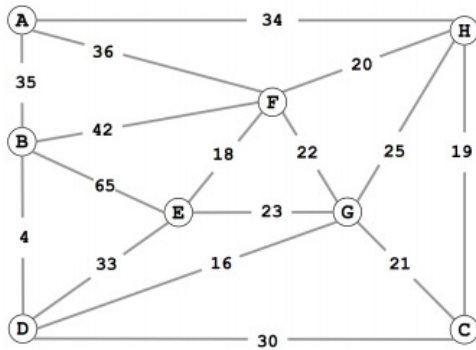


COS 226 – Data Structures and Algorithms
Fall 2014 – Flipped Lecture Section
Individual/small group worksheet
Week 8 – 11.04.14
Topics covered: digraphs, MST

Instructions: This worksheet covers directed graphs (digraphs) and Minimum spanning trees (MST). Read the worksheet first (before viewing the videos) and understand what type of questions needs to be answered. As you watch videos, if you find the answer to a problem, write the answer here and if possible in salon, so you can share it with others. Also be sure to make some comments/questions on salon.

1. MST Problem

Consider the graph given below.



- (a) Complete the list of edges in the MST in the order that Kruskal's algorithm includes them. For reference, the edge weights in ascending order are:

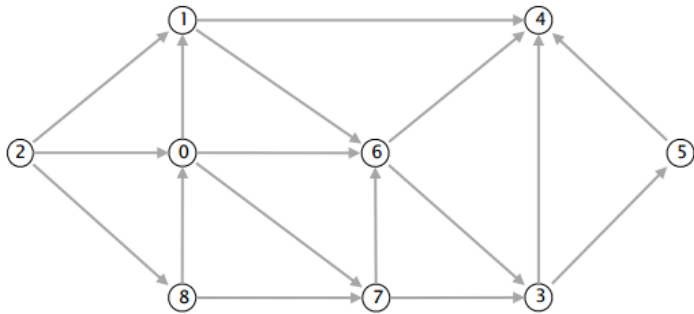
4 16 18 19 20 21 22 23 25 30 33 34 35 36 42 65

B-D _____

- (b) Complete the list of edges in the MST in the order that Prim's algorithm includes them. Start Prim's algorithm from vertex A.

A-H _____

2. Topological Sort [fin-f11]



- (a) Compute the topological order by running the DFS-based algorithm and listing the vertices in reverse postorder.

2 — — — — — — — — — —

- (b) Run breadth-first search on the digraph, starting from vertex 2. List the vertices in the order in which they are dequeued from the FIFO queue.

2 — — — — — — — — — —

3. Strongly Connected Components(SCC)

Find all strongly connected components (SCC's) in this digraph

