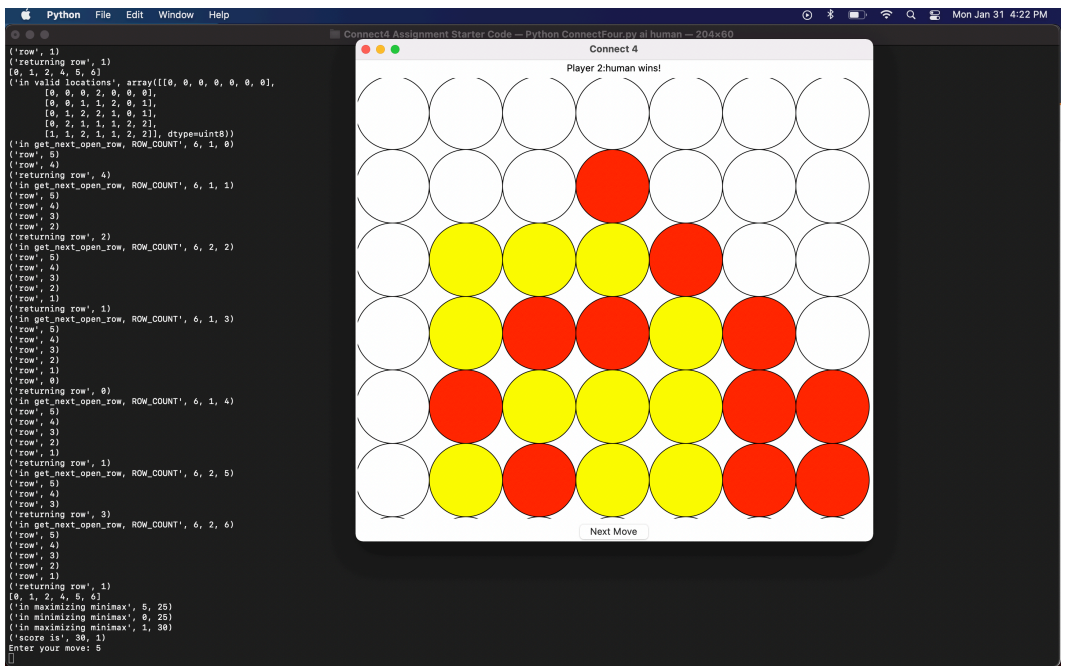
Connect 4 Assignment 2 Report

Attached alongside is the file Player.py containing the minimax function with alpha beta pruning and expectimax functions. I referred this blog for understanding minimax and alpha beta pruning and this for Expectimax algorithm

1. I used the number of pieces in the same row, column or diagonal to find the heuristic value of the board at a particular state. For 2 pieces, the score values to 15, for 3 it evaluates to 30 and for 4 to a full 100. Similarly, opponents pieces also have an impact on the score.

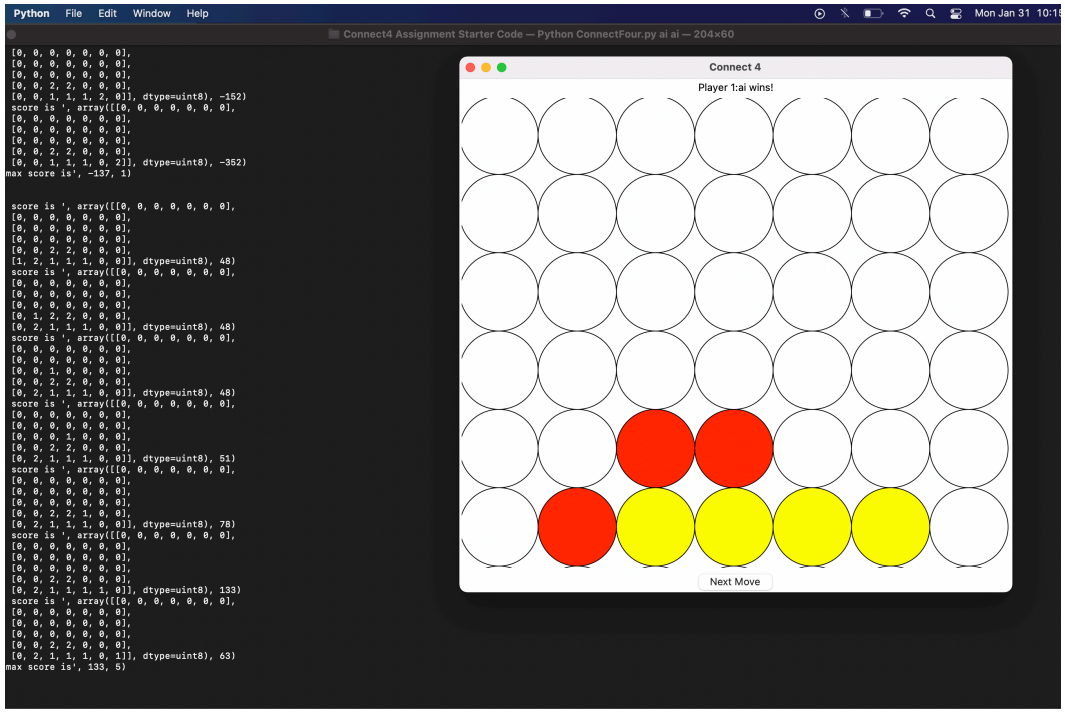
2. As the depth increase my algorithm performed a tad worse till depth of 4, after that started slipping a bit. In 5 seconds, the algorithm could work unto a depth of 3. It played at its optimal at the depth of 1.

3. Yes, as depth increased my algorithm, failed to detect nearest victory for me and I could beat it.



I could beat the algorithm

4. When the algorithm plays itself, the agent playing first has a distinct advantage and wins the game.



AI vs AI. Agent playing first wins