

**Q1:**

I have considered the current food list and the places of ghosts only since it's a basic evaluation function. If the next state is a ghost don't go there; if there is food in the next position go there. This was the basic idea behind my evaluation function because foods were increasing the score while ghosts were the ultimate score reducer. Instead of reciprocals I have used negative values and get the largest among them because every move of pac-man is causing a decrease in score actually as pac-man needs move as little as possible to maximize the total score. Therefore, every action should be negative, and pac-man should choose the largest among those negative moves.

**Q2:**

AlphaBeta Agent was much faster than Minimax since it pruned the unnecessary evaluating branches. First gathering of the foods was visibly faster in AlphaBeta agent.

**Q3:**

It did the same moves because as in Minimax Agent, AlphaBeta agent was also choosing the best options however, unlike Minimax Agent AlphaBeta agent doesn't calculate the unnecessary branches that it won't follow.

**Q4:**

It did approximately the same moves as the previous agents however it was at same speed as Minimax Agent which was slower than AlphaBeta agent. However, after waiting more in the game expectiminimax agent it acted in some random manners due to the probability factor that was included in the code as in this agent.

**Q5:**

For the better evaluation function I have also considered and added scared ghosts and capsule distances so that Pac-man would try to reach for the capsules as well as it will try to eat the scared ghosts as it will cause it to gain more points. Which is actually what happened through this evaluation function. Additionally, I have considered Pacman's distance to the normal ghost and tried to penalize it so that Pacman would try to stay away from the normal ghosts

**Q6:**

I actually didn't tune any weights instead I have summed up the features that I have wanted to contribute to my final score. However, I have configured the scores such that if that condition is not satisfied for instance if there is no scared ghosts or any capsules in the current game it will not contribute to my final score so that it won't affect the evaluation. Because I wanted to prioritize what's in the current map so that Pac-man can evaluate accordingly.