Evaluation function Heuristic report:

The project required an analysis of different kinds of heuristics used for evaluation functions. I've tried three different heuristics and compared their performances:

1. *custom_score_2:*

This function returns puts a higer scores for moves that employ an aggressive game tactic. It has the effect of chasing and trying to corner the opponent. During the search it returns *(own_moves – 3 * opponent_moves)*

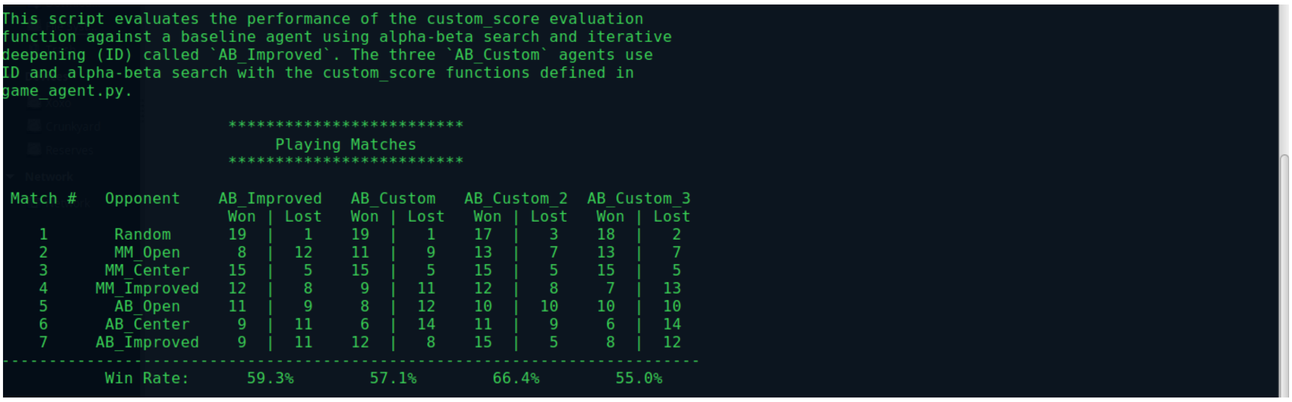
2. custom_score_3:

This function penalizes those moves that are nearer to the walls of the board, since those positions restrict the number of possible moves that can be made. This becomes important as the game progresses.

3. custom_score:

This function combines the techniques involved in the above two functions by using them and adjusting the relative importance of each.

Based on the heuristics, these are the respective scores and their relative performances:



```
This script evaluates the performance of the custom_score evaluation
function against a baseline agent using alpha-beta search and iterative
deepening (ID) called `AB_Improved`. The three `AB_Custom` agents use
ID and alpha-beta search with the custom_score functions defined in
game_agent.py.

                        *************************
                             Playing Matches
                        *************************

 Match #   Opponent    AB_Improved   AB_Custom   AB_Custom_2  AB_Custom_3
                        Won | Lost   Won | Lost   Won | Lost   Won | Lost
    1       Random      19  |   1    19  |   1    17  |   3    18  |   2
    2       MM_Open      8  |  12    11  |   9    13  |   7    13  |   7
    3      MM_Center    15  |   5    15  |   5    15  |   5    15  |   5
    4     MM_Improved   12  |   8     9  |  11    12  |   8     7  |  13
    5       AB_Open     11  |   9     8  |  12    10  |  10    10  |  10
    6      AB_Center     9  |  11     6  |  14    11  |   9     6  |  14
    7     AB_Improved    9  |  11    12  |   8    15  |   5     8  |  12
--------------------------------------------------------------------------
           Win Rate:      59.3%        57.1%        66.4%        55.0%
```

custom_score_2, the one employing aggressive gameplay has the most performance gain, over other heuristics. Will keep experimenting with more heuristics.