HW1- Search algorithms

Hi,

In your first homework, I want you to compare the following search algorithms

-Depth First search

-Breadth First Search

-Uniform Cost Search

-A* search

You will not need to write the code by yourself, but only apply teh codes onto some search problems.

Here are some websites where you can find a python implementation. If you would like to use a code from somewhere else that is also acceptable. In any case,

PLEASE GIVE THE REFERENCES PROPERLY

http://aima.cs.berkeley.edu/python/search.html

https://github.com/chitholian/AI-Search-Algorithms

https://artint.info/AIPython/

Please first work on the codes.

Your homework is to choose two search problems, and apply the algorithms on those problems.

You will analyse the results and the efficiency of the algorithms and will write a report

Specifically,

-Choose two search problems, preferable one small and one larger scale.

-Evaluate the four search algorithms on these problems

-Use the four criteria (Optimality, Completeness, Time and Space Complexity) to compare the algorithms based on the results you have obtained on those applications.

-Discuss about the results

Your report should be in pdf format, save it as <BBM405_HW1_YourNameSurname>.pdf and send it to

pinar@cs.hacettepe.edu.tr

You have 10 days to complete the homework

The deadline is : May 8, 2020

Good luck

Pinar

Important notes about your homework

Dear students

I noticed that, there are some confusions about the examples that you will use in your homework.

This is the part that you should be creative. That is why I didn't provide examples. But there are a variety of them available on the web.

I want you to choose challenging problems so that you can see the differences in complexity, optimality or completeness.

If you ramdomly generate the graphs, they should be in the order of hundreds at least

There are a variety of interesting search problems. I want you to explore them on the web.

Otherwise, this homework means nothing.

BE CREATIVE. FIND INTERESTING, CHALLENGING AND FUN SEARCH PROBLEMS.

Write a very detailed report. There should be some new insights that we can get from your report.

Do not repeat the things that were available in the lecture slides.

Find the facts by your own, by forcing yourself to find hard cases.

!!! I am postponing the deadline to May 10, midnight !!!!

Please use the additional time wisely, to create something worthy.

I want each of you, to teach us something new and interesting.

NO TWO HOMEWORKS SHOULD SELECT THE SAME PROBLEMS

EACH ONE SHOULD HAVE AN INDIVIDUAL CHARACTERISTIC

Have fun

Re-implementation and testing on standard problems properly will give you 40% of your grades
30% will be about the evaluation and discussion of the results
30% will be given from creativity and originality.