

Name: Berke Derin Berkay

ID: 72968

Q1.

I have used many features, but the most influential five were food position, capsule position, ghost position when not scared, ghost position when scared and the precious state. Food position is needed since for each eaten food we get a point and in order to win pacman needs to eat all the food. The same logic applies for capsule and scared ghosts since once you eat them you get an extra chunk of points. For the non scared ghosts we have to consider them since if they eat us we immediately lose the game. Using reciprocals and negatives are very good ideas since negative values are good when you are putting yourself in a bad situation such as being near a non scared ghost. By deducting points we can avoid such situations. Reciprocals are useful when you want to add points in reverse relation to the distance from the object, so if closer, more points should be added and vice versa, $\text{score} += 1/\text{foodDistance}$ is a good example of this.

Q2.

Q3.

The behaviour of the pacman is exactly the same for both algorithms. This is because the only difference for both is that for alpha beta does not change the result, but simply saves time by not checking the unnecessary nodes.

Q4.

Q5.

Q6.

In the beginning, I did play with the weights such as the tuning of the decrease amount when the ghost is near and the reciprocal increase when we are near a capsule, however I could not create a significant improvement and therefore I scratched it and wrote a bit more different code.