

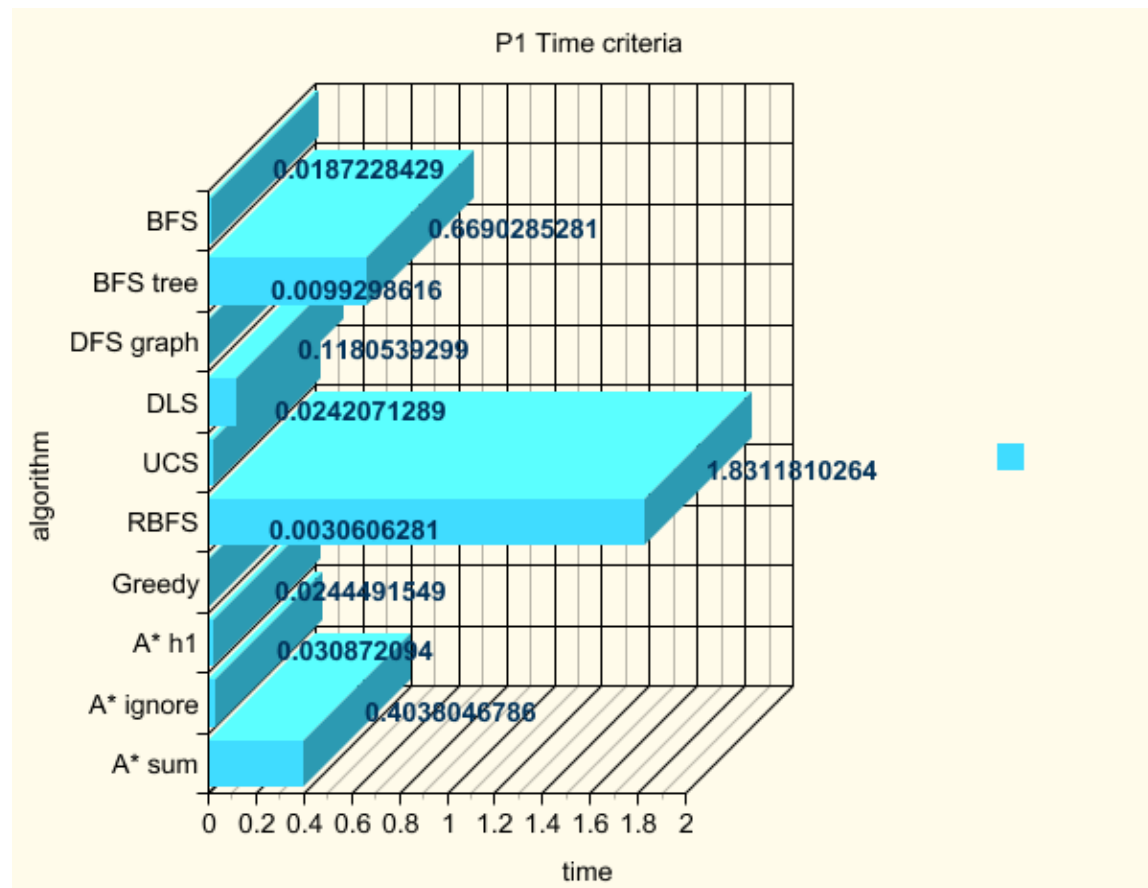
Bogdan Costea

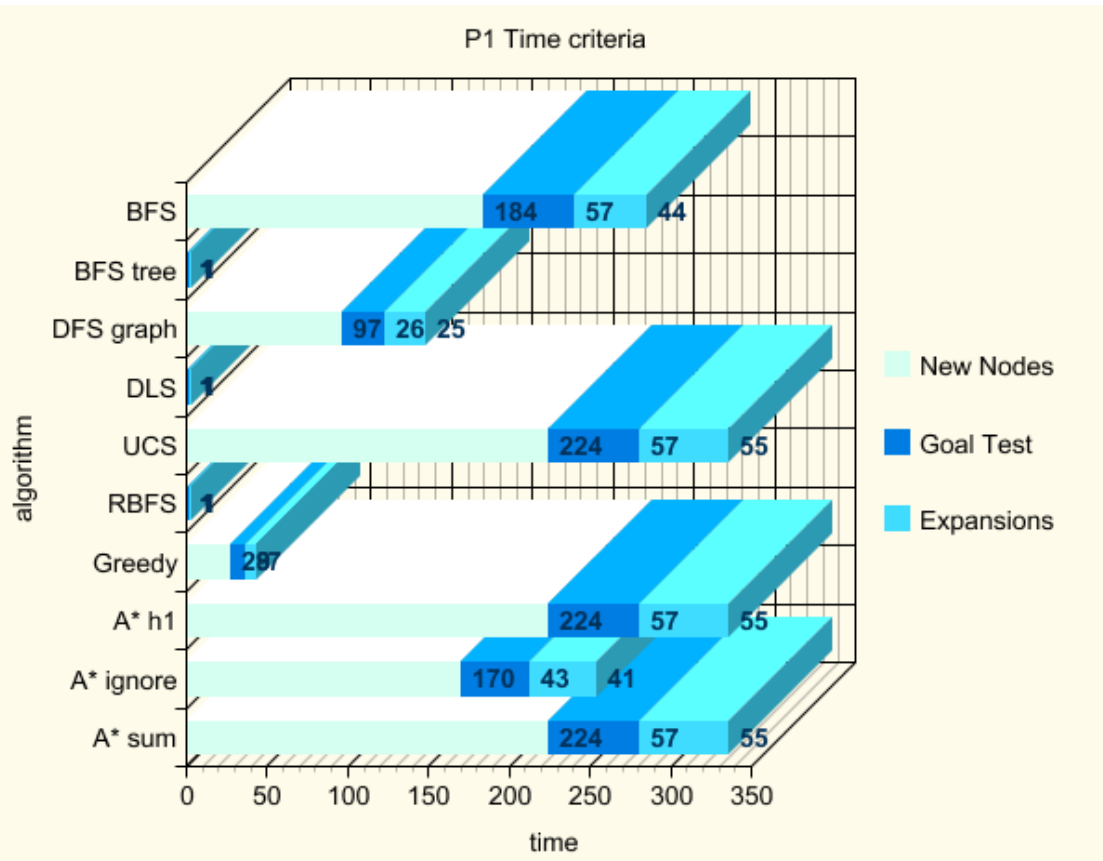
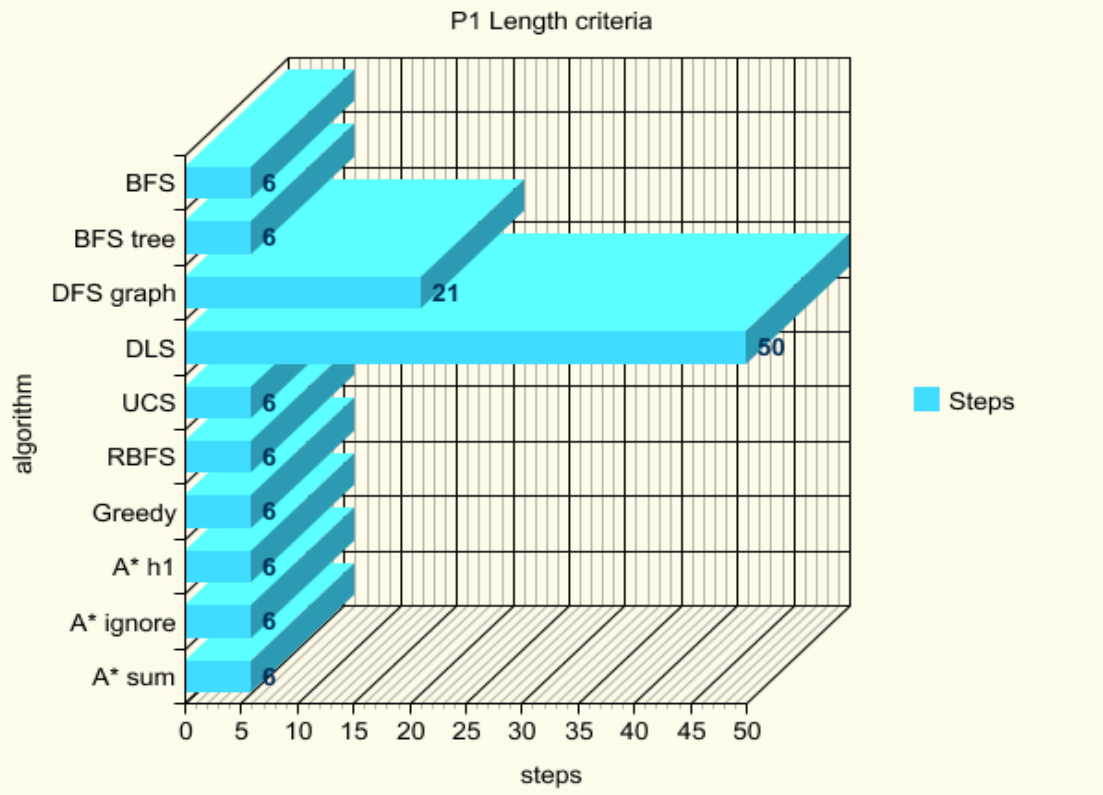
AIND February Cohort

Graph legend:

- **BFS** - breadth\_first\_search
- **BFS tree** – breadth\_first\_tree\_search
- **DFS graph** – depth\_first\_graph\_search
- **DLS** – depth\_limited\_search
- **UCS** – uniform\_cost\_search
- **RBFS** – recursive\_best\_first\_search with h\_1
- **Greedy** – greedy\_best\_first\_graph\_search with h\_1
- **A\* h1** – astar\_search with h\_1
- **A\* ignore** – astar\_search with h\_ignore\_preconditions
- **A\* sum** - astar\_search with h\_pg\_levelsum

First problem:

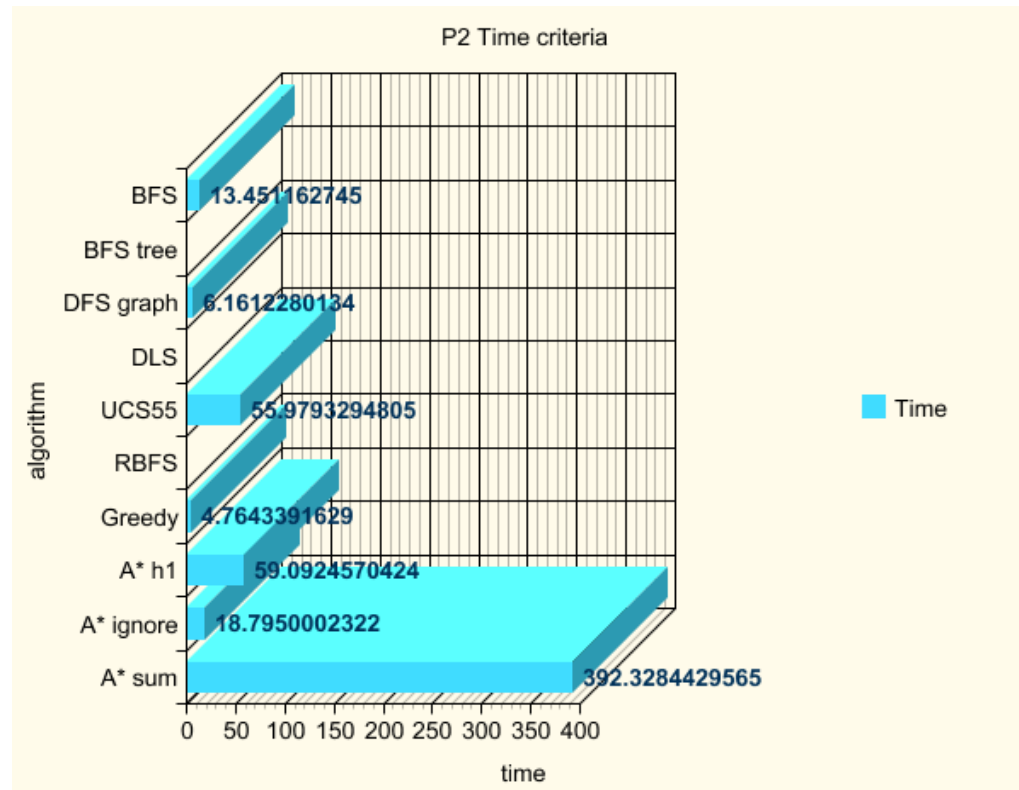


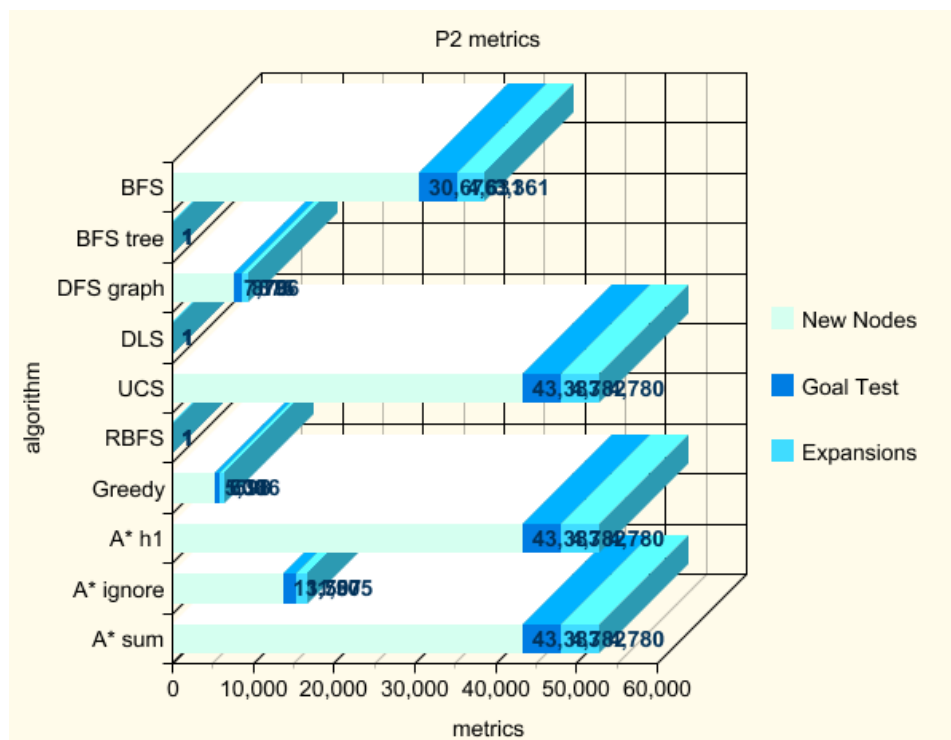
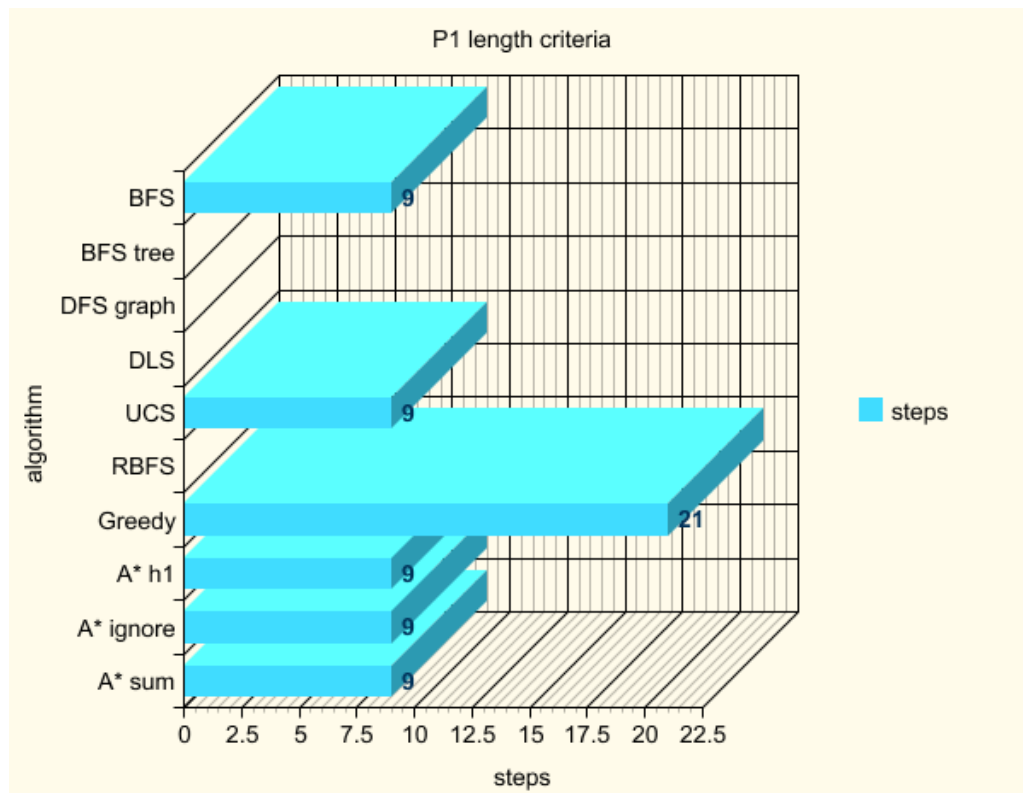


The BFS tree, DLS and RBFS were eliminated from the last graph as would have values way too large and would make the other relevant data unreadable.

### Second problem:

For this problem, I have added a plane, a cargo and an airport.

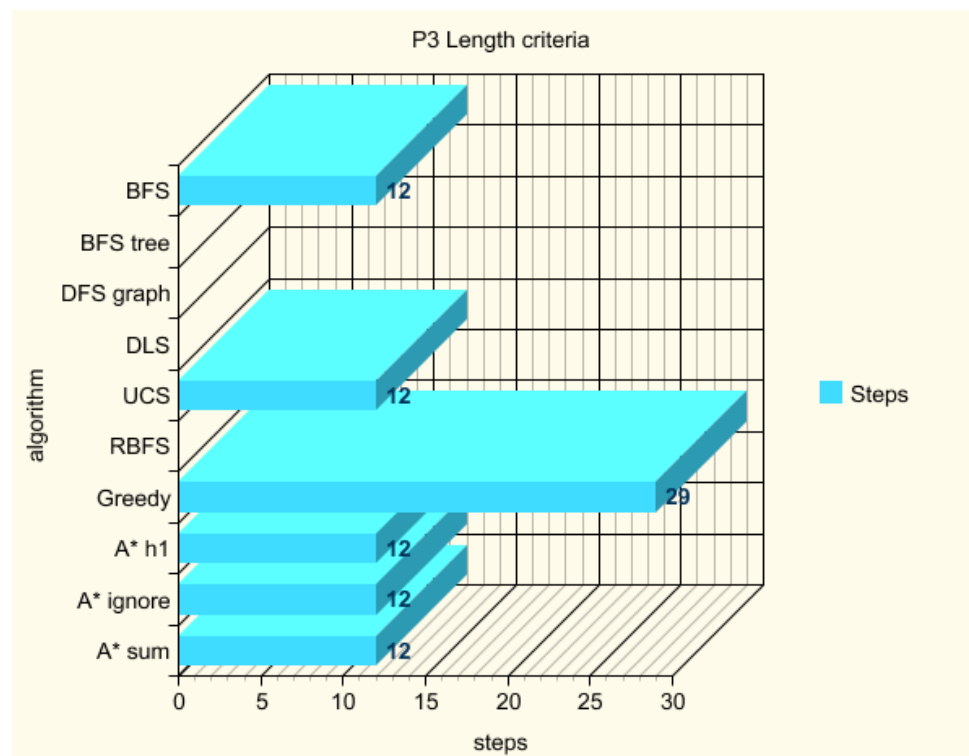
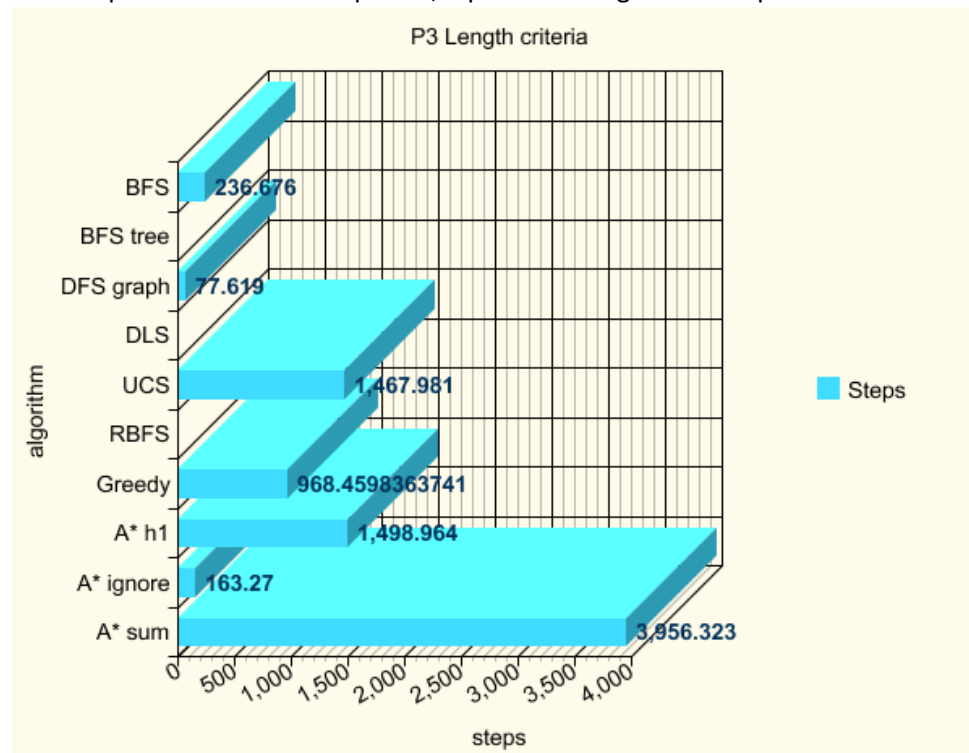


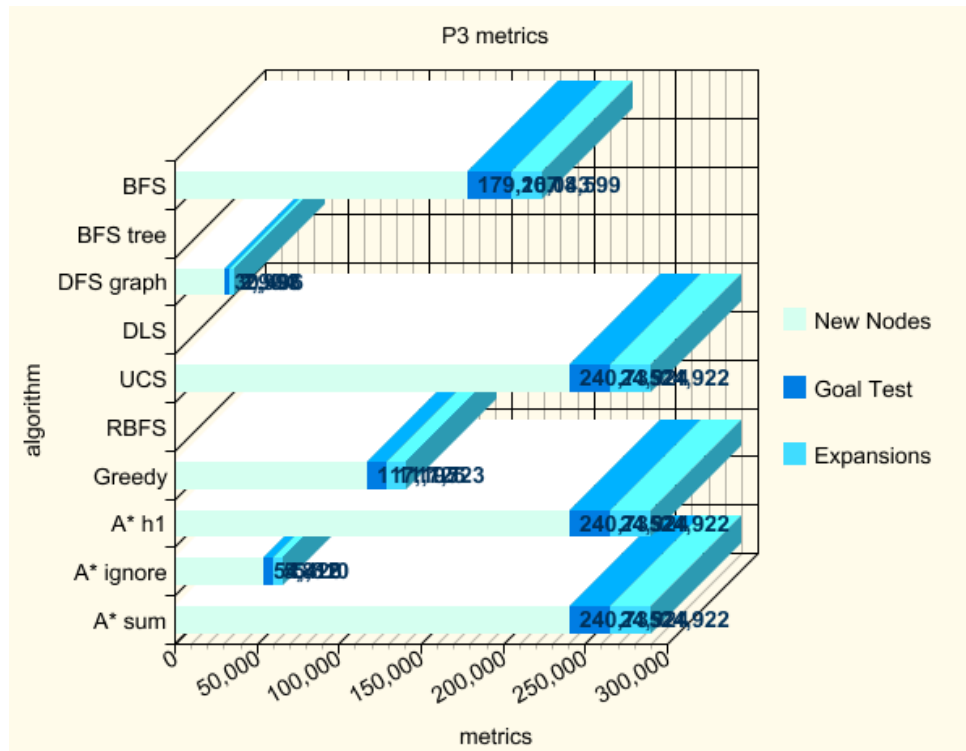


DFS was eliminated from the steps graph as it was producing a path of a length which would make the other values unreadable.

### Third problem:

For this problem there are 2 planes, 4 pieces of cargo and 4 airports.





Greedy was displaying constantly great speeds unfortunately is always producing suboptimal solutions in terms of path lengths. breadth\_first\_tree\_search, depth\_limited\_search and recursive\_best\_first\_search seem to be unusable with problems above first level as their time is abysmal.

I have eliminated them all together from runs with the problem 2 and 3.

A\* ignore preconditions and breadth\_first\_search are the best in terms of all 3 criteria for both problem 2 and 3, A\* having a slight speed advantage. I suspect the speed advantage will become more apparent with more complex problems. The speed advantage is backed up by the node metrics graph which shows that A\* with ignore preconditions would visit a smaller number of nodes.

#### Errata:

Problem 2 second graph should read P2 length criteria.

Problem 3 first graph should be a time criteria graph not length.