UDACITY

PROJECT

Implement a Planning Search

A part of the Artificial Intelligence Nanodegree and Specializations Program

PROJECT REVIEW

CODE REVIEW

NOTES

SHARE YOUR ACCOMPLISHMENT!

Requires Changes

1 SPECIFICATION REQUIRES CHANGES

Hi there,

So far you have done a great work
A rubric point is incomplete, please, see the detail below.

Keep up the great work
Sincerely
Leticia
@letyrodri at Slack

Planning Problem Representation

The problems and class methods in the `my_air_cargo_problems.py` module are correctly represented.

```
**************************************************************************
                          Test Result Summary
```

```
*************************************************************************


air_cargo_p1 returns the correct initial fluents:                       .
air_cargo_p1 returns the correct goal fluents:                          .
air_cargo_p1 returns an object of type problem:                         .
air_cargo_p1 returns the correct initial values:                        .
air_cargo_p2 returns the correct initial fluents:                       .
air_cargo_p2 returns the correct goal fluents:                          .
air_cargo_p2 returns an object of type problem:                         .
air_cargo_p2 returns the correct initial values:                        .
air_cargo_p3 returns the correct initial fluents:                       .
air_cargo_p3 returns the correct goal fluents:                          .
air_cargo_p3 returns an object of type problem:                         .
air_cargo_p3 returns the correct initial values:                        .
AirCargoProblem correctly lists possible actions in a given state:      .
AirCargoProblem correctly constructs all possible actions:              .
AirCargoProblem correctly updates state for a given action:             .
AirCargoProblem yields a correct solution when input to breadth_first: .


-------------------------------------------------------------------------
            . - Test Passed    F - Test Failed    E - Error
```

An optimal sequence of actions is identified for each problem in the written report.

You submitted an optimal plan for each problem

Automated Heuristics

Automated heuristics “ignore-preconditions” and “level-sum” (planning graph) are correctly implemented.

```
*************************************************************************
                          Test Result Summary
*************************************************************************


AirCargoProblem implements the ignore preconditions heuristic:          .
Action levels have the correct number of actions:                       .
Literal levels have the correct number of literals:                     .
```

```
competing_needs_mutex behaves correctly:                    .
inconsistent_effects_mutex behaves correctly:               .
inconsistent_support_mutex behaves correctly:               .
interference_mutex behaves correctly:                       .
negation_mutex behaves correctly:                           .
Serialization of mutexes is correct:                        .
levelsum heuristic behaves correctly:                       .


------------------------------------------------------------
          . - Test Passed    F - Test Failed    E - Error
```

Performance Comparison

At least three uninformed planning algorithms (including breadth- and depth-first search) are compared on all three problems, and at least two automatic heuristics are used with A* search for planning on all three problems including “ignore-preconditions” and “level-sum” from the Planning Graph.

You included results of three uninformed searches and A* with ignore preconditions and levelsum heuristics.
Summary of the searches:
Uninformed search

Informed search

A brief report lists (using a table and any appropriate visualizations) and verbally describes the performance of the algorithms on the problems compared, including the optimality of the solutions, time elapsed, and the number of node expansions required.

You provided tables showing plan length, expansions, goal tests, new nodes, and time elapsed.
You have verbally described the results.

The report explains the reason for the observed results using at least one appropriate justification from the video lessons or from outside resources (e.g., Norvig and Russell’s textbook).

Good conclusions!
Notice that this rubric point states:

> using at least one appropriate justification from the video lessons or from outside resources (e.g., Norvig and Russell’s textbook).

Required

Provide an inline citation/reference to a classroom lesson, AIMA Book or website justifying one of your statements.

For example,

> BFS always finds an optimal solution as explained in AIMA book, Peter Norvig, 3rd edition, pp84.

Research Review

The report includes a summary of at least three key developments in the field of AI planning and search.

You wrote about SATPlan, GraphPlan, and STRIPS

The Introductions to Algorithms book by Thomas Cormen has an interesting proof of the SAT problem and a good discussion about NP Complete Problems.
Additional resources:
GRAPHPLAN
STRIPS

RESUBMIT

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