Program 8: Snow Routes

1   Goals.

- To adapt and reuse my graph demo program.
- To use a vector and its sort algorithm.

2   Overview.

The East Dakota Department of Highways is examining the weather forecast for the coming winter, and it doesn't look good. Heavy snows are expected much of the winter, which means keeping roads clear will be a challenge. The Department plans to designate some roads as Snow Routes. These roads will have priority for snow removal. It is vital that all cities have at least one Snow Route, and that it is possible to go from any city to any other city via Snow Route roads. The Highway Department wants to identify the minimum road length needed to ensure all cities are connected via Snow Routes.

3   Instructions: Due November 27

The input file, snow.in.txt, contains a list of major highways that connect twelve cities. Use a vector to store the set of roads.

Each road is listed as a starting city, an ending city, and the length of the road in miles (an integer ¿ 0). All roads are two-way. There may be multiple roads between some cities. Roads are not listed in any particular order, so you will need to sort them.

Implement one of the graph algorithms we have studied to solve this problem. Start with my graph program, then add to it and/or modify it, as needed.

Your output must give a set of Snow Routes that connect all twelve cities, and the total length of those roads.