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1. My partner is Brayden Wright (u0895942), he is responsible for submitting the code.

2. My partner was great, and helpful.

3.The straight-line distance did, affect the run time of the algorithm, however it made the algorithm run slightly slower. The reason is explained in question 4.

4. Explain the difference between the straight-line distance and the actual s olution path length. Give an example of a situation in which they differ greatly. How do each of them affect the running time of your algorithm? Which one is a more accurate indicator of run-time?

Ignoring walls would let the algorithm take the shortest path immediately, by simply going to the column of the goal then going down to the goal. So technically this means it should run faster, since it does not have to check for multiple different paths, since there are no walls blocking the path.

An example for a maze that would differ greatly would be a maze that would require passing over every node in the maze i.e. a Spiral maze, where the only path through the maze is going through every single node. This should increase the runtime since every node in the maze would be checked to get the goal.

Even though ignoring the walls should make the algorithm run faster, our algorithm ran faster even when put through a maze that must check every single node. This is because our algorithm is written to not include walls as part of the node. So instead of checking 4 nodes every time it checks only the nodes that are not walls, when made to ignore walls, it checks all 4 nodes every time, which results in an increased runtime.

The runtime of the maze with checking walls would be the better repre sentation of the runtime, since it has to consider walls.

5. The complexity would be O(V + E), because the most dense maze with a solution would result in maze that forces you to visit every node to get to the solution. This maze would have us to account for every vertex and every edge, hence O(V + E).

6. I've sent about 7 hours on this assignment.