W 5.1

↗ course	🤖 AI
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☑ Resource	☐

Notes

Last Class: Agent and Environment

Agent Terminology

- **Rational Agent**: Acts to maximize expected performance.
- **Structure of Intelligent Agents**: Perception, action, knowledge, reasoning.
- **Categories of Agents**: Simple reflex agents, model-based reflex agents, goal-based agents, utility-based agents.

Today: Problem Solving

Classical Approach

- **Problem Representation**: Key to effective problem-solving.
- **Searching and Categories of Search Algorithms**: Uninformed (blind) and informed (heuristic) search.

Problem Solving Overview

- **Objective**: Automate problem resolution.
- **Components**: Problem statement, state space, successor function, solution space.

- **Problem Description**: Initial state, goal state, available actions, constraints.

Examples of Classical Approach

- **Generate and Test**: Hit and trial method for problem resolution.

- **Generate and Test Arrangement**: Utilizes solution generator and tester components.

- **Problem Representation**: Clear visualization aids understanding.

Searching in Problem Solving

- **Searching Mechanism**: Explores solution space systematically.

- **Tree and Graph Terminology**: Basics of graph representation and conversion to trees.

- **Categories of Search Algorithms**: Uninformed (blind) and informed (heuristic) search.

Uninformed Search Algorithms

- **Properties**: Completeness, optimality, time complexity, space complexity.

- **Examples**: Breadth-first search, depth-first search, depth-limited search, uniform-cost search, iterative deepening search.