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Intro to Robotics
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<div align="center">Lab 5 Report</div>

1. The algorithm works by first making a 4*4 map and takin the coordinates of them, and assigning an index to each set of coordinates, from 0 to 15. The algorithm will take a source index and the indices of the other squares and find their x*y coordinates. It will determine if they are next to each other or not and put he values in a distance matrix. The adjacent squares will have a distance of 1, while the other non-adjacent squares will be 99. To find the path to the goal, it will traverse the distance matrix and all of the ones with a distance of 1 in it. If one of those indices is the goal, it will put that node into the path, if the goal isn't one of the adjacent squares, it will choose the last index with a 1 for the distance, put that into the path and make it the new source node. This process will repeat until it reaches the goal.
2. Being able to tell if there are obstacles in the way can help with implementing an informed search. If the direct distance is known that is fine, but if an immovable object is in the way then we can never reach the goal.
3. Source, 5. Goal, 11.

0	1	2	3
4	5	6	7
8	9	10	11
12	13	14	15

First Distance Matrix:

1	1	1	99
1	0 (start)	1	99
1	1	1	99 (goal)
99	99	99	99

Eventually takes this path, 5=>10=>11

	Start		
		1	Goal

4. Source, 0. Goal, 11. Object, 5

0(start)	1	2	3
4	5(object)	6	7
8	9	10	11(goal)
12	13	14	15

First Distance Matrix

0	1	99	99
1	99(object)	99	99
99	99	99	99
99	99	99	99

Eventual Path, 0=>4=>8=>9=>10=>11

Start			
1	Object		
1	1	1	goal