

Solving problems by searching

Chapter 3

Outline



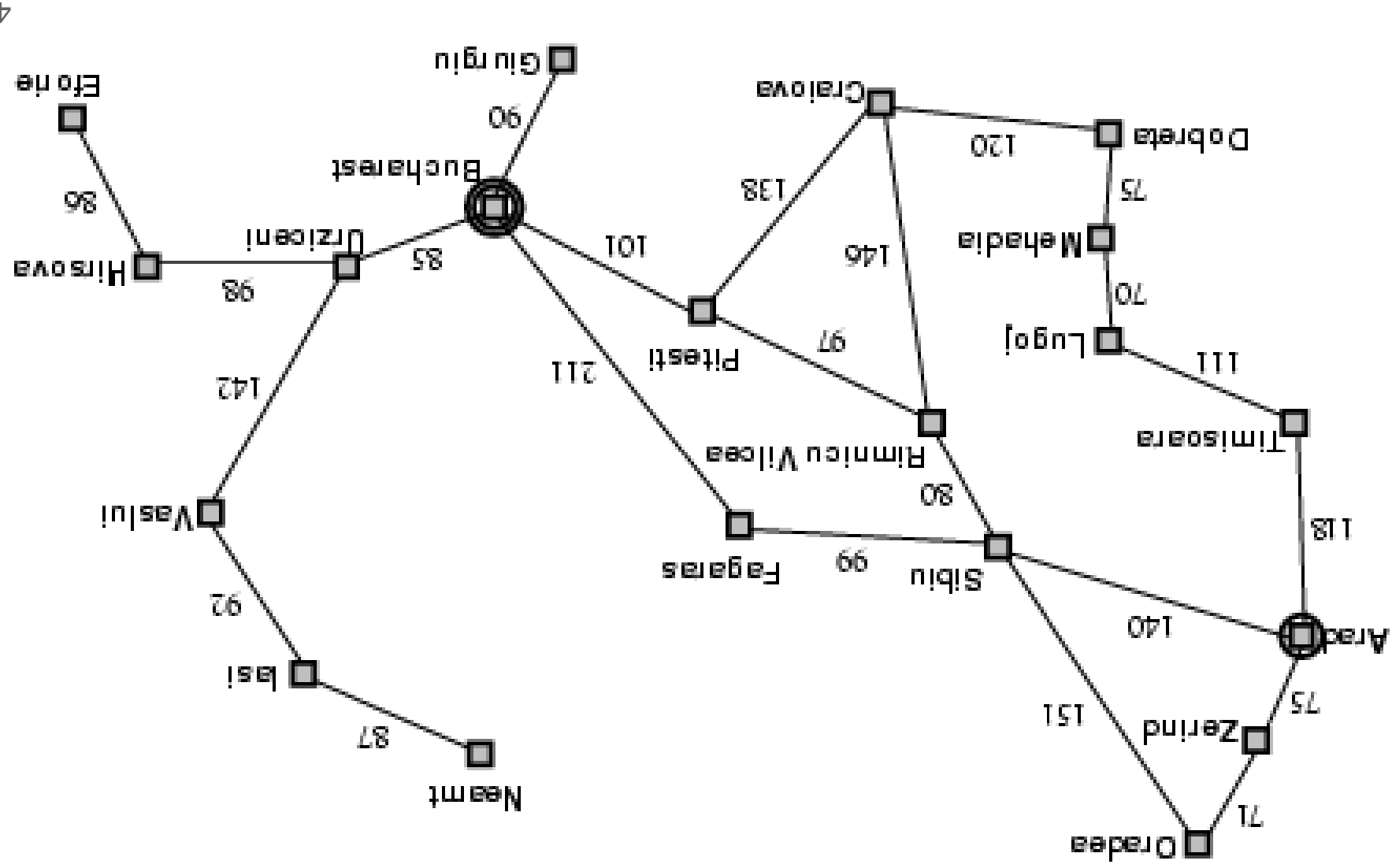
- Problem-solving agents
- Problem types
- Problem formulation
- Example problems
- Basic search algorithms

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*