

Heuristics Strategy:

Three different heuristics have been implemented based on look ahead logic, each one is different in terms of strategy but all of them score based on the sum of available moves in the look ahead moves.

The strategies that I choose to implement are quite general in game playing, I implemented an aggressive, defensive and a balanced strategy which aims to be in the middle ground rather than being aggressive or defensive.

Heuristic 1:

The first heuristic calculates the difference between the sum of available look ahead moves for current player and opponent player as the score. This strategy seemed like a good one as it takes the characteristics of both aggressive agent and defensive agent into consideration unlike the second and third heuristics which are overly aggressive and defensive respectively.

Heuristic 2:

The second heuristic is an aggressive strategy which maximizes on the sum of available moves in the look ahead moves of the current player. This strategy seems to work fairly above average when implemented.

Heuristic 3:

The third heuristic is a defensive strategy which minimizes on the sum of available moves in the look ahead moves for the opponent player. This strategy is quite opposite to the second heuristic and works fairly well.

Conclusion:

From the below results we can see that the first heuristic performed very well at 70% win ratio, this is as expected because it does not try to maximize on the current player moves or minimize on the opponent moves which are a little extreme, but instead computes a nice balanced heuristic by taking the difference between them.

Playing Matches

Match #	Opponent	AB_Improved		AB_Custom		AB_Custom_2		AB_Custom_3	
		Won	Lost	Won	Lost	Won	Lost	Won	Lost
1	Random								
8 2	9 MM_Open	1	9	1	8	2			
6 3	4 MM_Center	4	6	4	5	5	6	4	4
4	MM_Improved	6	4	8	2	5	5	5	5
5	AB_Open	6	4	7	3	4	6	4	6
6	AB_Center	7	3	6	4	5	5	5	5
7	AB_Improved	4	6	6	4	3	7	5	5

Win Rate:		62.9%		70.0%		54.3%		54.3%	