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LEHRSTUHL FÜR INFORMATIK II
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Software lab summer term 2013
Implementation of Heuristic Algorithms for Board Games

– Assignment 3 –

Next meeting is on 31.05.2013. Upload your code and report before the meeting.

Task 1

Implement the *MiniMax* algorithm for n players with cut off. The cut off depth shall be given by the user or the server. Your client should pick the optimal move according to this search strategy. Use the evaluation heuristic (which you implemented in the last assignment) to rate the leaves (nodes at the cut off depth).

Task 2

Implement *Alpha-Beta pruning* in order to prune "irrelevant" branches of the search tree. Allow the alpha-beta pruning to be de/activated via a command line switch.

Task 3

Extend your software such that its efficiency (computation time per state, number of states, total computation time per move) can be measured. Make diagrams that compare your software running with and without alpha-beta pruning wrt. the efficiency features above. Of course, you may think of more efficiency measures. Pay attention to the proper use of diagrams in your report.

Hint: You may find lots of information about search algorithms on the internet and the following book in particular:

Russell, Norvig: Artificial intelligence. A modern approach. (Chapter: "Adversarial Search")