

AI Exp- 6

Postlab

Q.1] diff b/w A^* & AO * algo

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|--|---|
| <ul style="list-style-type: none"> - Not designed for handling changes in env - Primarily uses the AND operation considering one path at a time - Generally more resource efficient explores fewer nodes - Less suited for high uncertainty or freq env changes - Req to complete reset of search after an env change - well-suited for static env with consistent node costs - uses less memory due to explore fewer nodes | <ul style="list-style-type: none"> - specifically designed to adapt to change without initiate new search - uses both OR & AND operation exploring multiple paths simultaneously - may explore more nodes due to adaptability - potentially req more resource - Excels in situation with uncertainty, quickly adj plans in response to new - Eliminates need for a full restart, saving time & computational resource - Particularly beneficial in dynamic env where condⁿ or cost may change over time - may use more memory due to adaptability, potential need to remember info |
|--|---|

0.2)

→ AO^* with heuristic values is not entirely accurate while underestimation is a crucial property for guaranteeing optimal solution with AO^* , it's not sole factor.

* AO^* & heuristic function:

→ AO^* is real-time algo design for dynamic env where cost of moving b/w nodes can change over time.

* Req for optimality:

- Admissibility: heuristic used in both A^* & AO^* need to be admissible. This means h-value must never be greater than actual cost to reach goal from any given state.

- monotonicity: A^* , AO^* only req monotonicity.

* underestimation & optimality

- In A^* , finding optimal path if search process is allowed to complete. This is because underestimation ensures algo never discards a path that could potentially lead to optimal solution.