UDACITY PROJECT 3 ADVERSARIAL PLAYING AGENT

This is report of project 3 named Adversarial playing agent and following records have been made as mentioned in project instructions

Win rate percentage of different Agents for respective algorithms

MINIMAX	BASELINE_HEURISTIC	CUSTOM_HEURISTIC
RANDOM AGENT	95	92.5
GREEDY AGENT	25	50
MINIMAX AGENT	65	30
TEST AGENT	50	50

QUESTION AND ANSWERS

1. What features of the game does your heuristic incorporate, and why do you think those features matter in evaluating states during search?

A. My custom heuristic chooses locations that are close to the center square. Being close to the center square is important because a knight chess piece has more locations to move when in the middle of the board and also number of liberties feature at each state. The number of liberties at each state is important because at least one liberty is required to remain in the game and having more liberties than the opponent can increase the chance to win.

2. Analyze the search depth your agent achieves using your custom heuristic. Does search speed matter more or less than accuracy to the performance of your heuristic?

A. My agent achieves a search depth of four. Search depth greater than four takes longer time constraint on each move. Any search depth less than four causes the agent to guess an optimal move. Because a search agent with infinite time to make a move can search more nodes on an 11 by 9 Isolation board, heuristic accuracy is more important than search speed under the default time constraints for making a move. As the search space becomes smaller, the agent is able to find a higher percentage of optimal moves relative to the total amount of optimal moves possible and thus search speed becomes more important than heuristic accuracy.