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CS 5150

Final project

The design goals:

The original design goal for this AI is to make an impeccable one. However, I realized that based on my current ability, it could not be possible to build such one, as along with the study and work on the project. Therefore, I changed my mind to build an interesting one, which I can put all my tactics. I iterate the AI many times. I even built several versions of the AI to beat with each other and saw which one is better. In the end, I got the current one, which I think is a balance between attacking and defending.

Description of the AI:

A vector for opposite mobs:

I use a vector to store opposite mobs' information because I want to store calculated data for each one. The data includes whether a mob is cross the river and whether a mob is in the attack range of the AI's buildings. Another reason why I use this vector is that I want to sort all enemy mobs by their types. Then, the AI will spawn to handle them in order. In this order, the enemy archer is my priority so I will handle them firstly.

Start the game:

The AI will spawn mobs in an attacking after getting 15 Elixirs. If the opposite spawn before that, the AI will spawn in a defending way instead of the attacking way.

Spawn the mobs:

For archers:

The archers will be spawned when the enemy swordsman or giant move near to the AI towers. They will be spawned behind the tower so that they can be protected and do their job as an output of attack. They will also be spawned from the back of the AI's side when there are two or more swordsmen on the field, which can be the protectors of them, so they can attack from the long distance.

For swordsman:

The swordsman will be spawned to defend in AI's side. For the enemy's swordsman, if they move into the attack range of the AI's towers, a swordsman will be spawned around them. For

enemy's giants and archers, a swordsman will be spawned around them, if they go across the river. Moreover, a swordsman will also be spawned as a reinforcement, if there is already a swordsman on the field.

For giant:

Currently, the AI will only spawn a giant for the potential first-round of attacking because I want to keep the balance of the attack and defense. A giant cost much more than the other two and it needs cooperation with archers and swordsman. However, spawning them together will cost a lot and will be very dangerous if the attack is failed because there are no enough Elixirs to defend.

For the situation that there are no mobs on the whole maps:

The AI will store the Elixir until it reaches to the 10 and sends a troop with swordsman and archer to make a strong attack. However, if the opposite attack first, the AI will give up the storing and turn into the actions mentioned above.

Stretch goals:

The AI "says things" to the player via cout. When a prince tower is destroyed, there will be an utterance and the content will be varied based on whose tower has been destroyed. Moreover, when the game is over, there will be an utterance and the content will be varied based on who wins the game. There is also an utterance when the AI is doing a strong attack.