HEURISTIC ANALYSIS:

The main aim of the project is to development a adversarial game agent. In this project we implemented min-max algorithm and alpha beta pruning.

Game Rules:

A player can move in “L” shape in a game board. Player cam move either 2-col 1-row or 1-col 2-rows. Player can jump over blocked spaces. A player cannot go to blocked space.

Custom Heuristics:

In this project, I used three custom heuristics.

Heuristics 1: Aggressively Minimizing Opponent moves

1) In this heuristics, I mainly concentrated on reducing the opponent moves.

   TotalNoOf (player moves) - x* totalNoOfOpponentMoves(opponentmoves)

   Here x ranges from (1, ∞)

Heuristics 2:

Minimizing ratio of opponent moves to player moves:

- (OpponentMoves)/PlayerMoves

Heuristics 3:

Maximizing Player Moves. In this approach we tried to move the one which has more options for player

X *(NoOfPlayerMoves) – NoOfOpponetMoves

Results Matrix:

Match	Custom Score1		Custom Score 2		Custom score 3		Opponet
	Won	Lost	Won	Lost	Won	Lost	
1	9	1	9	1	9	1	Random
2	6	4	8	2	7	3	MM_Open
3	7	3	6	4	7	3	MM_Center
4	6	4	7	3	7	3	MM_Improved
5	6	4	5	5	5	5	AB_Open
6	4	6	5	5	7	3	AB_Center
7	6	4	5	5	5	5	AB_Improved

Win Rate:

Custom Score 1: 67.1%

Custom Score 2 : 64.3%

Custom Score 3 : 67.1%

Conclusions:

From the above results we can conclude that minimizing opponent strategy works well