Exercise of Artificial Intelligence WS 10/11

Information System and Machine Learning Laboratory (ISMLL)
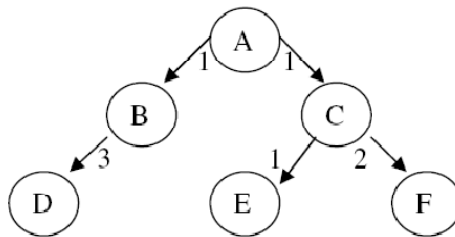
Dr. Tomáš Horváth, Rasoul Karimi

Deadline : 06/12/2010

Exercise 1: Uniform Search (4 points)

In the following search tree, A is the initial state, F is the target state and numbers are costs.

a) In which order the nodes are visited in depth-first search algorithm?
b) In which order the nodes are visited in breadth-first search algorithm?
c) In which order the nodes are visited in uniform-cost search algorithm?
d) Which method is most effective?

Exercise 2: Travel to Bucharest (6 points)

The example of the trip from Arad to Bucharest is known from the lecture (see the blow map). It shows the cities and the distance between them .

a) Describe the problem through its branching factor (b), depth of the shallowest node (d), and the maximum length of any path in the state space (m)
b) Search with the uniform-cost search algorithm, a route from Arad to Bucharest. What is the total cost of this path?
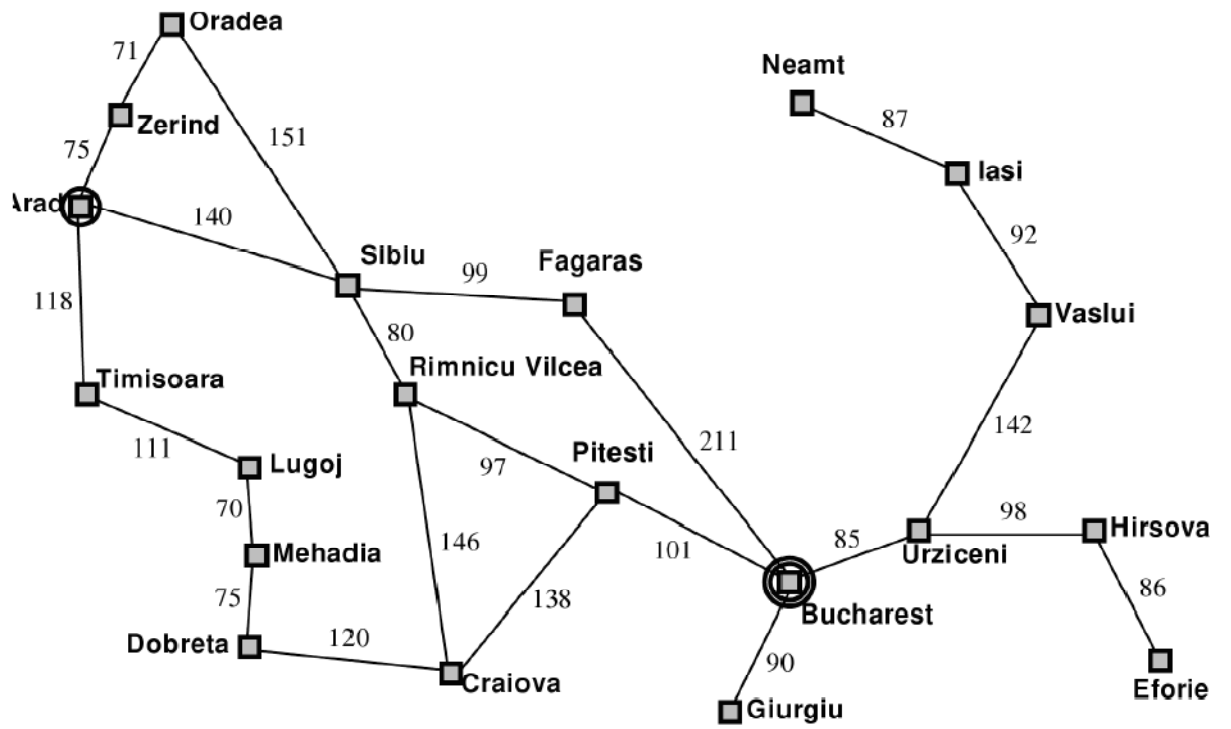c) What is the memory complexity of the uniform-cost search algorithm for this Problem?

Abbildung 1: Verfügbare Landkarte Rumäniens