Project Name: Build a Game-Playing Agent

Heuristic Design:
- ➔ Get_future_moves
  - ◆ Idea: estimate next possible move from current legal move
  - ◆ Implementation:
    - ● For a current legal move, find next legal move from each direction
    - ● Doesn't consider the opponent move for simplicity
- ➔ Good move
  - ◆ Idea: prefer to take a move that reflection is occupied.
  - ◆ Design
    - ● Good move: reflection is not available
    - ● General move: reflection is still available

Custom Score: combination of above techniques
- ➔ Custom_score
  - ◆ Given <u>future</u> moves of activate player and opponent: m_own, m_opp
  - ◆ Good moves of m_own and m_opp is good_m_own, good_m_opp
  - ◆ Score = |m_own| + |good_m_own| - |m_opp| - |good_m_opp|
- ➔ Custom_score_2
  - ◆ Given <u>legal</u> moves of activate player and opponent: m_own, m_opp
  - ◆ Good moves of m_own and m_opp is good_m_own, good_m_opp
  - ◆ Score = |m_own| + |good_m_own| - |m_opp| - |good_m_opp|
- ➔ Custom_score_3
  - ◆ Given <u>future</u> moves of activate player and opponent: m_own, m_opp
  - ◆ Score = |m_own| - |m_opp|

Comparison:

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      Playing Matches
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Match #	Opponent	AB_Improved		AB_Custom		AB_Custom_2		AB_Custom_3	
		Won	Lost	Won	Lost	Won	Lost	Won	Lost
1	Random	9	1	10	0	9	1	7	3
2	MM_Open	6	4	6	4	7	3	7	3
3	MM_Center	6	4	8	2	8	2	10	0
4	MM_Improved	8	2	9	1	6	4	7	3
5	AB_Open	6	4	7	3	9	1	6	4
6	AB_Center	7	3	7	3	6	4	6	4
7	AB_Improved	4	6	7	3	7	3	6	4
	Win Rate:	65.7%		77.1%		74.3%		70.0%	