Australian National University
Department of Computer Science

COMP3600/COMP6466 in 2009 – Lab Four

This lab aims to implement Dijkstra's algorithm and to run the algorithm on a given graph.

The algorithm should be able to find a shortest path for any source vertex s to every other vertex that is reachable from s, and the length of the shortest path.

Download the files

`http://cs.anu.edu.au/student/comp3600/Dijkstra.c`

`http://cs.anu.edu.au/student/comp3600/test.data`

The first is an incomplete program, and the second is a sample input file. You should make up some other examples of your own as well.

The format of the input file is:

- The first item is the number of vertices.
- Following that, until the end of the file, there are integer triples

  `start-vertex end-vertex length`

The vertices are numbered starting from 0. The lengths must be integers.

Your tasks in this lab are as follows:

- Complete the incomplete procedure `Dijkstra_algorithm()` .
- Take a copy of your completed program with a new name. Then modify it so that its behaviour is: read a directed weighted graph, write its diameter and a pair of vertices those distance equals the diameter. (The diameter is the greatest distance between two vertices.)

Note: The program is called `Dijkstra`, don't confuse it with the Linux program called `dijkstra`.