COS 212—Algorithms and Complexity
Run Dijkstra's shortest path algorithm on a graph.
Term 4 Practical 5 7 October 2013

Due today before 17h20 on 7 October 2013 for 100 marks.

Implement Dijkstra's algorithm to find the shotest path to all other nodes in an eddge weighted digraph with non-negative weights.

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1. In your home directory, inside your `surname,firstname` directory ensure that you do not already have a directory called `45practical`. If you do have one rename it to `45practical-old` before doing anything else. Next, copy one of your old `ddpractical` directories to a new directory called `45practical` and work inside it.

2. Your data must consist of triplets of the form
   from-vertex to-vertex edge-weight
   usint a separate line for each edge. To make life easier the data must be preceded by the number of vertices and the number of edges, each also on separate lines. An example of how the data can look is given in the file `dijkstra.data` in the `/export/home/notes/ds` subdirectory in the Sunlab. Another representation is given in the file `Dijstra.dot`. A pictorial output in pdf is made from this data using the `dot` visualization program, e.g.

   ```
   dot -Tpdf Dijkstra.dot > Dijkstra.pdf
   ```

3. The program must be given the start vertex.

4. See Section 4.4 of S&K for hints. Preferably use their APIs.

5. It is compulsory to hand code in for this practical today. If you do not hand in code for this practical today you will not be allowed to write the examination for Paper II of CSC212.
