

a.) Attacker Behavior

My attacker basically does the following in loop form:

- First and most prioritized option is to chase a vulnerable defender only if there is one or more ghosts
- Else if there are still more power pills and go to the next closest power pill
- Once very close to the power pill, attacker stalls
- Once defender gets too close, attacker finally goes towards power pill
- Else if the defender is too close, reverse direction
- If not, just go to the closest normal pills
- Repeat process until next level or game is over

b.) Identification of successes and failures

I first tried out for the attacker to go all the power pills at first and then go for all the normal pills. This idea ended up with generally low scores. I then tried to first go for the closest power pill and then go for the defenders once vulnerable and then return to going for closest power pill looped. I noticed through the visual platform that this was a better outcome but I still had to implement more to the attacker for it to perform better. I then thought to add a overall time left of defender vulnerability and to chase the ghosts until a certain time but it still wasn't performing as well. I then thought to implement the statement that if there are one or more ghosts left, to chase the closest ghost. I was starting to get much better scores with this option. I then thought of the idea to add a baiting protocol. Basically once the attacker is as close as can be to a power pill, stall there until a defender gets as close as possible before dying and then go towards the power pill. Once the attacker eats the power pill, again chase vulnerable defenders as long as there is one or more left. I then thought of adding a option where the amount of ghosts in the lair affected whether or not the attacker should still chase . I decided after testing this out that this parameter was not necessary and the amount of vulnerable defenders left parameter was better. Finally, I then added to reverse direction once a defender was too close. If all these options are false, then just go to the closest normal pill.

c.) Reflection on project

At first, I tried to figure out all the different getters that could be called and generated some ideas off that. To test out these ideas, I started off with a simple loop in the update method and tested out each idea individually using my code for just going for the closest normal pills as the control. This dynamic of testing out ideas and throwing them out whether or not they were worthy was a very cool part of this project. This was probably the project I enjoyed doing the most as I basically went in and controlled a game but algorithmically. I also enjoyed the fact that you could visually see how your attacker was performing