunity to capture another checker. The jumps do not need to be in the same line but may "zigzag"
- A player has the option of choosing which direction to jump when there are multiple parts to choose from.
- When a piece reaches the other end of the board it becomes a King gaining the ability to move and capture backwards as well as forwards. No limit on the number of king pieces you can have.
- The player without pieces remaining, or who cannot move due to being blocked, loses the game. The game ends in a draw, if neither side can force a win.
- A player will have option of withdrawing or loosing immediately if pressing a Good Game button. Computer will play until it loses.

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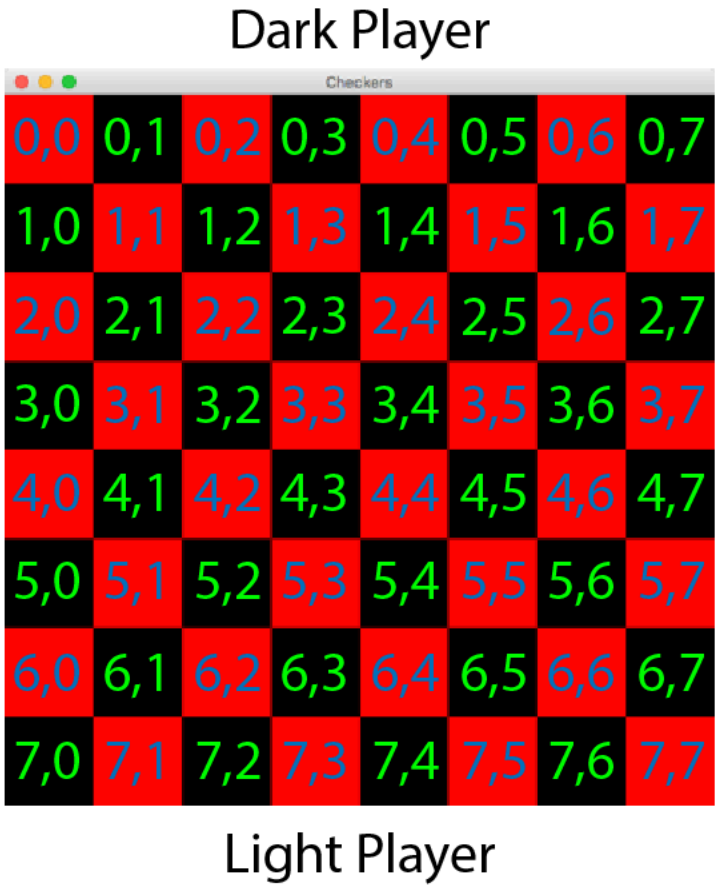
Algorithm for Computer:

Will follow the Minimax game theory algorithm where the heuristic value is determined by the difference of number pieces on board between Black & Red. Kings will be valued at more points. A depth decision map tree of heuristic values where the player trying to win returns the minimum possible scenario for the opponent move and maximum possible for its turn. The number of depths that each turn will look for is three for now.

Board:

8x8, 64 alternating dark and light squares.



Every calculation inside the board will follow two-dimensional array positioning index values.