

Heuristic Analysis

In this analysis the results of running different search strategies on the 3 cargo problems are presented. The search is performed without heuristics. The metrics provided are number of node expansions, number of goal test, time elapsed, and optimality of solution.

Problem 1

Algorithm	Nodes	Goal Tests	Time	Optimality
BFS graph	43	56	0.03	Yes
BFS tree	1458	1459	0.9	Yes
DFS graph	21	22	0.01	No
Depth limited	101	271	0.08	No
Uniform Cost	55	57	0.04	Yes

Optimal Plan

Length: 6 Load(C2, P2, JFK) Load(C1, P1, SFO) Fly(P2, JFK, SFO) Unload(C2, P2, SFO) Fly(P1, SFO, JFK) Unload(C1, P1, JFK)

Problem 2

Algorithm	Nodes	Goal Tests	Time	Optimality
BFS graph	3343	4609	8.5	Yes
BFS tree	N/A	N/A	N/A	N/A
DFS graph	101	271	3.3	No
Depth limited	N/A	N/A	N/A	N/A
Uniform Cost	4852	4854	12	Yes

Optimal Plan

Length: 9 Load(C1, P1, SFO) Load(C2, P2, JFK) Load(C3, P3, ATL) Fly(P2, JFK, SFO) Unload(C2, P2, SFO) Fly(P1, SFO, JFK) Unload(C1, P1, JFK) Fly(P3, ATL, SFO) Unload(C3, P3, SFO)

Problem 3

Algorithm	Nodes	Goal Tests	Time	Optimality
BFS graph	14663	18098	42.2	Yes
BFS tree	N/A	N/A	N/A	N/A
DFS graph	408	409	1.7	No
Depth limited	N/A	N/A	N/A	N/A
Uniform Cost	18235	18237	52	Yes

Optimal Plan

Length: 12 Load(C1, P1, SFO) Load(C2, P2, JFK) Fly(P2, JFK, ORD) Load(C4, P2, ORD) Fly(P1, SFO, ATL) Load(C3, P1, ATL) Fly(P1, ATL, JFK) Unload(C1, P1, JFK) Unload(C3, P1, JFK) Fly(P2, ORD, SFO) Unload(C2, P2, SFO) Unload(C4, P2, SFO)