Homework #1 Search

Due September. 19, 2014 11:59:59pm

## Required:

* Program Outcome 31.5: Given a search problem, I am able to analyze and formalize the problem (as a state space, graph, etc.) and select the appropriate search method
  + **Problem 1**: Russel & Norvig Book Problem 3.9 (programming needed) (4 points)
* Program Outcome 31.11: I am able to find appropriate idealizations for converting real world problems into AI search problems formulated using the appropriate search algorithm.
  + **Problem 2**: Russel & Norvig Book Problem 3.2 (2 points)
* Program outcome 31.12: I am able to implement A\* and iterative deepening search. I am able to derive heuristic functions for A\* search that are appropriate for a given problem.
  + **Problem 3**: Russel & Norvig Book Problem 3.3 (2 points)
* Program outcome 31.9: I am able to explain important search concepts, such as the difference between informed and uninformed search, the definitions of admissible and consistent heuristics and completeness and optimality. I am able to give the time and space complexities for standard search algorithms, and write the algorithm for it.
  + **Problem 4**: Russel & Norvig Book Problem 3.18 (2 points)

## Optional bonus you can gain:

* Russel & Norvig Book Problem 4.3
  + Outlining algorithm, 1 point
  + Real programming, 3 point

# What to turn in?

You should make the written part of your answers in a PDF file and name it as:

**[yourfirstname]\_[yourlastname]\_HW1.pdf**

For your program, you may use any programming language. However, your submission should be the executable, the source code, and a detailed readme file on how to run it. You should have a detailed report in the written part of your homework on what you have tested and what are the results you obtained. Please make sure you packed additional dependent libraries, if any, used in your program. If your program cannot run, you lose 0.5 point automatically.

Package your PDF file with the code and supplementary Readme file in a single ZIP file as:

**[yourfirstname]\_[yourlastname]\_HW1.zip**

and please submit it through the Moodle system.