Solving problems by searching

Chapter 3
Outline

• Problem-solving agents
• Problem types
• Problem formulation
• Example problems
• Basic search algorithms
Example: Romania

• On holiday in Romania; currently in Arad.
• Flight leaves tomorrow from Bucharest
• **Formulate goal:**
  - be in Bucharest
• **Formulate problem:**
  - **states:** various cities
  - **actions:** drive between cities
• **Find solution:**
  - sequence of cities, e.g. Arad, Sibiu, Fagaras, Bucharest
Example: Romania
Problem-solving agent

Restricted form of general agent; solution executed “eyes closed“:

function SIMPLE-PROBLEM-SOLVING-AGENT(percept) return an action

static: seq, an action sequence

state, some description of the current world state

goal, a goal

problem, a problem formulation

state ← UPDATE-STATE(state, percept)

if seq is empty then

    goal ← FORMULATE-GOAL(state)

    problem ← FORMULATE-PROBLEM(state, goal)

    seq ← SEARCH(problem)

    action ← FIRST(seq)

    seq ← REST(seq)

return action