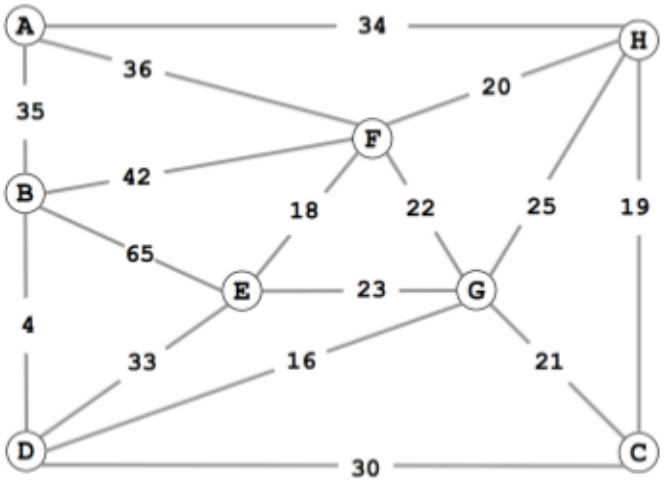
Homework 14

1. Spring 2008 Final Questions 2a and 2b

Consider the following weighted graph.



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

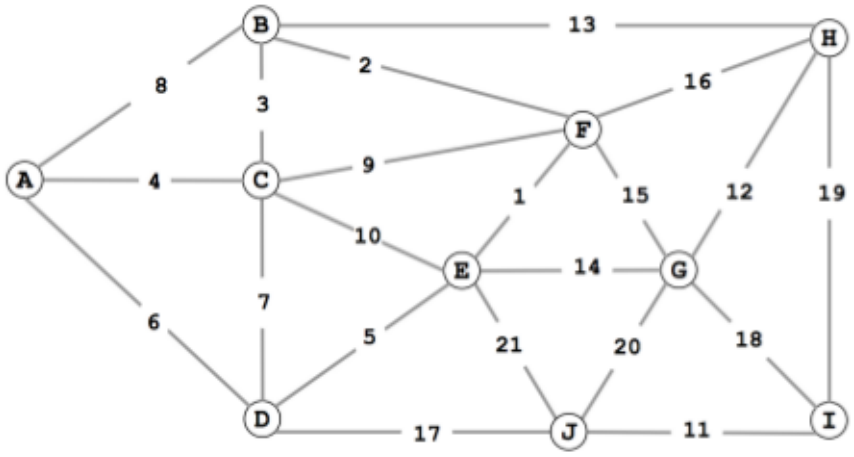
B-D D-G E-F C-H F-H C-G A-H

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 C-H F-H E-F C-G D-G B-D

2. Fall 2008 Final Questions 2a and 2b

Consider the following weighted graph with 10 vertices and 21 edges. Note that the edge weights are distinct integers between 1 and 21.



A. Complete the sequence of edges in the MST in the order that *Kruskal's algorithm* includes them.

1 2 3 4 5 11 12 13 17

B. Complete the sequence of edges in the MST in the order that *Prim's algorithm* includes them. Start Prim's algorithm from vertex A

4 3 2 1 5 13 12 17 11

3. Study Guide Question

Would Kruskal's or Prim's algorithm work with edge-weighted digraphs?

No. It is possible to imagine a scenario in which the edge that either algorithm would pick could not be picked due to the direction of the graph's edges.