Matt Dumford CS 411 - HW 4

The program starts by parsing the arguments into a game board. It then performs the minimax algorithm. The minimax algorithm starts by finding all of the available moves for the current board. It then generates all of the boards are created by playing those moves. Then for each of those new boards it will calculate the minimum utility value and keep track of the maximum of those minimum values. In order to calculate the minimum utility values it recursively alternates between calling a min and a max function. The min function will first check to see if the new board is solved. If it is, it returns the utility value corresponding with the winner. If the board is not solved, it will generate more boards based on the new set of possible moves and calculate the minimum of the maximum utility values of these new boards by calling the max function and keeping track of the minimum. The max function works the same way as the min function except it finds the maximum of the minimum utility values by calling the min function. The max and min functions recursively call each other back and forth until all branches of the tree of possible games has been explored, whereupon the utility values are returned back up the stack and the minimax algorithm receives the minimum utility values of the first tier of boards. The boards with the maximum of these minimums are the optimal next moves for that player.