

## Lab 7: Motion Planning - Written Answers

Instructor: INSTRUCTOR

Name: STUDENT NAME, StudentID: ID



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**Course Policy:** Read all the instructions below carefully before you start working on the assignment, and before you make a submission. All sources of material must be cited. The University Academic Code of Conduct will be strictly enforced.

**THIS IS A GROUP ASSIGNMENT.** Submit one from each team.

## 1 Part A: Written assignment

0	1	2	3	4	5	6	GOAL
8	9	10	11	12	13	14	15
16	17	18	19	20	21	22	23
24	25	26	27	28	29	30	31
32	33	34	35	36	37	38	39
START	41	42	43	44	45	46	47

Figure 1: Grid World

### 1.1 Grid world planning with Dijkstra's

Using figure 1, write out steps for Dijkstra's algorithm (**8-connected**, assume uniform cost for each action). At each step, list the grid cells in the open set with their running cost and the grid cells in the visited set. Write the final path found as a list of grid cell ids.

#### Solution:

Fill in solution here.

## 1.2 Grid world planning with A\*

Using figure 1, write out steps for A\* (**8-connected**, assume uniform cost for each action). At each step, list the grid cells in the open set with their f-value (use Manhattan distance to the goal as the heuristic function) and the grid cells in the visited set. Write the final path found as a list of grid cell ids.

### Solution:

Fill in solution here.