

## 3.2

### Written Questions (4 pts)

#### 3.2.1

##### Reflex Agent

1.

(1 pt) What feature (or features) did you use for your evaluation function?

- I made it so that if his next move was a move that would kill him the eval would be negative infinity, making it so that he will only kill himself if he has no choice
- I also made it so that his evaluation is based on the score plus the inverse of the distance toward food. This will make actions that bring him closer to food have a higher eval and thus he will always go toward food, provided it doesn't kill him

#### 3.2.2

##### Minimax

- Pacman always assumes that ghosts will choose the optimal option. This means that pacman is under the assumption in that case that he will die no matter what. Pacmans goal is to end the game with the most amount of points. Given that as time goes on pacman loses points, pacman will want the least amount of time to pass before he inevitably dies.

### 3.2.3

#### Expectimax

1.

(1 pt) You should find that your ExpectimaxAgent wins about half the time, while your AlphaBetaAgent always loses. Explain why the behavior here differs from the minimax case.

- Because our implementation of expectimax runs on the assumption that the ghosts are acting randomly and will grab the expected value of all their possible actions instead of grabbing their most optimal option. This means that it will take risky options if it thinks it's worth the risk.

### 3.2.4

#### Evaluation Function

1.

(1 pt) What features did you use for your new evaluation function?

- I basically implemented the reflex agent

## 4

### Self Analysis (5 pts)

Each group member must answer these questions individually.

1.

What was the hardest part of the assignment for you?

- Implementing expectimax. It was a bit of a leap for me to realize that the min nodes are supposed to be replaced with the chance nodes.

2.

What was the easiest part of the assignment for you?

- Implementing alpha beta pruning but instead of using the score as the eval function I used my reflex agents eval function

3.

What problem(s) helped further your understanding of the course material?

- All of them

4.

Did you feel any problems were tedious and not helpful to your understanding of the material?

- no

5.

What other feedback do you have about this homework?2

- Its a good homework