Laboratory practice No. 2: Backtracking

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3) Practice for final project defense presentation

3.1

Greedy algorithms

3.2

3.3

Test done in repl.it (online executor)

Number	Time
4	2 ms
5	2 ms
6	3 ms
7	4 ms
8	5 ms
9	5 ms
10	6 ms
11	15 ms
12	51 ms
13	68 ms
14	74 ms
15	70 ms
16	94 ms
17	92 ms
18	297 ms
19	89 ms
20	1680 ms
21	195 ms
22	17520 ms
23	393 ms
24	4971 ms

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25	684 ms
26	6309 ms
27	6414 ms
28	54994 ms
29	30517 ms
30	more than 50 min
31	more than 50 min
32	more than 50 min

3.4
BETTER BFS
- If we know the solution is not far from the root.

- If the solution is unusual and the tree is too deep.

BETTER DFS

- If solutions are frequent but located deep in the tree.

- If the tree is very wide, but we need to safe much memory.
3.5. The backtracking algorithm used in this java class are some ArrayList that contains probable ways to get to the last vertex, and if there is another shortest path, by DFS we could say that we found the path.

3.7. n are the number of vertex, m are the number of edges.
3.8 Taken from the Backtracking thechnique, t he problema of the shortes route between the vertex of a connected graph can be seen by:
In the first method, the shortest (graph,source, destination) are obteined both the graph and the vertex of which we want to know the shortest route. This method créate a list of visits where later a record of nodes of the passes in a route Will be saved and avoided in the loop In the method where the recursión Will be made. In this case, you can not have a cost to get yourself. As a second case you need a node that does not have more events withouth reaching the destination. In that case we Will show the infinite again. And finally, we have the recursive part that consits in a cycle where each iteration we as kif at any time there is a route to the end, and if so, our new mínimum cost Will be the "what is the problem"?.

4) Practice for midterms
***4.1.1* (n-1, a,b,c)**
***4.1.2* n,a**
4.1.3 b,c
***4.5.1* 1**
4.5.2 ni,nj i+1
4.7.1 r==N
4.7.2 a[r] = i

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4.7.3 r+1

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