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Uninformed search strategies

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Uninformed Search Strategies in AI

What is Search?

- Search is the process of systematically exploring a problem space to find a solution.
- A problem space consists of states, operators, and a goal test.
- A state represents a possible configuration of the problem.
- Operators are actions that can be applied to transform one state to another.
- The goal test determines if a state is the desired solution.

Uninformed Search vs Informed Search

- Uninformed search strategies explore the problem space without any knowledge about the goal's location.
- They are also known as blind search because they treat all states equally.
- Informed search strategies, on the other hand, leverage domain knowledge or heuristics to guide the search towards the goal more efficiently.

Types of Uninformed Search Strategies

•There are several uninformed search strategies, each with its advantages and disadvantages.

•Here are some common ones:
•Breadth-First Search (BFS)
•Depth-First Search (DFS)
•Uniform-Cost Search (UCS)
•Iterative Deepening Depth-First Search (ID-DFS)
•Bidirectional Search

Characteristics of Uniform Search Strategies

- **Completeness:** Guarantees finding a solution if one exists within the finite state space.
- **Optimality:** Finds a solution with the lowest path cost (if all path costs are positive).
- **Systematic Exploration:** Ensures all reachable states are considered.
- **No Domain Knowledge:** Doesn't rely on specific information about the goal's location.