Below is the list of all Problems

1. Air Cargo Problem 1
2. Air Cargo Problem 2
3. Air Cargo Problem 3
4. Air Cargo Problem 4

Below is the list of all Search Algorithms

1. breadth_first_search
2. depth_first_graph_search
3. uniform_cost_search
4. greedy_best_first_graph_search h_unmet_goals
5. greedy_best_first_graph_search h_pg_levelsum
6. greedy_best_first_graph_search h_pg_maxlevel
7. greedy_best_first_graph_search h_pg_setlevel
8. astar_search h_unmet_goals
9. astar_search h_pg_levelsum
10. astar_search h_pg_maxlevel
11. astar_search h_pg_setlevel

Table below displays the Actions, Expansions and Time elapsed (in Secs) for solving Air Cargo 1 Problem using all the searches:

	Actions	Expansions	Time elapsed (in Secs)
breadth_first_search	20	43	0.005588444999943931
depth_first_graph_search	20	21	0.0028621529999668383
uniform_cost_search	20	60	0.008694875999935903
greedy_best_first_graph_search h_unmet_goals	20	7	0.001457125999991149
greedy_best_first_graph_search h_pg_levelsum	20	6	0.35248777899994366
greedy_best_first_graph_search h_pg_maxlevel	20	6	0.26360032700006286
greedy_best_first_graph_search h_pg_setlevel	20	13	1.388686501000052
astar_search h_unmet_goals	20	50	0.008693997000023046
astar_search h_pg_levelsum	20	28	0.8963093960001061
astar_search h_pg_maxlevel	20	43	0.9191750730000194
astar_search h_pg_setlevel	20	46	2.679376777000016

Table below displays the Actions, Expansions and Time elapsed (in Secs) for solving Air Cargo 2 Problem using all the searches:

	Actions	Expansions	Time elapsed (in Secs)
breadth_first_search	72	3343	1.8199685490000093
depth_first_graph_search	72	624	2.5737250640000298
uniform_cost_search	72	5154	3.099743160999992
greedy_best_first_graph_search h_unmet_goals	72	17	0.01732442299999093
greedy_best_first_graph_search h_pg_levelsum	72	9	7.600105053999982
greedy_best_first_graph_search h_pg_maxlevel	72	27	26.937425688000076
greedy_best_first_graph_search h_pg_setlevel	72	304	844.178729591
astar_search h_unmet_goals	72	2467	4.324797783000122
astar_search h_pg_levelsum	72	357	395.2575452220001
astar_search h_pg_maxlevel	72	2887	2294.5907049320003
astar_search h_pg_setlevel	72	2879	4981.899036787

Table below displays the Actions, Expansions and Time elapsed (in Secs) for solving Air Cargo 3 Problem for one uninformed search, two heuristics with greedy best first search, and two heuristics with A*:

	Actions	Expansions	Time elapsed (in Secs)
breadth_first_search			
depth_first_graph_search			
uniform_cost_search	88	18510	26.811809745000005
greedy_best_first_graph_search h_unmet_goals	88	25	0.06915336499992009
greedy_best_first_graph_search h_pg_levelsum	88	14	35.034483851999994
greedy_best_first_graph_search h_pg_maxlevel			
greedy_best_first_graph_search h_pg_setlevel			
astar_search h_unmet_goals	88	7388	15.594840867000016
astar_search h_pg_levelsum	88	369	641.6828335120001
astar_search h_pg_maxlevel			
astar_search h_pg_setlevel			

Table below displays the Actions, Expansions and Time elapsed (in Secs) for solving Air Cargo 4 Problem for one uninformed search, two heuristics with greedy best first search, and two heuristics with A*:

	Actions	Expansions	Time elapsed (in Secs)
breadth_first_search			
depth_first_graph_search			
uniform_cost_search	104	113339	220.76435475499989
greedy_best_first_graph_search h_unmet_goals	104	29	0.10748450899995987
greedy_best_first_graph_search h_pg_levelsum	104	17	63.74911999200003
greedy_best_first_graph_search h_pg_maxlevel			
greedy_best_first_graph_search h_pg_setlevel			
astar_search h_unmet_goals	104	34330	105.00657805300011
astar_search h_pg_levelsum	104	1208	3645.6608114349997
astar_search h_pg_maxlevel			
astar_search h_pg_setlevel			

Q&A Section

- 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?

> For Air Cargo Problem where there are small number of actions (here 20) almost all search algorithms are appropriate.

- 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)

> Search algorithms like uniform_cost_search, greedy_best_first_graph_search h_unmet_goals, greedy_best_first_graph_search h_pg_levelsum are appropriate for planning problems where there are many actions (Air Cargo Problem 3 or 4)

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

> Uniform Cost Search, Breadth First Search is the recommended search strategy as they are faster and uses less memory.