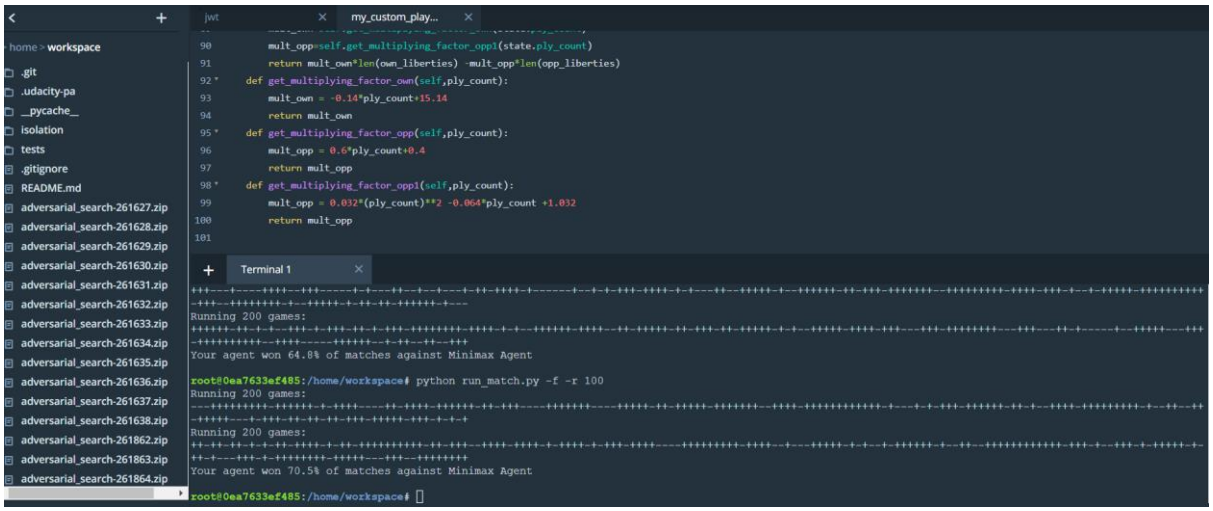
OPTION 1



Agent	time limit	matches Played	win%
minmax	15	200*2	64.5
mimax	15	200*2	70
minmax	15	100*2	69
minmax	15	50*2	50
minmax	15	50*2	71
greedy	15	40	100
minmax	25	50*2	60
minmax	25	50*2	65
minmax	25	100*2	69
		AVG	68.72222

I used a heuristic function:

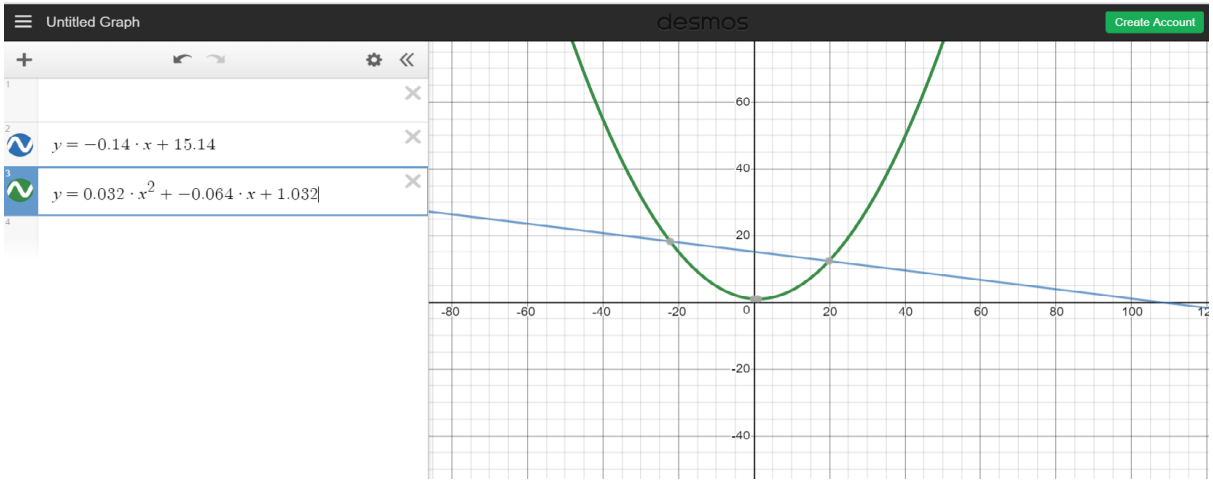
(multiplying factor) *(Number of liberties of self) – (multiplying factor) *(number of liberties of opponent)

Here the multiplying factors are the functions of no turns that are played (ply_count)

As far as the multiplying factor for the number of liberties for self is concerned these decreases with the no of turns that are played conversely, the multiplying factor for opponent increases with the number of turns played and they are a straight line with a decreasing slope and an upward parabola respectively.

The equation of multiplying factor for self is (mul_factor=-0.14*ply_count+15.14) with a max mul_factor =15 by observing the number of turns played I found out that the max value of ply_count was 80 so in order for this factor to not be negative it takes a value of 1 at ply_count of 100

The equation of multiplying factor for opponent is (mul_factor= 0.032*(ply_count)**2 - 0.064*ply_count +1.032). The value of this and the line is equal at ply_count = 20 after which its value increases and surpasses that of line.



When the game is has just began the heuristic function will lay more emphasis on increasing its liberties rather than chasing down the opponent and this is what we want. Because by doing so we will occupy more central positions during the start of the game as it has the more liberties than at the edges. This sort of start is ideal for an isolation game. Towards the end of the game we want to chase and corner the opponent and the heuristic function does exactly that as the multiplying factor on opponent side starts to increase drastically as the value of “ply_count” increases. So, this strategy helps in the beginning and also towards the end to finish the game

The search agent is able to search to a depth of 25. The agent was able to search to a depth of 25 on the 26 iteration it was not able to give the output before the time ran out. Search speed matters more to the agent as its performance was reduced when the depth was more than 10 .Moreover not a significant improvement was seen in the accuracy of the agent ie:wins against minmax almost remained constant