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I used file1.GUI.py.

In this program assignment, we need to implement two main functions: minimax and alpha beta pruning.

Alpha beta pruning is like minimax, but will perform alpha and beta pruning during the execution. Minimax expand the whole tree with the given depth limit, however, alpha beta pruning could save a significant amount of operation time since it is pruning the tree during the recursion.

Both function has two helper function, min\_value and max\_value, which return the max or min value from the given subtree. Using the evaluate function helps to give the evaluation of the given stats.

I implement the evaluation about the score within the minimax and alpha beta pruning. Since the score by the given move could recursion back to the value collected from subtree. Therefore, I don’t have to save each move into memory during expending the different path.

Within my evaluation function, I was trying to evaluate certain score based on the given states, without considering the score earned from pervious move. Because my recursion function within both algorithm already count earlier. I find out there is certain case when the move has taken become a “T” shape, which all the horizontal line already taken, and one of the vertical line have taken by opponent, if we using the basic score counting, it could lead to one point tie in this row. Therefore, we must give one point to opponent. I was trying to avoid this case to happened, however, my implementation seems don’t work quite well so far.

In all, I still get 7-29 with Minimax dep=2, and 4-32 with Alpha beta dep=4. But still looking to improve it to better score.