

Artificial Intelligence - Project 3 part 2

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Answer the following questions and add them to your .pdf file. Do not share your answers with other groups.

1. Short questions, one-two line answers:

1. Why do we need an evaluation function for a depth limited search like that in Q2? Why don't we just look at the terminal values rather than estimating the leaf nodes value?
2. Explain what changes from Q1 solution to Q2, and how will it affect our agent's behaviour.
3. How many minimax trees do we have to generate in order to choose the best action in Q2? Could we just run one in which Pacman is the root, max agent?

2. In Q2 and Q3 our agents may die even if our implementation is correct, how is it possible? Draw a diagram (pacman grid) in which the best decision for our agent is to die (jump into a ghost) rather than running away or just staying in place.

3. In Q2 and Q3 our agent runs minimax in order to find the best action. Which model of the ghosts behaviour are we assuming?

Think and explain if there is or there is not a better alternative.

4. This follows Q1 lines. Someone has given this reflex agents an evaluation function you don't have access to. You know that the only information that could have been used is: pacman position, food coordinates, ghosts positions and scared timers, game score. Reverse engineer their design and answer (you don't need to code anything, it's a mental experiment).

Saying everything has been hard coded is not valid. You can refer to specific moments in the video to justify your answers.

i. Watch video 1

1. Is this agent encoding ghosts position? And their scared times?
2. Why might it be so obsessed with the food dot on the right (after second 22)?

ii. Watch video 2

1. This agent has been acting proficiently until the near end of the game. What could have caused his decision of staying there rather than eating the last food dots? Why those "oscillations" there?
2. One would usually say that ghosts make the game more difficult for pacman. Would our agent have solved the maze if there were no ghosts? Explain your answer.

ii. Watch videos 3 and 4.

1. What has changed from agents in videos 1 and 2 with respect to the power pellets and scared ghosts?

You have new information about this agent! you heard the person that programmed it saying "I like to call this agent the Ghost Slayer; born to be feared by the feared ones"