# # I choose the Option 1

```

Develop a custom heuristic (must not be one of the heuristics from lectures, and cannot only be a combination of the number of liberties available to each agent)

```

# # A simple custom heuristic search for the knight, here are the key ideas. I named the heuristic method as Quadrant Heuristic

- If I am the first player, I will choose the center location, says 57, as the first move.

- If I am the second player, and in this situation I will choose the open liberties from the opponent, at most have 8 candidates. The more liberties they have the higher probability might be chosen.

- At other moves, the main thought is I split the board into 4 quadrants, (\*e.g. I, II, III, IV\*), the program will judge the self player current locate in which quadrant, and his correspond liberties will fall into the same quadrant score higher. The aim is to force the opponent move into the other quadrants and moves ahead with one direction. For example as the opponent always chooses the NNE direction, then his road will become narrower and narrower. The heuristic just want to be priori his opponent occupy the best location.

- The total score are the sum of length and each legal liberties' score

# # There are results of matches

# # Summary

The win rate is not very high, not as the though has not completed totally, but the complexity of the 8 open liberties, when self player turn it can only occupy one location, the others is free for opponent, so it is hard to limit opponent move toward one direction, even one quadrant.

So the though can be improved in the future, I hope it come soon with new methods and algorithm.

And there is a very interesting when match with Greedy, the both has the same level and the same move order every time. So this may be the improve points.