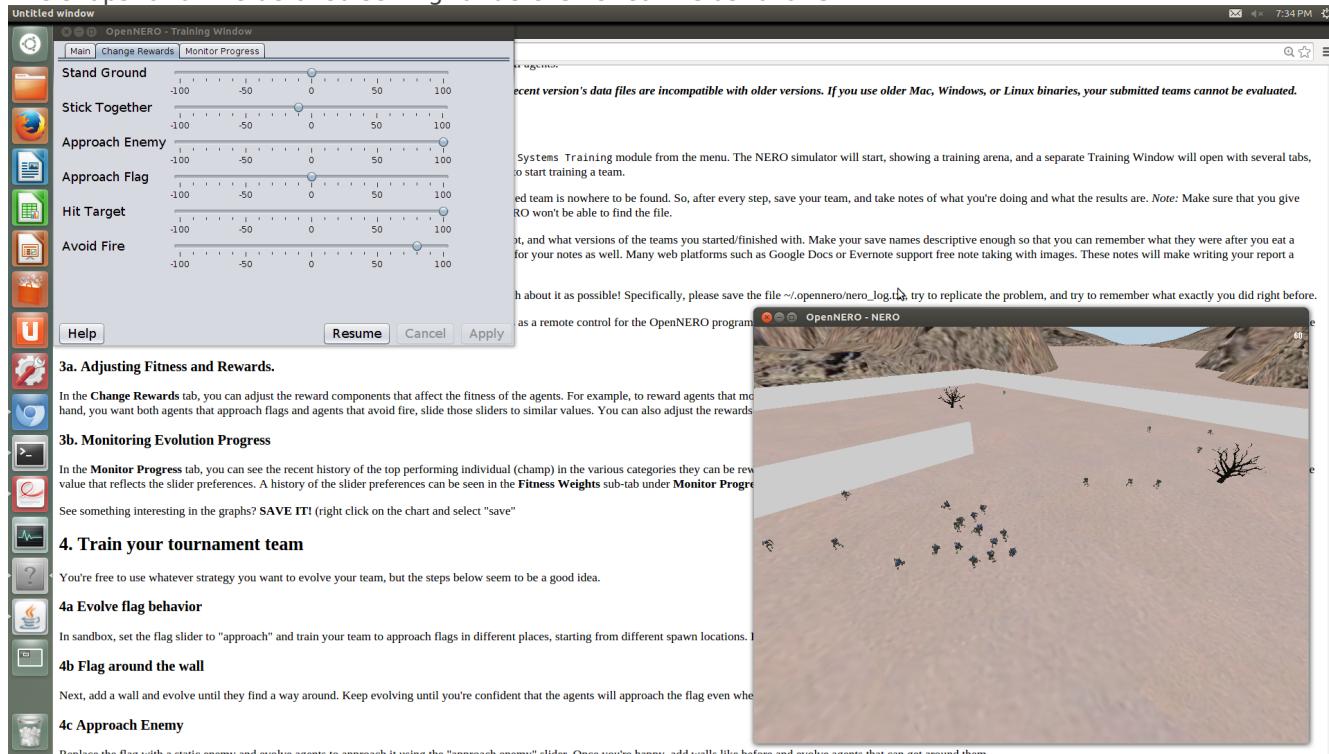


Homework 03 Game agent

In this homework, I designed two teams of agents with various strategies: defensive v.s. aggressive.

1. Construct defensive team

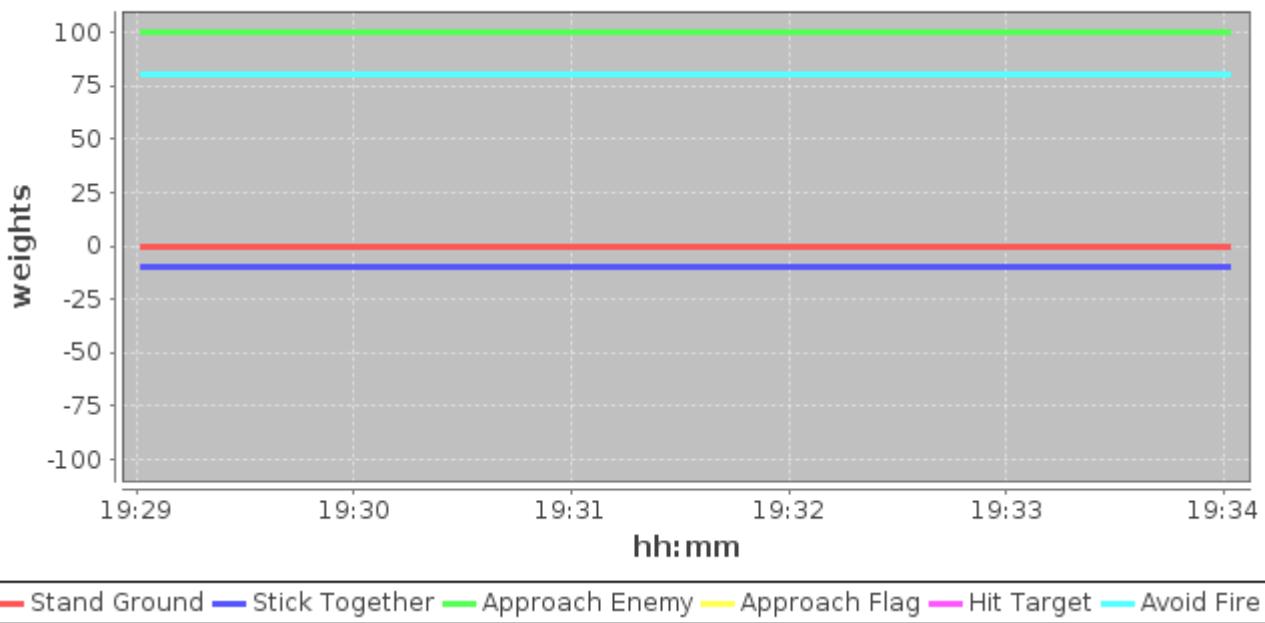
The snapshot of the detailed setting for defensive team is as follows:



The design principle of defensive team is to encourage agents to avoid fires along with the attack behaviors to protect themselves.

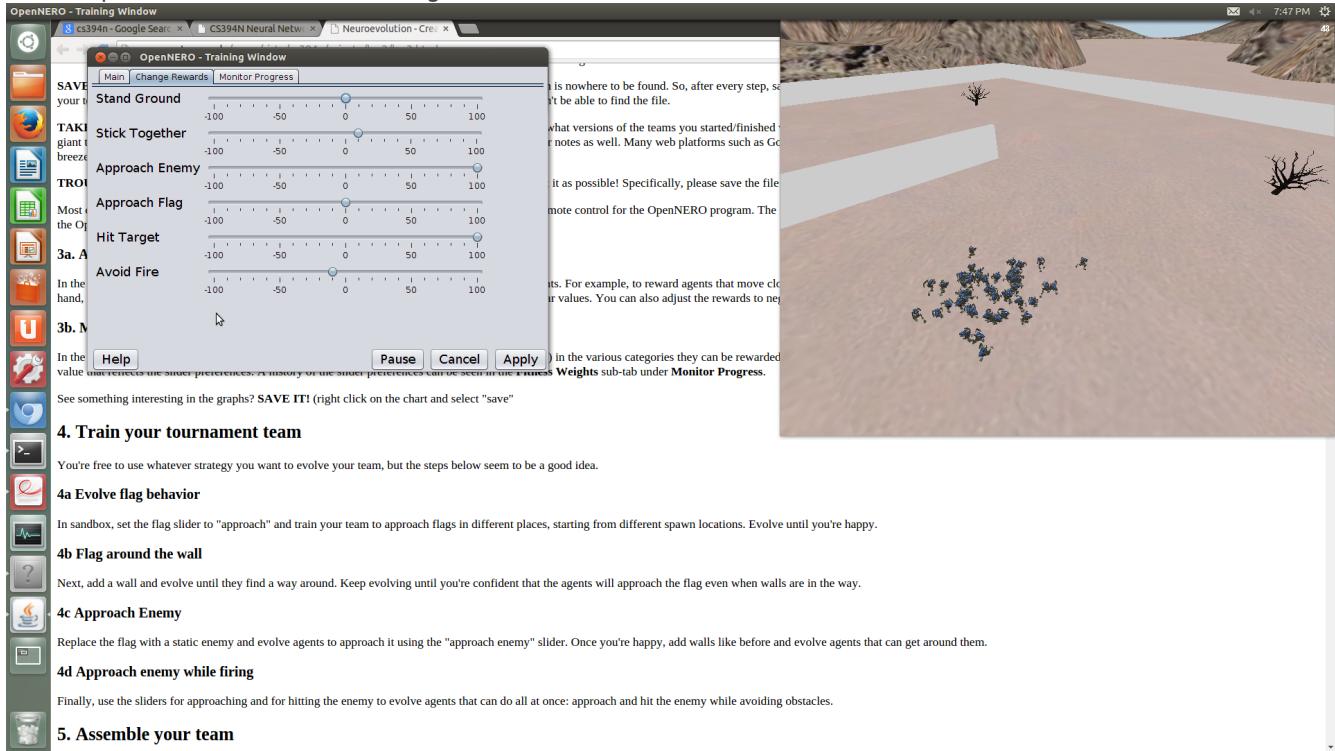
Let us see the trained fitness weight with the settings above:

Fitness Weights



2. Construct aggressive team

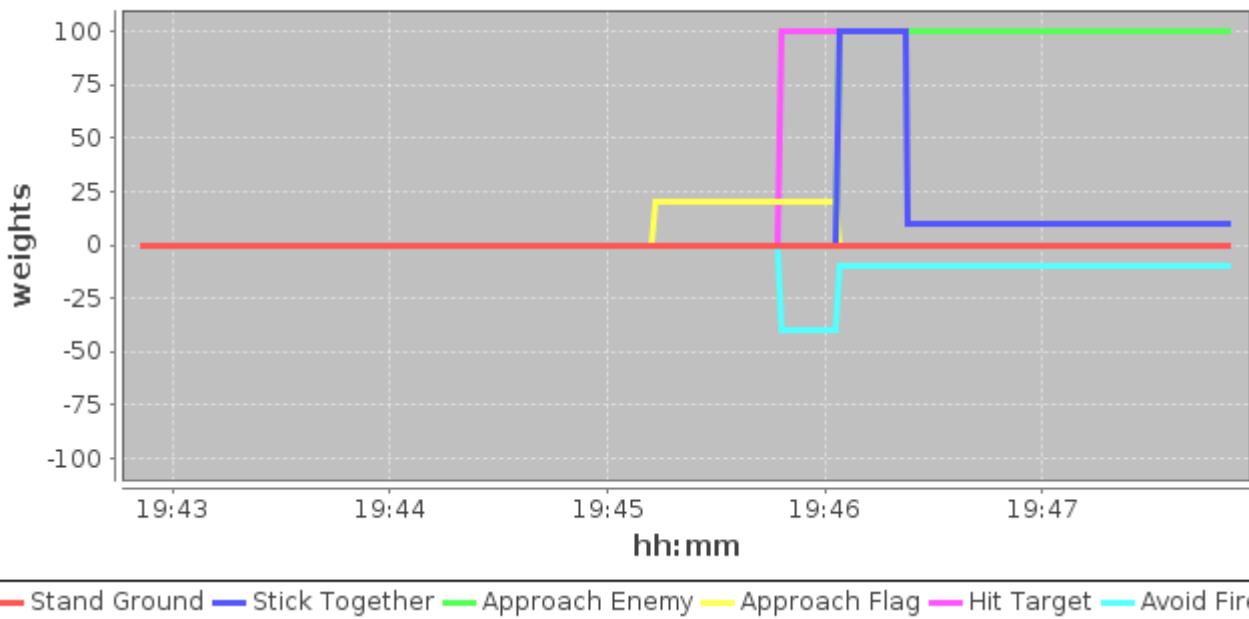
The snapshot of the detailed setting for defensive team is as follows:



The design principle of defensive team is to encourage agents to chasing and hitting opponents. Note that we give slight penalty for avoiding the opponents' fire.

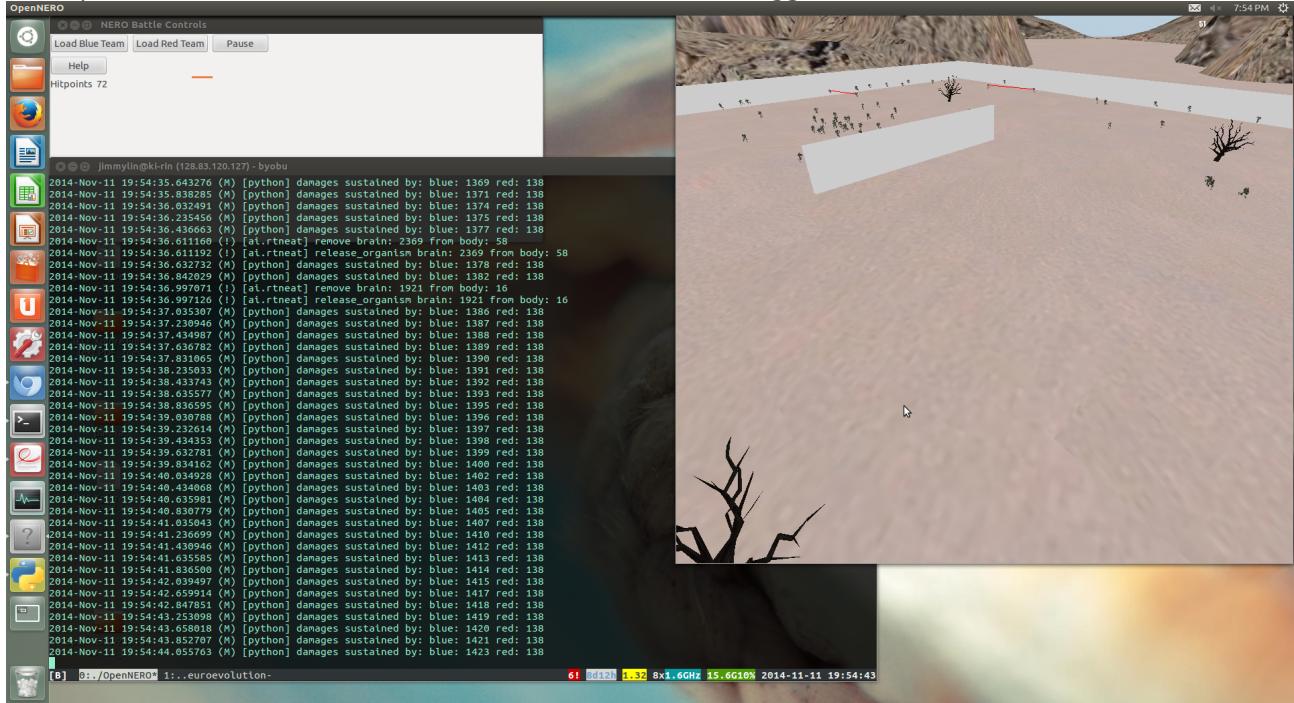
Let us see the trained fitness weight with the settings above:

Fitness Weights



3. Initial Battle

The snapshot for the battle between defensive team (blue) and aggressive team (red) is as follows:

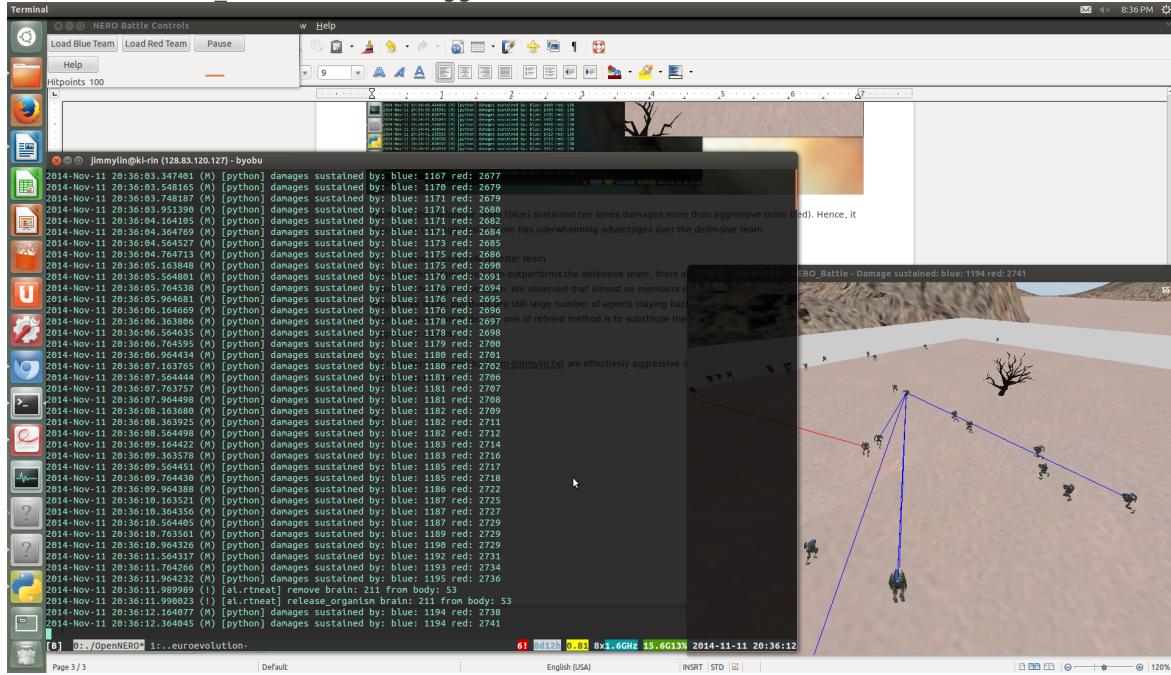


Note that the defensive team (blue) sustained ten times damages more than aggressive team (red). Hence, it turned out that aggressive team has overwhelming advantages over the defensive team.

4. How to assemble a better team

Although the aggressive team outperforms the defensive team, there are still a large room for improvement based on the aggressive team. We observed that almost no members escape the battlefield within the aggressive team, but there are still large number of agents staying back because of the fitness to keep together with teammates. So one of refined method is to substitute these stay-back agents with fairly aggressive agents.

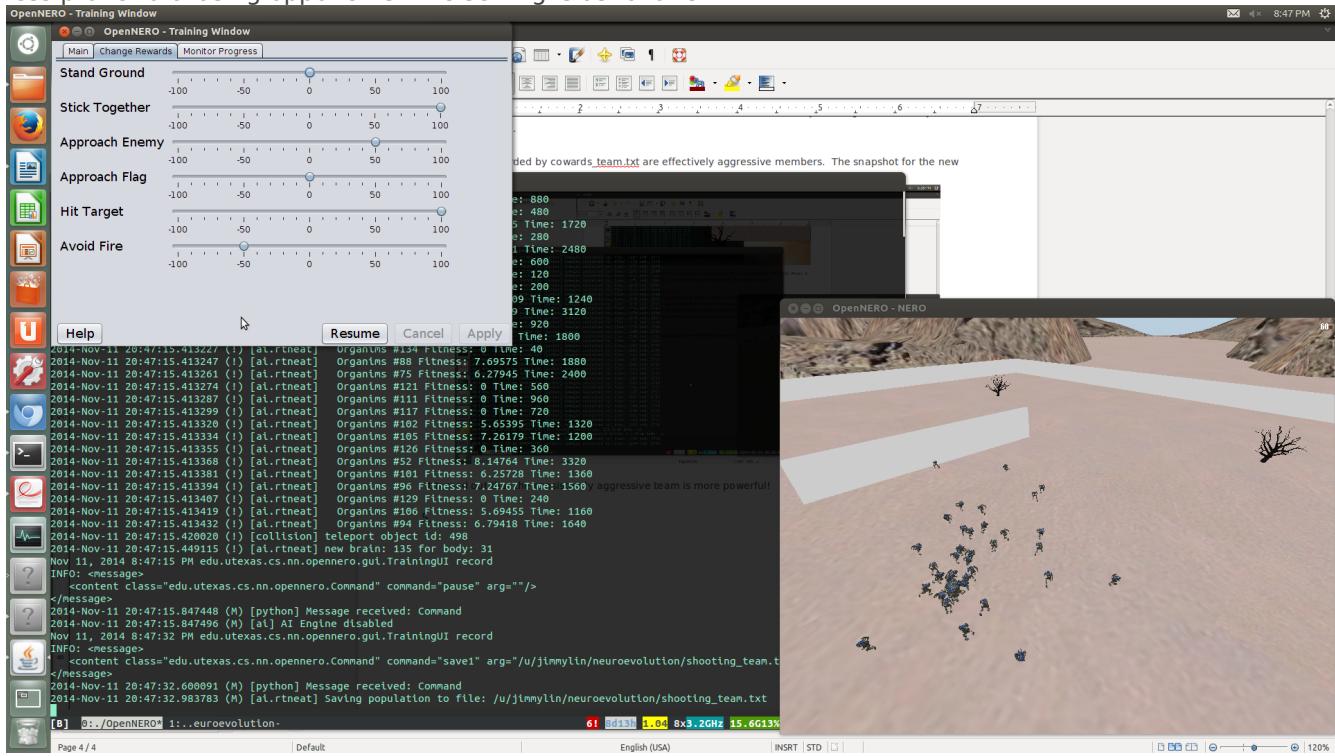
All members recorded by `cowards_team.txt` are effectively aggressive members. The snapshot for the new battle between `cowards_team` (blue) and aggressive team (red) is as follows:



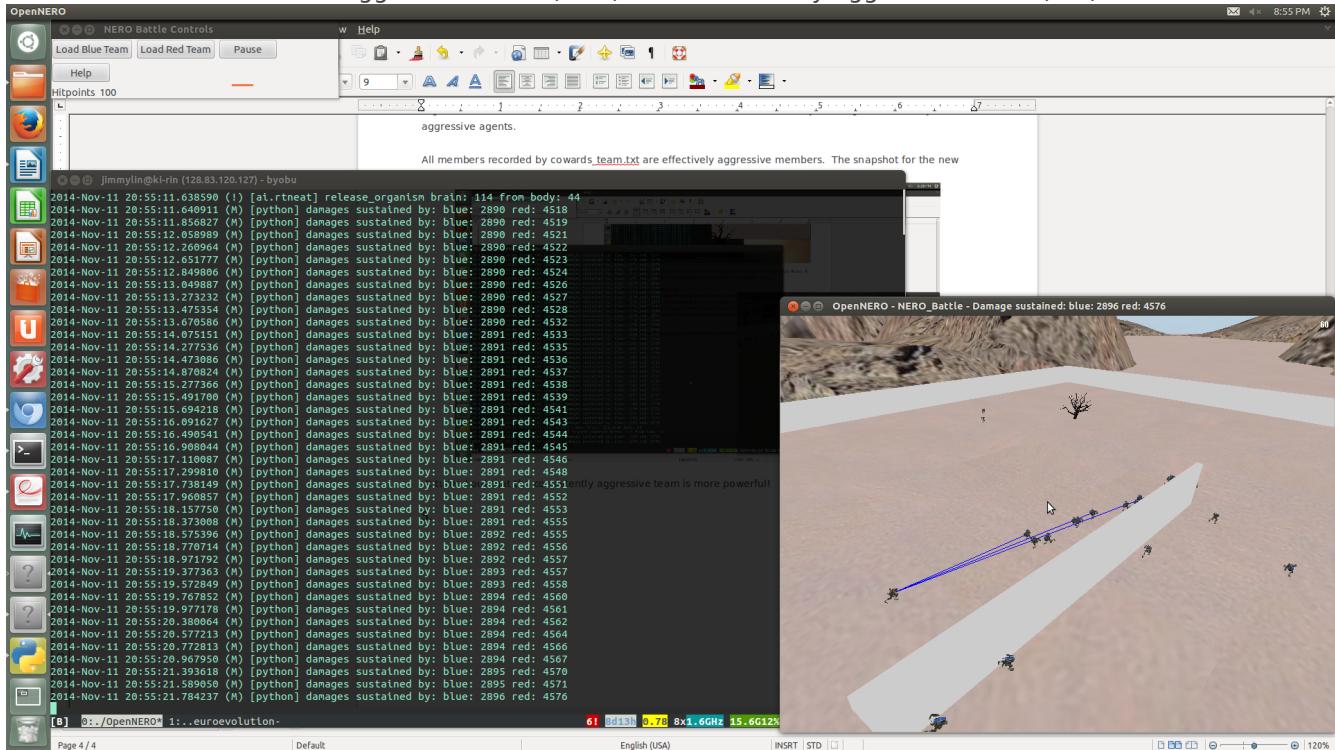
It turned out that the consistently aggressive team is more powerful!

5. Not too aggressive team

A new team turned out to defeat the consistently aggressive team. This new team put more focus on coordination with teammates and shooting the enemy. The distinction of this team is that the members are less prone to chasing opponents. The setting is as follows:



The battle between not-too-aggressive team (blue) and consistently aggressive team (red) is as follows:



It turned out that not-too-aggressive team (blue) wins!

6. Team for Tournament

My team for the final tournament is the not-too-aggressive team, which keeps a mediocre philosophy in making decisions. They know how to make use of the walls so as not to expose to the crowd of opponents and knows how to make use of crowd to kill opponents first!