ASSIGNMENT-3

Artificial Intelligence

	The second secon
01	What is the difference between A* and AO*
	What is the difference between A* and A0*
)	A*: A* algorithm is on informed search
* 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	manufacture that the knowly that
	TO TROCK POINT ON A houridlic
	thate are very dialance
thorn 1 mi	to the goal.
. 0	ADT: The ADT algorithm is a variant of the AT algorithm designed to be more adoptive and flexible Particularly in algorithm appropriate
	A* algorithm a decidence to be much
\$ 100 12	adoptive and flexible Parliaments
	in dynamic environments.
-	1 STORY TO THE STATE OF STATE OF THE STATE O
	-one ket difference between At and Antique.
	A LINE When I We want to the second of the s
	A Algorithm AO Algorithm
	Not designed for handling specifically designed to adapt Changes in the environment to Changes with the changes
	Changes in the environment to Changes Without Initiating
	O Down Quanto
•	Uses the AND operation uses both OR and AND
	at a time. Poths simultaneously
	at a time. Poths simultaneously
•	Company Manager Name and Later and L
	Generally more resource May explore more nodes due to
	efficient, explores adaptability, Potentially
	Lewer node: requiring more Computational
	DIM ACTE & PRO MAX
LO DIC	WRAN ASQUAD



70.	(Dails
<u>Ψ2</u>	Apply Ao* algorithm on the graph
5	8+8 (A) 9
•	500
9	30 40
3	4
9	10 (F) 11 (F) 3/ 0) 1
•	10 E 11 F 3 O 1 1 J
5	Yes all the second seco
•	
	-/- Lidoux kill desided
	CO 4 CO 4 CO A STATE OF THE PROPERTY OF THE PR
• 5	by 30 by half the best of steeled
•	SteP-1
	Stortic from node A, we first calculate the best Path
	f(B) . g(B) + h(B)
	21 + 5 = 6
y	F(C-D) = g(e)+h(e) + g(D)+h(D)
	SteP-9 = 1+10 × 11
2	$f(B-E) = 1+10 \times 11$
	1 (B-+) 2 2411
	· F(A-B)= 81B) + UP dated (b1B))
	2 1+6 => 7
	31-0P-201111 world is the still the
	· f(C-G) = 1+3 = 4
	f(C-H-t) = 1+0+1+0 = 2
	1 defendant in in the many
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	N	
b = ¹	And finally the PIA-C	-D) needs to be updated
The state of the s		the second of the second
	t(4-6-D) = 3(c)+p(c)+	- g(D) + updated (h(D)).
	= 1+2+1+1=8	
_	and the same of	
PO 0	.0.11	Labella Pica
03	white the difference	e between the depth-first th-first Search algorithm.
1	Search mila Drea	th- first search againstill.
	DFS (DePth-First Search)	• -
-	Explores as for as	Possible along each
	bronch before	possible along each backtrocking.
	BFS (Breadth-First Search	
	Explores all heighbou	re of the fersent depth oneving to the next level.
	level before m	noving to the next level.
	Dra	
	DFS	HILLIBES
	Used a stock LIFO	Uses 0 queue FIFO
	محدد بر عرورا کیاں	The state of the s
	Goes deep into a	Visite nodes level by level
8	branch first	Jilakali uli acata
		F (2) 2 1 1
•	Requires loss memory	Requires more memory
	U	
. •	May not find the	Always finds the shortest
	shortest Poth in Oh	Path in on unweighted graph
	Univerghted graph	V V
	24 16 4 5 21 165	



0.5	Date
	May not visit all nodes Guovanteed to find in infinite or very deep a solution of one graphs exists
	in infinite or very deep a solution of one
	graphs exists
	erm: Topological sorting shortest path in unweighted maze solving, Cycle defection graphs, level order troverse
	erm: Topological sorting shortest path in unweighter maze solving, Cycle detection graphs, level order from some
	in tree.
	ing white it is a little band on the tenson
04	What is the role of the heuristic function in A* Search?
-	in At Search?
	with the city for sitt with 20
	The heuristic function (h(n)) plays a crucial vole in the A* search algorithm by helping it find the optimal and most efficient path.
	vole in the A* search algorithm by
	helping it find the optimal and most
	efficient Path-
S ⁱ	
	Role of the Heuristic function in A* search
Ŋ	Estimates the cost to the Goal:
	h(n) Provides an estimate of the Cast from
	the current hode h of to the goal node
•	It does not need to be exact- Just
	an informed guess.
	Carl It Compt t DD aim II.
2)	Guides the Search Efficiently:
	A uses fin): Aln) + h(n)
2)	
	hth): estimated cost from n to the goal.

3)	Reduces search Time:
•	A good begristic Prunes unnecessary paths
	A good heuristic Prunes unnecessary paths, making the search faster.
4)	Defermines Optimality:
•	the help collection with the second
	Consistent mever overestimates the true cost
	Admissible hever overestimates the true cost) Consistent monotonic (satisfies the triangle inequality)
_ 05	Apply BES and DES on the following graph
- 1	(E) (E)
	(C) (F)
	(3)
1-	BFS Troversal (Level order using Chaque)
	The state of the s
	Start from S
	94ePs:
1,	2+ant = 2
2	Visit neighbours: A, C, F, H
3	From A>B
4	from $C \rightarrow D$, E
NEDWIN	XOTE S PRO MAX
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5.	From F -> no how hodes
6.	From H > I = already visited
7	All hodes Visited.
	1711 1100 KZ VIZITE 4.
•	BFS order:
•	3-) A->C->F->H->B->D->E
•	2-4 oct 1 m 20 m
2.	DFS Traversal Depth-Wise using stack)
•	JEZ MARKESON (SEPTI) WORK GSTING STORY
9	Start from S.
9	240P2
•	
● ↓.	21074: 3
2.	Choose heighbor: A
3	From A-3B
4.	Backtrack -> A-> 2-> hext -> c
B	From C->D-> backtrack -> E
C .	Backtrack -> C->3 -> heyt t
7.	Bock frack -> 2->
7	
	DF3 order:
	S->A->B->C->D->F->H
	· Bts: S,A,C,F,H,B,D,E
	· DF9: 3,A,B,C,D,F,F,H

WAX