

## Laboratory practice No. III: BACKTRACKING

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### 3) Practice for final project defense presentation

1. To solve the problem of the shortest path in a graph, apart from the use of backtracking and brute force, you can also make use of the greedy algorithms
2. There are several ways to traverse a graph, each one can be. Useful according to the problem. One way to traverse a graph is the BFS, which traverses the nodes in order of distance to a node. Another way to traverse a graph is a DFS (Depth First Search), that traverses the graph in depth, that is, starts with the node initial and in each step visits an unvisited node of the node where is stopped, if there are no nodes to visit, go back. A problem that can be solved with a DFS is to decide if a graph is a tree.
3. The search algorithm A \* is classified within the search algorithms in graphs. Presented for the first time in 1968 by Peter E. Hart, Nils J. Nilsson and Bertram Raphael, the algorithm A \* finds, if certain conditions are met, the lowest cost path between a source node and an objective node.
4. For the solution of this problem we want to perform an algorithm that finds the shortest way between vertices of a non-directed graph, using backtracking, but without making use of greedy algorithms.

### 4) Practice for midterms

1.  $1. n-a, a, b, c.$  2.  $res, solucionar(n-b, a, b, c)+1.$  3.  $res, solucionar(n-c, a, b, c)+1.$
2. a) 1. b)  $v, graph[path[pos-1]], path[v], pos$  c)  $graph, path, 1$
5. a) 1. b)  $.ni, nj$

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