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Four Connect Game with AI

CSE 604: Artificial Intelligence

Submitted By

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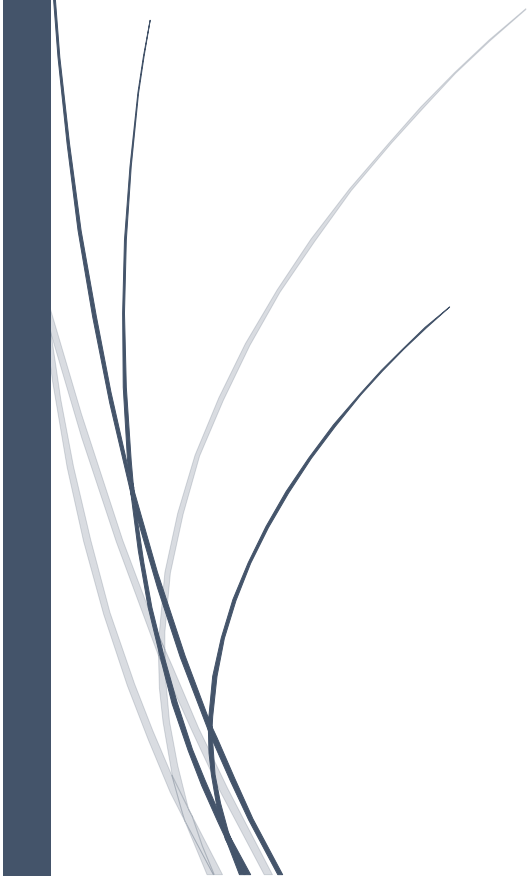

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Game: Four Connect

Evaluation Function Summary

1. The core evaluation function is calculated as, function value = f(C) - f(H) where f(C) returns points calculated for AI and f(H) returns points calculated for human.

2. In the game the pieces are matched horizontally, vertically, right side diagonally and left side diagonally.

So f(C) is evaluated by counting the sum of total AI pieces and total consecutive AI pieces for a single AI move for horizontal, vertical, right side diagonal and left side diagonal position.

f(H) is also evaluated similarly for human pieces for a single AI move.

3. Then the difference of f(H) from f(C) is counted to determine the value of the evaluation function.

Early Stopping Criteria

The idea to build the AI is creating a game tree for every possible move. Then, with the help of minimax algorithm and alpha-beta pruning the best move should be determined for AI. But it is very much time consuming to build a game tree for every turn of AI move. So we have fixed a depth of the game tree level so that the tree is built of the depth and run evaluation function on that. In our project we fixed the depth as 6 which is the criteria for early stopping and giving efficient move within short time.