A problem-solving agent is an AI agent that performs reasoning, search, and problem-solving processes to find solutions to a specific problem. It analyzes the problem space, searches for possible solutions based on the available knowledge, and selects the best solution to achieve the desired goal.

Search is a fundamental problem-solving technique in AI and is used in a wide range of applications, including route planning, game playing, scheduling, and more.

Search Algorithms

A **search algorithm** takes a search problem as input and returns a solution, or an indication of failure.
we consider algorithms that superimpose a **search tree** over the state space graph, forming various paths from the initial state, trying to find a path that reaches a goal state. Each **node** in the search tree corresponds to a state in the state space and the edges in the search tree correspond to actions. The root of the tree corresponds to the initial state of the problem.

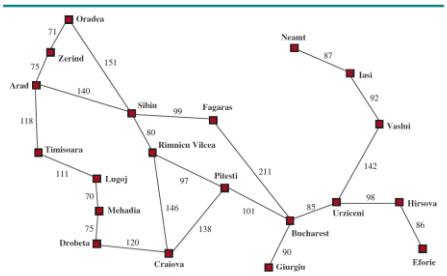

Figure 3.1 A simplified road map of part of Romania, with road distances in miles.