COMP 341: Introduction to Artificial Intelligence
Fall 20 / Project 2
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Q1: For this part of the project, I have only considered the distance to the remaining food and avoided the ghosts to implement an evaluation function by giving simple weights to their distances. Using reciprocals and negatives is feasible since it allows representing the wanted and unwanted nodes, so that we can stay away from unwanted ghosts and try to get closer to the food.

Q2: AlphaBetaAgent was noticeably faster than the MinimaxAgent. AlphaBetaAgent has smaller computational complexity since when deciding the next action, it prunes the unpromising nodes whereas MinimaxAgent does not.

Q3: They behaved exactly the same since neither the evaluation function nor the game settings (TrickyClassic) have changed. They both follow the optimal solution strategy.

Q4: Speed of ExpectimaxAgent was close to the MinimaxAgent since they have the same computational complexity and slower than the AlphaBetaAgent because there are less nodes to process when unnecessary nodes are pruned/ not searched.

Q5: I have also considered the distance to the capsules and the scared times of ghosts to have more rational solutions.

Q6: I have increased the utility (i.e., higher score) by prioritizing the capsules and scared ghosts. I played with the weights until I reach a full score from the autograder.