

Quiz 4

Friday, March 22, 2024 7:38 AM

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4	1	3
	2	5
7	8	6

We're solving 8-puzzle problem. Actions are possible movements of the blank space. How many successors does the current state have?

Zoom

- ☒ A 1
- ☐ B 2
- ☒ C 3
- ☐ D 4

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Which of the following statement is correct?

- ☐ A Uniform-cost search chooses the node with the least estimated goal cost from the frontier to expand first.
- ☒ B Greedy search chooses the node with the least actual path cost from the frontier to expand first.
- ☐ C A* search chooses the node with the least total sum of actual path cost and estimated goal cost from the frontier to expand first.
- ☐ D All are correct.

SUBMIT ANSWER

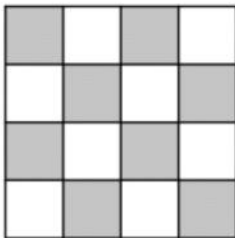
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A* tree search is NOT optimal if...

- ☒ A The heuristic function is not admissible.
- ☐ B The heuristic function is not consistent.
- ☐ C The heuristic function $h(n) = 0$ for all states.
- ☐ D All steps have the same cost.

SUBMIT ANSWER

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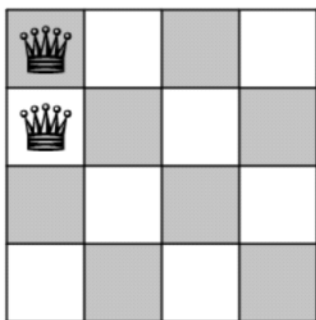
Zoom

We're solving the 4-queen problem. An action is defined as putting a queen on an empty square of the board. Considering this initial state, how many successors do we have?

- ☐ A 2
- ☐ B 4
- ☐ C 8
- ☒ D 16

SUBMIT ANSWER

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Zoom

We're solving the 4-queen problem. An action is defined as putting a queen on an empty square of the board. Which of the following statement is correct regarding the following situation?

- ☐ A BFS/DFS continues to put the 3rd queen on an empty square of the board.
- ☐ B Backtracking will declare constraint violation and backtrack to put the 2nd queen on a different square.
- ☒ C Both are correct.
- ☐ D None is correct.

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Why is BFS NOT a suitable algorithm for solving N-queen problems?

- ☐ A BFS is not a complete search algorithm.
- ☐ B BFS is not an optimal search algorithm.
- ☒ C Goal nodes of N-queen problems locate at the deepest levels of the search trees.
- ☐ D None is the correct reason.

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Why is DFS better than BFS in solving N-queen problems?

- ☐ A The time complexity of DFS is better than BFS.
- ☒ B The space complexity of DFS is better than BFS.
- ☐ C DFS is a complete search algorithm.
- ☐ D DFS is an optimal search algorithm.

SUBMIT ANSWER

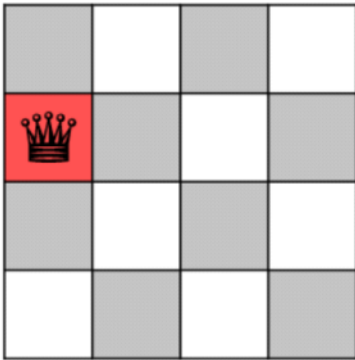
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What is the main drawback of the normal DFS algorithm in solving N-queen problems?

- ☐ A DFS might loop forever on the search tree.
- ☐ B All goal states locate at the deepest level of the search tree.
- ☒ C Constraint violations are not checked during the search.
- ☐ D All of the above are correct.

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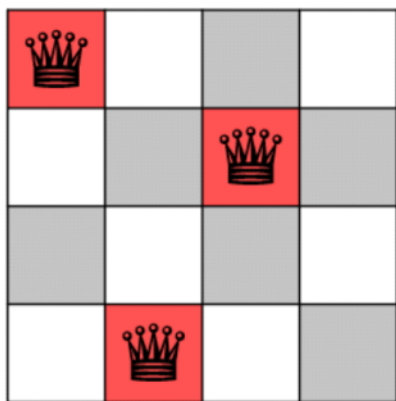


We're solving the 4-queen problem. An action is defined as putting a queen on square in the leftmost empty column of the board such that no queen can attack one another. How many successors do we have regarding the current board?

Zoom

- ☒ A 1
- ☐ B 2
- ☐ C 3
- ☐ D 4

SUBMIT ANSWER



Zoom

We're solving the 4-queen problem. An action is defined as putting a queen on a square in the left most empty column of the board such that no queen can attack one another. All the squares in the 2nd column have been tried out. Regarding the current board, what do you think the backtracking algorithm would do next?

- A Putting the 4th queen on a square in the 4th column.
- B Backtracking to one level higher up the search tree, and then putting the 3rd queen on a different square in the 3rd column.
- C Backtracking to two levels higher up the search tree, and then putting the 2nd queen on a different square in the 2nd column.
- D Backtracking to three levels higher up the search tree, and then putting the 1st queen on a different square in the 1st column.

Finished!

Score: 10/10

Percent: 100%

OK