PROBLEM DEFINATION

Implementing the Romania Map

Uninformed Search Strategies

For this assignment you will implement at least 3 of the uninformed search strategies learned in class (you will get full credit if you implement these 3 algorithms):

* Breadth First Search
* Depth First Search
* Uniform-cost Search

additionally, you may want to try other techniques such as:

* Depth-limited Search
* Iterative Deepening Depth-first Search
* Bidirectional Search

In your implementation consider the “GRAPH-SEARCH” algorithm in order to make a more intelligent exploration of the search space.

The input to your program will be that of the agent problem in Romania (from the AI textbook, figure 3.2: A simplified road map of part of Romania.) in a text format as the following:

* Arad,Zerind,75
* Arad,Timisoara,118
* Arad,Sibiu,140
* Zerind,Oradea,71
* Oradea,Sibiu,151
* Timisoara,Lugoj,111
* Lugoj,Mehadia,70
* Mehadia,Drobeta,75
* Drobeta,Craiova,120
* Craiova,Rimnicu Vilcea,146
* Craiova,Pitesti,138
* Sibiu,Fagaras,99
* Sibiu,Rimnicu Vilcea,80
* Rimnicu Vilcea,Pitesti,97
* Fagaras,Bucharest,211
* Pitesti,Bucharest,101
* Bucharest,Urziceni,85
* Bucharest,Giurgiu,90
* Urziceni,Vaslui,142
* Vaslui,Iasi,92
* Iasi,Neamt,87
* Urziceni,Hirsova,98
* Hirsova,Eforie,86

Note that, for example, we only stored the path from Arad to Zerind with a path cost of 75 but we also have the path from Zerind to Arad with the same cost of 75 available.

Some of the functions that you need to implement are:

* Graph-Search
* InitializeFrontier
* ChooseNode, make it a general function so that you are able to change the search strategy as easy as possible
* TestGoal
* ExpandNode
* UpdateFrontier

For your data structure consider a node with the following information

* node.STATE
* node.PARENT
* node.ACTION
* node.PATH-COST

