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9559 AI Lab 6 P.S

Q1) Difference between A* and AO* algorithm?

Ans

Aspect	A* Algorithm	AO* Algorithm
Optimality	Guaranteed optimal solution	Not guaranteed optimal solutions
Heuristic	Requires admissible heuristic	Works with under estimated heuristics
Quality solution	Always provides optimal solution	May not provide optimal solution
Quality Exploration	Efficient guided search	Iterative refinement of estimates
Performance	More efficient with admissible heuristic	Better in scenarios with under estimated heuristics

Q2) Why AO algorithm only works heuristics values are under estimated?

Ans 1) Improper Heuristic Handling: AO* may converge to suboptimal solutions if heuristic values are overestimated

2) Convergence Issues: Overestimated heuristics hinder AO* iterative refinement process, leading to unreliable solution

3) Futility Condition Violation: Overestimated heuristics heuristics may prevent AO* from terminating early, resulting in unnecessary exploration