Computer Science and Engineering Department

Artificial Intelligence (UCS-411)

Lab Assignment-3

Note: As a data scientist, you have been assigned a job to solve the 8 puzzle problem. To generate the states of the search space, you need to define the rules/operators properly. As a solution, you need to print the intermediate steps of the solution as well as total number of moves used to achieve the goal state.

	If the initial	and final sta	tes are a	s below, fin	nd the va	lue of H	Heuristic	e func	tion, b	y taking	<u>g</u>
	(i) I	Euclidean Dis	stance								
	` /	Manhattan Di									
	(iii) I	Minkowski D	istance								
			2	3] .		1	2	3]	
		Initial:	1	8 4]	Goal:	8		4		
			7	6 5			7	6	5		
	If the initial	and final stat	es are a	s below and	H(n): n	umber o	of mispla	aced t	iles in	the cur	rent sta
	n as compa	red to the goa	ıl node ı	need to be co	onsidere	d as the	heurist	ic fun	ction.	You ne	ed to u
	Best First S	Se arch algorit	hm.								
		2	3		1	2	3				
	Initial:	1 8	4	Goal:	: 8		4				
		7 6	5		7	6	5				
3	If the initial and final states are as below and H(n): number of misplaced tiles in the current sta										
	I If the initial	and final stat	es are a	s below and	H(n): n	umber d	ot misnia	исеа п	iles in	tne cun	rent sta
•							-				
	n as compa	red to the goa	ıl node 1				-				
	n as compa	red to the goanne algorithm.	al node r		onsidere	d as the	heurist				
j	n as compa Hill Climbi	ng algorithm.	l node r	need to be co	onsidere 1		heurist 3				
	n as compa	ng algorithm.	al node r		onsidere 1 8	d as the	heurist 3 4				
	n as compa Hill Climbi	ng algorithm.	l node r	need to be co	onsidere 1	d as the	heurist 3				
	n as compa Hill Climbi	ng algorithm.	al node r	need to be co	onsidere 1 8	d as the	heurist 3 4				
	n as compare Hill Climbi Initial:	ng algorithm.	3 4 5	need to be co Goal:	onsidere 1 8 7	d as the	heurist 3 4 5	ic fun	ction.	You ne	ed to u
	n as compare Hill Climbi Initial:	red to the goang algorithm. 2 1 8 7 6	al node i	Goal:	onsidere 1 8 7 H(n): M	d as the	heurist 3 4 5	ic fun	ction.	You ne	ed to u
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4	n as compare Hill Climbi Initial: If the initial You need to	red to the goang algorithm. 2 1 8 7 6 and final state use Best Fi	al node in the set of	Goal: Goal:	onsidere 1 8 7 H(n): N n.	2 6 Manhatta 1 8 7	heurist 3 4 5 an distant 2 Fina	nce as	the he	You nec	function

