CSC 212—Algorithms and Complexity

Code Kruskal, Prim-Jarnik and Barůvka's minimal spanning tree algorithms on an undirected weighted graph. Practical 3 Term 4 19 September 2016

Due by 23h59 on 25 September 2016.

Implement (1) Kruskal's algorithm, (2) Prim-Jarník's algorithm, and (3) Barůvka's algorithm to build minimum spanning trees from undirected weighted graphs.

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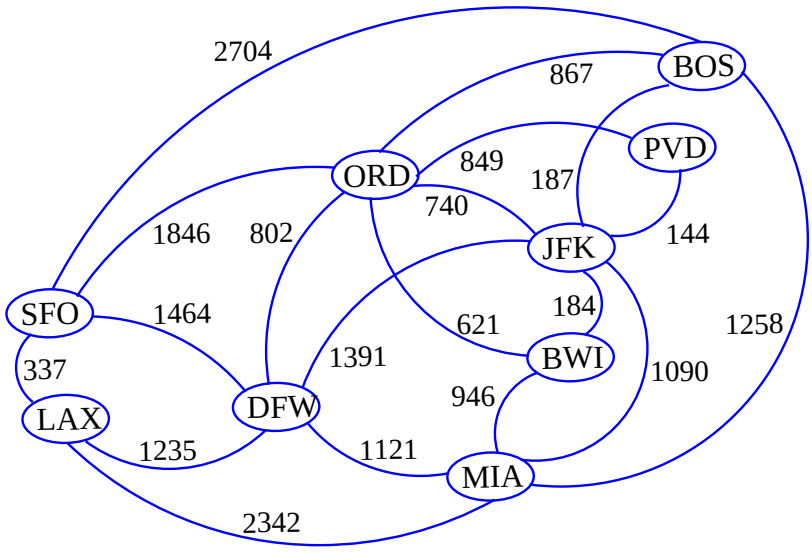
1. In your home directory, inside the `surname,firstname` directory, copy an appropriate directory to a new directory called `34practical` and work inside it after fixing it.

2. (a) Alter your input routines to read undirected graphs. (b) Code methods and calls that do Kruskal, Prim-Jarník, and Barůvka on weighted undirected graphs.

3. Run your code on at least two different data files. Use (1) any suitable weighted graph of your own written in `dot` format, and (2) write the `dot` file for the air routes in the diagram—which is in the file `airlineroutes.dot` in `.../notes/ds/`.



4. *Specifications in order to facilitate marking.* Input must be done according to the input for a `dot` file. You can create output from the dot file using

   ```
   dot -T pdf input.dot -o output.pdf
   ```

   This will create a PDF output file called `output.pdf` using the specifications in `input.dot`. As output display only the total length of all the edges of the minimal-spanning tree.

5. Submit the final version of your code before before the deadline.

   If you have not completed the practical by 17h20, submit what you have done before leaving the Sunlab. You will be given bonus marks for all correct work submitted today. It is important that the code for all the algorithms in this practical is handed in.
