

Homework 1

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1 Answers to questions in part B

1. I think depth first will find a solution faster than breadth first will. This is due to that all goal states are in the deepest possible level of the search tree. Breadth first search will have to expand all levels above before it may generate a solution, while depth first search will have the possibility to find a solution after just a few steps in the tree.
2. 4112 nodes expanded.
3. 18365 nodes expanded.
4. 6855 nodes expanded. The evaluation function used was a function returning the number of dirty cells surrounding the current position of the robot. A lot of dirty cells yields a high cost.
5. No, it won't. For example, testing the different algorithms on a 7x7 board leaving a maximum of 8 cells dirty, the best-first algorithm is better than depth first. Breadth first search is the worst in any case though.