Heuristics report

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Document your heuristics for questions 6 and 7 and discuss their *consistency* and *admissibility*.

The heuristic I chose for question 6 is the maze distance (fastest route) to the **farthest corner**.

If all corners are visited, it returns 0. This is the only goal state.

My logic behind this choice is that, since we need to traverse that distance anyway (distance to farthest corner) we might as well do it now, or at least head in the same direction.

It is not the most efficient heuristic, but it is consistent.

For question 7, I used the exact same heuristic: distance to the farthest dot on the map.

My reasoning is that, by heading towards the farthest dot, we ensure that the biggest distance we need to cross has been dealt with. Any dots along the way are eaten. If we started with the opposite direction, this distance to farthest dot would only increase.

Discuss the use of suboptimal search for question 8. Give an example where ClosestDotSearchAgent goes horribly wrong.

Even though the ClosestDotAgent does not give us the optimal path to gather all the dots, it still gives us a pretty good estimate (seen through testing) and doesn't waste time planning the path, while the AStarFoodAgent gives a better cost path, but with the drawback of having a long calculation time on big mazes.

The ClosestDotAgent would be in trouble in cases of a small number of outliers. For example, we have all our dots grouped together in one side of the maze, with a single outlier on the complete opposite side. The agent will follow the closest dot trail, leading it farther and farther from the outlier. In the end, it will have to go ALL the way back and head to the complete opposite side of the maze to get that single outlier.