representation of what I'm conducting the search "search space"

<table>
<thead>
<tr>
<th>cities</th>
</tr>
</thead>
<tbody>
<tr>
<td>repres the map set of cities and &quot;connections&quot; between the cities roads</td>
</tr>
</tbody>
</table>

search problem

\[\text{state (snapshot of the world)}\]

simple example city

\* initial state: Arad

\* goal (state) goal test

- in Bucharest
  - in a city that starts with a vowel

goal-test (state) true or false
* action that one can take
  \[ \text{go (Arad, Sibiu)} \]
* Arad
  \[ \text{go (Sibiu)} \]
* method \text{actions(state)}
  returns all possible actions applicable at state
* transition model
  tells what happens when you apply (execute) an action \( a \) in a state \( s \)
  \[ \text{RESULT (in(Arad), go(Sibiu)) \in (Sibiu)} \]
* path cost
  the cost of traveling an action from one node to another.
initial state: Aard
goal test: Bucharest
actions: go
transition model:

PATH COST: the cost of taking an action from $s_i$ to $s_j$

expend a node (expand Aard)

initial state

AARD

actions (ARAD)
go Z
go T
go S

node in a tree

RESULT (state, action) → state

ACTIONS (state)
frontier

A, O
TS A O
break first

A, O
TS A O
break first

A, O
TS A O
break first

graph

tree
8-puzzle

Start state

2x2 matrix
string of 10 digits.

Action possible
move up, down, left, right

slide 2
slide 3
slide 6
slide 5

no need to specify direction

17 2 4
5 2 6
8 3 1

start