Search — Homework 2

August 31, 2005

Due: 11:59 pm — September 11, 2005

Submit to "Assignment 2" in the homework submission website.

In this homework, you are asked to implement the two basic search algorithms: **depth-first** and **breadth-first** seach. We will do assume that the search is done given a graph. A graph is represented by a list of edges, each has a start node, an end node, and a label.

The program that you write should accept two parameters

- the file name of a text file containing the description of the graph, the start node, and the end node; and
- an integer (either 1 or 2) indicating the search algorithm that needs to be used in order to solve the problem.

Your program should print out

- the list of nodes which are visited during the search; and
- the solution.

To make the programming easier, I prepare for you a tar file `www.cs.nmsu.edu/~tson/classes/fall05-575/Homeworks/hw2-src.tar`. (source codes in C++) with the following items:

- `Makefile`
- `domain1`

  This file describes the graph. The line beginning with % is a comment and is ignored. Each line describes either

  - an edge of the graph; this line has the format: number, number, label
  - the start node; this line has the format: S, number
  - the goal node; this line has the format: E, number
  - heuristic value for a node; this line has the format: H, number, number
- `main.cpp`

  This program reads a file in the format described in the example file and create a list named *graph*. All you need to do is to complete the program by inserting your code in the place where you see 'Your code here'. If you need to travel the graph, see the function *print_graph*. If you need to make a choice (tie-breaking), use the order in which the link is specified.

For now, the heuristic value should be ignored.