CSE 537 Project 2 (Game Search)

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Minimax Search
Nodes expanded: 40273
Time: 19.234954

Minimax Search with Alpha-Beta Pruning
Nodes expanded: 8086
Time: 9.993557

Notes

To execute: `python lab3.py`

Runtimes

The runtimes above are for running the complete game, including the non-alpha-beta-pruned moves of the basic player.

Tracking Min and Max Nodes

Both the minimax and alpha-beta pruning methods implicitly keep track of whether the current node is a min or a max node by:

- Alternately flipping the sign of the evaluation function: due to this, in a min node, taking the maximum of all child node utilities is equivalent to taking the minimum, since the child node utilities will be negative.
- Alternately flipping the signs and values of alpha and beta: due to this, in a min node, updating the value of alpha by taking the maximum of the current alpha and the maximum utility found is equivalent to updating the value of beta by taking the minimum of the current beta and the maximum utility found.

Longest Streak Game

The longest streak game variant is only partially implemented in the `LongestStreakBoard` subclass.