Lab 2 matge373

2.1
- IPP

IPP was run with the following parameters:

UAVs: 1
Carriers: 1
Locations: 7
Persons: 6
Crates: 10
Goals: 7
Numbers: 4

This took 30 seconds, and it did not make use of the carrier.

- Lama2011

Took approximately 1 minute and 40 seconds give or take. No use of carriers using the following parameters:
UAVs: 1
Carriers: 1
Locations: 100
Persons: 90
Crates: 200
Goals: 150
Numbers: 4

- madagascar-p

Took a minute to complete with the following problem instance:
UAVs   1
Carriers   1
Locations   20
Persons   15
Crates   40
Goals   22
Numbers   4

It did not use the carrier in any way.

- YAHSP3

Took 317 seconds to complete the same problem instance as the one given for the IPP. It did not use the carrier in any way.

- ipc2018 (Cerberus-gl)

The following problem instance took 1 minute to complete.
UAVs: 1
Carriers: 1

Locations: 30
Persons: 30
Crates: 100
Goals: 85
Numbers: 4

It did not use the carrier in any way.

2.2

Disclaimer: I found a couple of errors in the code which matters when considering costs. These bugs included some contradictions when using the carrier, which might mean that it could've been used in 2.1 (even though cost doesn't matter). But then it couldn't, since it was not possible. I don't think this matters for this comparison as it should not be considered when costs don't matter, but it's still good to keep in mind.

In general, the different plans do not seem to be better than before. However, it's hard to tell since many of them don't show the total cost given (and we know that madagascar for example completely ignores this).

- Lama2011

The same problem as before now takes a very long time (>10 minutes). This is possibly because it considers cost and the problem becomes immensely large when trying to minimize it rather than just finding a solution. It does not in any way use the carrier in the first solution found.

- madagascar-p

Took around 40 seconds. It uses the carrier in the solution, but it does nothing to contribute. For instance, the UAV loads a crate on the carrier randomly and then proceeds to just fly crates one by one to persons in need.

- YAHSP3

This did not finish within 10 minutes and therefore I cancelled it.

- ipc2018 (Cerberus-gl)

This took approximately 3 minutes to complete, and it did not use the carrier in any way.

2.3

- BJOLP

Took 145 seconds to reach a solution for the following problem instance:
UAVs: 1
Carriers: 1
Locations: 3
Persons: 5
Crates: 10

Goals: 6
Numbers: 4

Using a problem just a little bit bigger than this makes the planner go on for ages (more than 8 minutes at least), so there seems to be some sort of limitation in how big (but still small) the problem can be. The plan generated with a cost of 1046 (optimal, so all planners will have the same cost)

- SymBA-1

This planner managed the above mentioned problem in 53 seconds, meaning its quite a bit more effective than the BJOLP planner.

- Rational Lazy A*

RLA was run with the same problem instance as above. A plan was found after 434 seconds.

Discussion

Unfortunately for some reason, the plan costs from lab1 are not saved so I cannot really see the costs generated by those planners. However, these optimal planners obviously had the lowest cost (since its optimal), but the main issue here is time which I think can be argued for without looking at the costs. These problems are extremely small and still take a very long time to solve, even if the "shortest" time was 53 seconds. While the other planners could find a decent solution for the same problem in less than a second, and then reiterate to find better ones, still in a way shorter time period. Unless the UAV is either extremely low on fuel, or of fuel is simply incredibly expensive, spending this much time on planning simple problems is not worth it.