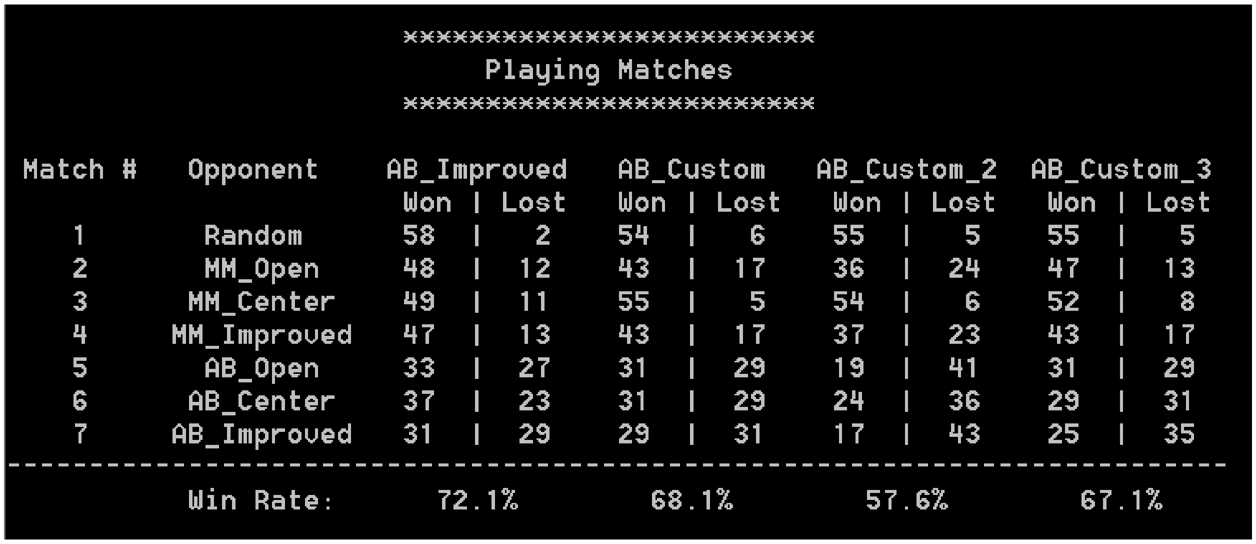
For the first heuristic, I implemented the simple aggresive play valueing as described in class. This version considers the total available number of moves for the player, and twice the number of available moves for the opponent. It then returns player moves - 2* opponent moves in order to determine the optimal route.

The second custom score heuristic uses a mirroring technique. The only move that returns positively is the one one that is an exact mirror of the opponents current position. This is determined by comparing the distance of the potential move from the far board edge to the distance of the opponent player's position from the nearer board edge. In the case where the agent is first player, it picks the center.

For the final heuristic, the agent is doing more of a dance with it's opponent. The agent moves differently every other move. On even moves, the agent chooses the more aggressive move determined from the first custom_score function. For odd moves, the agent scores moves by the number of open surrounding tiles. This way the agent moves towards the tile with the highest number of available moves following.



```
                        *************************
                             Playing Matches
                        *************************

 Match #   Opponent    AB_Improved   AB_Custom   AB_Custom_2  AB_Custom_3
                        Won | Lost   Won | Lost   Won | Lost   Won | Lost
    1       Random      58  |   2    54  |   6    55  |   5    55  |   5
    2       MM_Open     48  |  12    43  |  17    36  |  24    47  |  13
    3      MM_Center    49  |  11    55  |   5    54  |   6    52  |   8
    4     MM_Improved   47  |  13    43  |  17    37  |  23    43  |  17
    5       AB_Open     33  |  27    31  |  29    19  |  41    31  |  29
    6      AB_Center    37  |  23    31  |  29    24  |  36    29  |  31
    7     AB_Improved   31  |  29    29  |  31    17  |  43    25  |  35
--------------------------------------------------------------------------
           Win Rate:      72.1%        68.1%        57.6%        67.1%
```

Based on the win rates, it appears that bare bones alpha beta pruning is the strongest strategy. I upped the match count to 30 to avoid randomness and obtain higher accuracy. The aggressive player comes in second, with the aggressive + open retreat combo is in a close third. The mirroring technique appears to be the worst option by a fair amount.

Based on win rate, bare bones alpha beta pruning appears to be the best choice. This has benefits in that there are no additional heuristics that need to be calculated, thus making this evaluation function more efficient. Alpha beta pruning predicts the game outcome through a tree search and increases efficiency by proving subtrees that we know won’t be chosen based on previous evaluations.