ZZZM56589936A:AIND-Planning i077725$ python run\_search.py -m

Select from the following list of air cargo problems. You may choose more than

one by entering multiple selections separated by spaces.

1. Air Cargo Problem 1

2. Air Cargo Problem 2

3. Air Cargo Problem 3

> 1 2 3

Select from the following list of search functions. You may choose more than

one by entering multiple selections separated by spaces.

1. breadth\_first\_search

2. breadth\_first\_tree\_search

3. depth\_first\_graph\_search

4. depth\_limited\_search

5. uniform\_cost\_search

6. recursive\_best\_first\_search h\_1

7. greedy\_best\_first\_graph\_search h\_1

8. astar\_search h\_1

9. astar\_search h\_ignore\_preconditions

10. astar\_search h\_pg\_levelsum

> 8 9 10

Solving Air Cargo Problem 1 using astar\_search with h\_1...

Expansions Goal Tests New Nodes

55 57 224

Plan length: 6 Time elapsed in seconds: 0.04275101800004677

Load(C1, P1, SFO)

Load(C2, P2, JFK)

Fly(P1, SFO, JFK)

Fly(P2, JFK, SFO)

Unload(C1, P1, JFK)

Unload(C2, P2, SFO)

Solving Air Cargo Problem 1 using astar\_search with h\_ignore\_preconditions...

Expansions Goal Tests New Nodes

55 57 224

Plan length: 6 Time elapsed in seconds: 0.04188433100000566

Load(C1, P1, SFO)

Load(C2, P2, JFK)

Fly(P1, SFO, JFK)

Fly(P2, JFK, SFO)

Unload(C1, P1, JFK)

Unload(C2, P2, SFO)

Solving Air Cargo Problem 1 using astar\_search with h\_pg\_levelsum...

Expansions Goal Tests New Nodes

11 13 50

Plan length: 6 Time elapsed in seconds: 0.6056557200000157

Load(C1, P1, SFO)

Fly(P1, SFO, JFK)

Load(C2, P2, JFK)

Fly(P2, JFK, SFO)

Unload(C1, P1, JFK)

Unload(C2, P2, SFO)

Solving Air Cargo Problem 2 using astar\_search with h\_1...

Expansions Goal Tests New Nodes

4853 4855 44041

Plan length: 9 Time elapsed in seconds: 11.546067610000023

Load(C1, P1, SFO)

Load(C2, P2, JFK)

Load(C3, P3, ATL)

Fly(P1, SFO, JFK)

Fly(P2, JFK, SFO)

Fly(P3, ATL, SFO)

Unload(C1, P1, JFK)

Unload(C3, P3, SFO)

Unload(C2, P2, SFO)

Solving Air Cargo Problem 2 using astar\_search with h\_ignore\_preconditions...

Expansions Goal Tests New Nodes

4853 4855 44041

Plan length: 9 Time elapsed in seconds: 11.820129387999998

Load(C1, P1, SFO)

Load(C2, P2, JFK)

Load(C3, P3, ATL)

Fly(P1, SFO, JFK)

Fly(P2, JFK, SFO)

Fly(P3, ATL, SFO)

Unload(C1, P1, JFK)

Unload(C3, P3, SFO)

Unload(C2, P2, SFO)

Solving Air Cargo Problem 2 using astar\_search with h\_pg\_levelsum...

Expansions Goal Tests New Nodes

86 88 841

Plan length: 9 Time elapsed in seconds: 55.78128917800001

Load(C1, P1, SFO)

Fly(P1, SFO, JFK)

Load(C2, P2, JFK)

Fly(P2, JFK, SFO)

Load(C3, P3, ATL)

Fly(P3, ATL, SFO)

Unload(C1, P1, JFK)

Unload(C3, P3, SFO)

Unload(C2, P2, SFO)

Solving Air Cargo Problem 3 using astar\_search with h\_1...

Expansions Goal Tests New Nodes

18162 18164 159128

Plan length: 12 Time elapsed in seconds: 52.203628955

Load(C1, P1, SFO)

Load(C2, P2, JFK)

Fly(P1, SFO, ATL)

Load(C3, P1, ATL)

Fly(P2, JFK, ORD)

Load(C4, P2, ORD)

Fly(P2, ORD, SFO)

Fly(P1, ATL, JFK)

Unload(C4, P2, SFO)

Unload(C1, P1, JFK)

Unload(C3, P1, JFK)

Unload(C2, P2, SFO)

Solving Air Cargo Problem 3 using astar\_search with h\_ignore\_preconditions...

Expansions Goal Tests New Nodes

18162 18164 159128

Plan length: 12 Time elapsed in seconds: 52.493872936

Load(C1, P1, SFO)

Load(C2, P2, JFK)

Fly(P1, SFO, ATL)

Load(C3, P1, ATL)

Fly(P2, JFK, ORD)

Load(C4, P2, ORD)

Fly(P2, ORD, SFO)

Fly(P1, ATL, JFK)

Unload(C4, P2, SFO)

Unload(C1, P1, JFK)

Unload(C3, P1, JFK)

Unload(C2, P2, SFO)

Solving Air Cargo Problem 3 using astar\_search with h\_pg\_levelsum...

Expansions Goal Tests New Nodes

316 318 2914

Plan length: 12 Time elapsed in seconds: 276.201893802

Load(C2, P2, JFK)

Fly(P2, JFK, ORD)

Load(C4, P2, ORD)

Fly(P2, ORD, SFO)

Load(C1, P1, SFO)

Fly(P1, SFO, ATL)

Load(C3, P1, ATL)

Fly(P1, ATL, JFK)

Unload(C4, P2, SFO)

Unload(C1, P1, JFK)

Unload(C3, P1, JFK)

Unload(C2, P2, SFO)

You can run this selection again automatically from the command line

with the following command:

python run\_search.py -p 1 2 3 -s 8 9 10