Connect Four with AI in Kotlin

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Connect Four

- Turn based game

- Board is 6x7

- Drop a piece to the bottom of a column

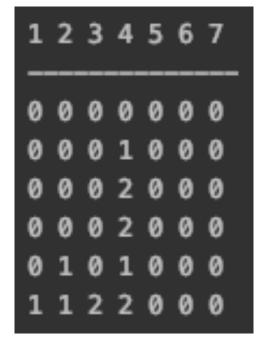- First person to connect four pieces wins

Game Loop

- Approach for single threaded games

- Major Steps
  - Accept input
  - Play piece for human
  - Play piece for computer

Minimax Algorithm

- Maximize your moves while minimizing opponents simulated moves

- Uses board scoring

- Over four and half trillion possible board states

Board Scoring

- 4 ways to win: horizontal, vertical, diagonal positive, diagonal negative
- Loops through each way and tallies pieces
- This board would score 4

Maximize and Minimize

- Gets maximum of computer turn and minimum assumption of human turn (can be costly)
- Creates simulated boards
- Alpha-beta pruning (decreases amount of nodes searched)