

1. The program for minimax works optimally on a laptop up to a depth of 3. The number of states it searches generally increases by a factor of ~ 100 . The AI that plays first when playing itself will always win. It might also draw depending on the scoring methods used. But as long as a good heuristic is applied it should not lose as it is sure of its opponent's next move. The same applies when the AI plays itself with a larger depth.
2. The pieces of the chess board are scored pawns as 10, knights and bishops as 30, rooks as 50 and queens as 90.
 - a. The value of the score is the valuation of the players pieces on the board.
 - b. The score is also reduced by the value of the opponents officials on the board. Encourages the player to make smart trades.
 - c. If the board is a checkmate: if the winner is the player the score is increased by 500 to encourage the player to work towards this outcome. if the player is the loser the score is reduced by 510 to avoid this outcome.
 - d. The player places priority on avoiding a checkmate over checkmating.
 - e. The player uses similar logic to work for and avoid checks. The value of a check is capped at 50 to avoid making unreasonable sacrifices for a check (50 is also the minimum score required on a board to checkmate a lone king)
 - f. The player will work towards a stalemate if it lacks the required amount of pieces to checkmate the opponent
 - g. The player will also work towards a draw in the same situation
3. Alpha beta always selects the same move as minimax. I altered my AIs to log the moves to a file when playing as white and compared the files for both alpha beta as white and minimax as white and the files had the same output up to depths of 3. I did not test larger depths. Alpha beta also explored a total of 12959 nodes as white and minimax explored a total of 34197 as white at depth 1.
4. The best move will occasionally change as the depth is improved. This can be verified by increasing the depth of the black AI. The black AI which loses when they play at the same depth will now be able to win over the white AI.