

Optimal Plan (Problem 1): greedy\_best\_first\_graph\_search h\_unmet\_goals

Load(C1, P1, SFO)

Load(C2, P2, JFK)

Fly(P2, JFK, SFO)

Unload(C2, P2, SFO)

Fly(P1, SFO, JFK)

Unload(C1, P1, JFK)



Optimal Plan (Problem 2): greedy\_best\_first\_graph\_search h\_unmet\_goals

Load(C1, P1, SFO)

Load(C2, P2, JFK)

Load(C3, P3, ATL)

Fly(P2, JFK, SFO)

Unload(C2, P2, SFO)

Fly(P3, ATL, SFO)

Unload(C3, P3, SFO)

Fly(P1, SFO, JFK)

Unload(C1, P1, JFK)



Optimal Plan (Problem 3): astar\_search h\_unmet\_goals

Load(C2, P2, JFK)

Fly(P2, JFK, ATL)

Load(C3, P2, ATL)

Fly(P2, ATL, ORD)

Load(C4, P2, ORD)

Fly(P2, ORD, SFO)

Unload(C4, P2, SFO)

Unload(C2, P2, SFO)

Load(C1, P2, SFO)

Fly(P2, SFO, JFK)

Unload(C3, P2, JFK)

Unload(C1, P2, JFK)



Optimal Plan (Problem 4): astar\_search h\_unmet\_goals

Load(C2, P2, JFK)

Fly(P2, JFK, ATL)

Load(C3, P2, ATL)

Fly(P2, ATL, ORD)

Load(C4, P2, ORD)

Load(C5, P2, ORD)

Fly(P2, ORD, SFO)

Unload(C4, P2, SFO)

Unload(C2, P2, SFO)

Load(C1, P2, SFO)

Fly(P2, SFO, JFK)

Unload(C5, P2, JFK)

Unload(C3, P2, JFK)

Unload(C1, P2, JFK)

**Question 1:** Which algorithm or algorithms would be most appropriate for planning in a very restricted domain (i.e., one that has only a few actions) and needs to operate in real time?

It would recommend to use either *breadth\_first\_search*, *uniform\_cost\_search, greedy\_best\_first\_graph\_search h\_unmet\_goals*, or *astar\_search h\_unmet\_goals* due to the rapid computation time and small plan length with a preference for *greedy\_best\_first\_graph\_search h\_unmet\_goals*. Depending on computation time constraint, any of the algorithms would be a good recommendation excluding *depth\_first\_graph\_search*.

**Question 2:** Which algorithm or algorithms would be most appropriate for planning in very large domains (e.g., planning delivery routes for all UPS drivers in the U.S. on a given day)

It would be recommended using *greedy\_best\_first\_graph\_search h\_unmet\_goals* due to the rapid computation time and relatively small plan length. Calculating and considering computation time is an essential parameter to consider especially if a company is considering to adopt the algorithm for a vast domain such as all the UPS deliveries.

**Question 3:** Which algorithm or algorithms would be most appropriate for planning problems where it is important to find only optimal plans?

It would be recommended to use *astar\_search h\_unmet\_goals* for planning problems where the optimal plan is a mandatory requirement.