Below is the performance of "ID_Improved" agent

Playing Matches ----------

 Match 1: ID_Improved vs   Random   Result: 16 to 4

 Match 2: ID_Improved vs   MM_Null   Result: 13 to 7

 Match 3: ID_Improved vs   MM_Open   Result: 8 to 12

 Match 4: ID_Improved vs MM_Improved   Result: 7 to 13

 Match 5: ID_Improved vs   AB_Null   Result: 13 to 7

 Match 6: ID_Improved vs   AB_Open   Result: 13 to 7

 Match 7: ID_Improved vs AB_Improved   Result: 14 to 6

Results: ID_Improved   60.00%

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1. custom_score : own_moves - opp_moves

The custom score heuristic is just a difference between computer and opponents move. The computer player would try maximize this difference between their move to keep the computer player's move count more than the opponent's move count.

Playing Matches: ----------

 Match 1: Student vs Random   Result: 18 to 2

 Match 2: Student vs MM_Null   Result: 15 to 5

 Match 3: Student vs MM_Open   Result: 5 to 15

 Match 4: Student vs MM_Improved   Result: 10 to 10

 Match 5: Student vs AB_Null   Result: 14 to 6

 Match 6: Student vs AB_Open   Result: 10 to 10

 Match 7: Student vs AB_Improved   Result: 11 to 9

Results: Student   59.29%

2. custom_score_AggresivePlayer : (own_moves - 2*opp_moves)

The evaluation function weight the opponent's move twice. This heuristic is aggressive since it would force computer player to chase after the opponent

Playing Matches: ---------

 Match 1: Student vs Random   Result: 13 to 7

 Match 2: Student vs MM_Null   Result: 16 to 4

 Match 3: Student vs MM_Open   Result: 13 to 7

 Match 4: Student vs MM_Improved Result: 6 to 14

 Match 5: Student vs AB_Null   Result: 15 to 5

 Match 6: Student vs AB_Open   Result: 12 to 8

 Match 7: Student vs AB_Improved Result: 14 to 6

Results: Student   63.57%

3.custom_score_SquareDifference : (own_moves**2 - opp_moves**2)

This evaluation function is to emphasize the difference between the moves of computer player and opponent. If opponent has few more moves than computer then the difference would be blown up to more negative value.

Playing Matches:

 Match 1: Student vs Random   Result: 14 to 6

 Match 2: Student vs MM_Null   Result: 15 to 5

 Match 3: Student vs MM_Open   Result: 12 to 8

 Match 4: Student vs MM_Improved Result: 6 to 14

 Match 5: Student vs AB_Null   Result: 15 to 5

 Match 6: Student vs AB_Open   Result: 14 to 6

 Match 7: Student vs AB_Improved Result: 12 to 8

Results: Student   62.86%

Conclusion: Using the "custom_score_AggresivePlayer" as the default score function since the performance seems to be better than the ID_Improve agent and other score function as per the above results