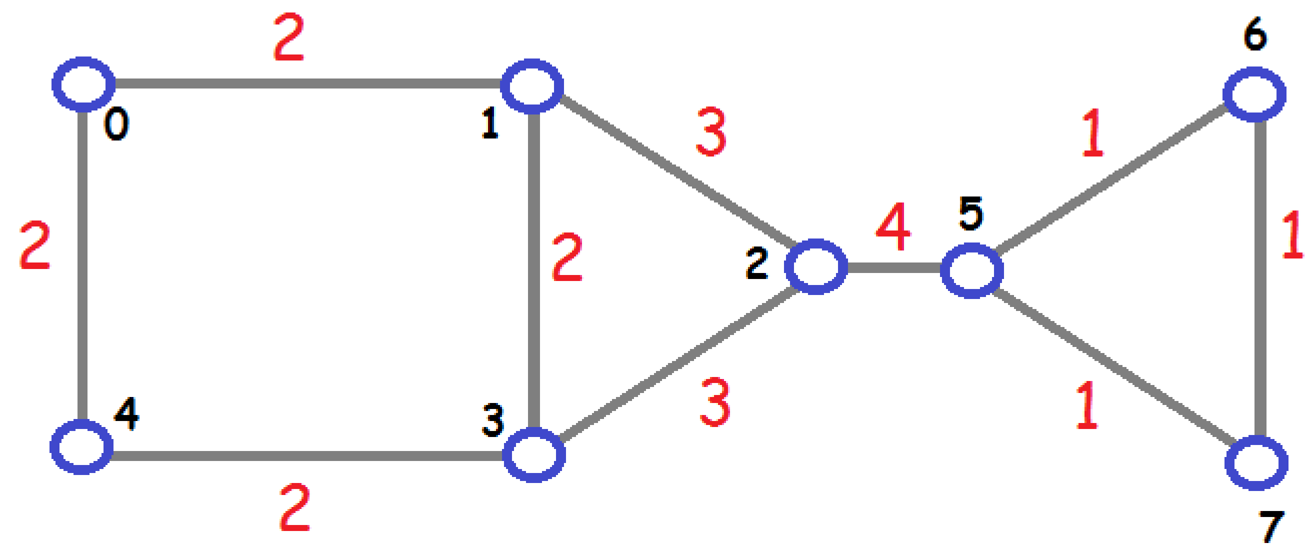
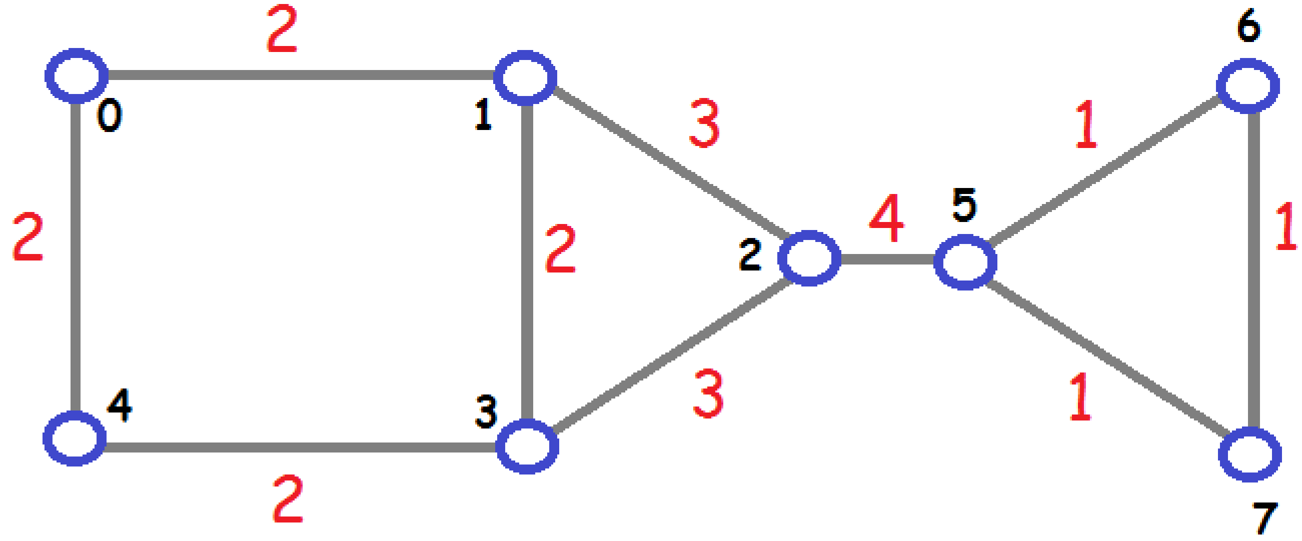
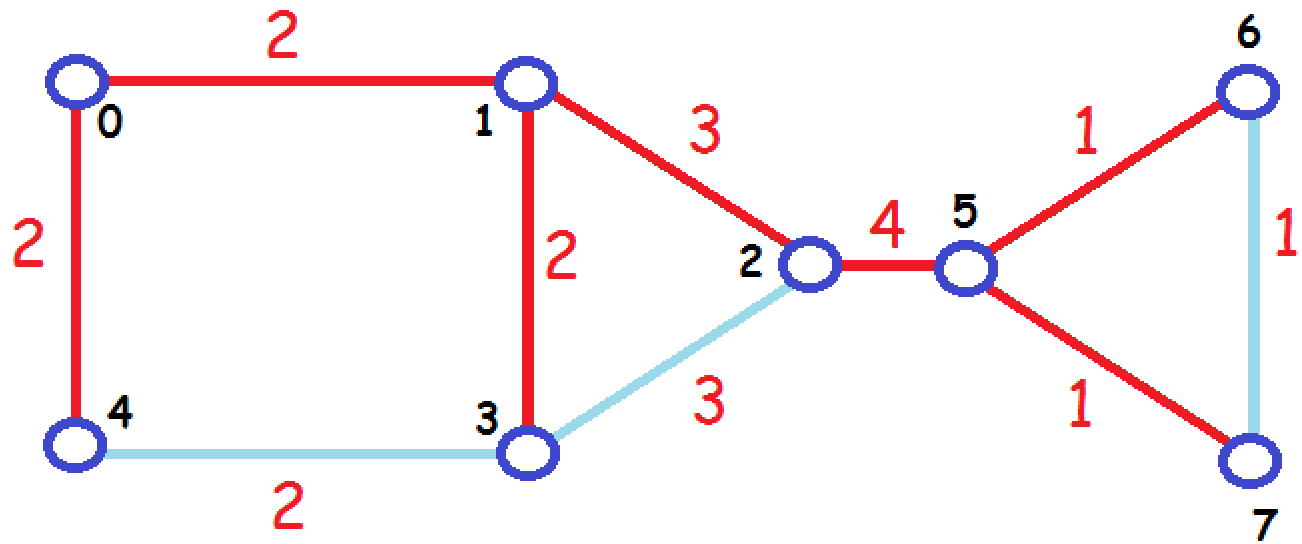


1. Sort the edges by weight. Use the edge labels to break ties in the same way as per assignment #5.
2. Use Kruskal's algorithm on this sorted edge list to find a minimum weight spanning tree.

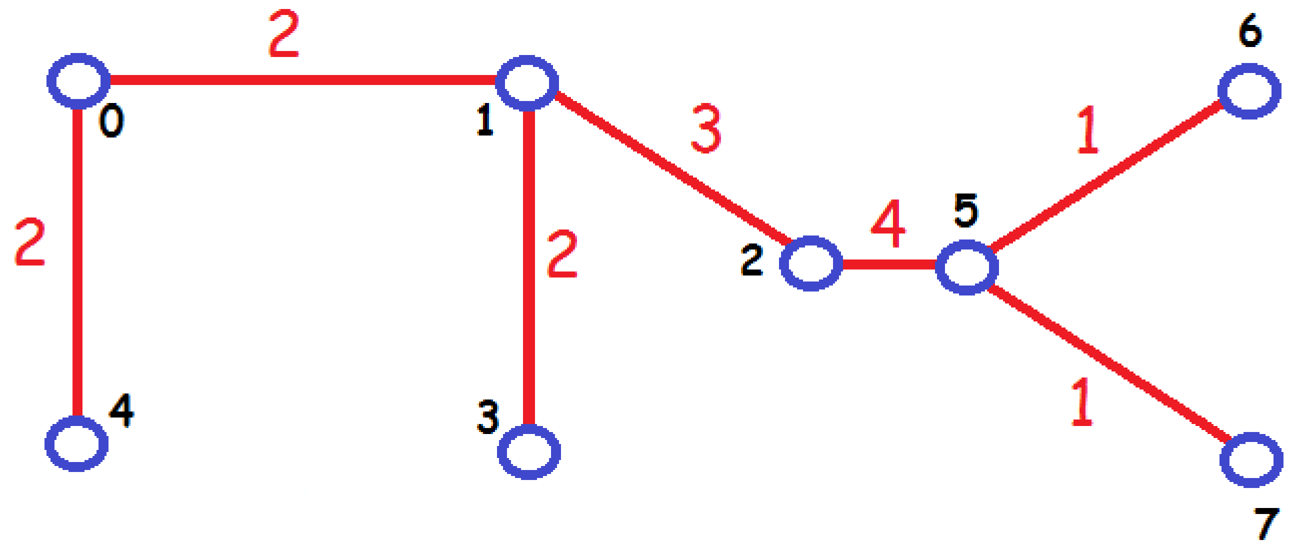
[1, (5,6)]
[1, (5,7)]
[1, (6,7)]
[2, (0,1)]
[2, (0,4)]
[2, (1,3)]
[2, (3,4)]
[3, (1,2)]
[3, (2,3)]
[4, (2,5)]



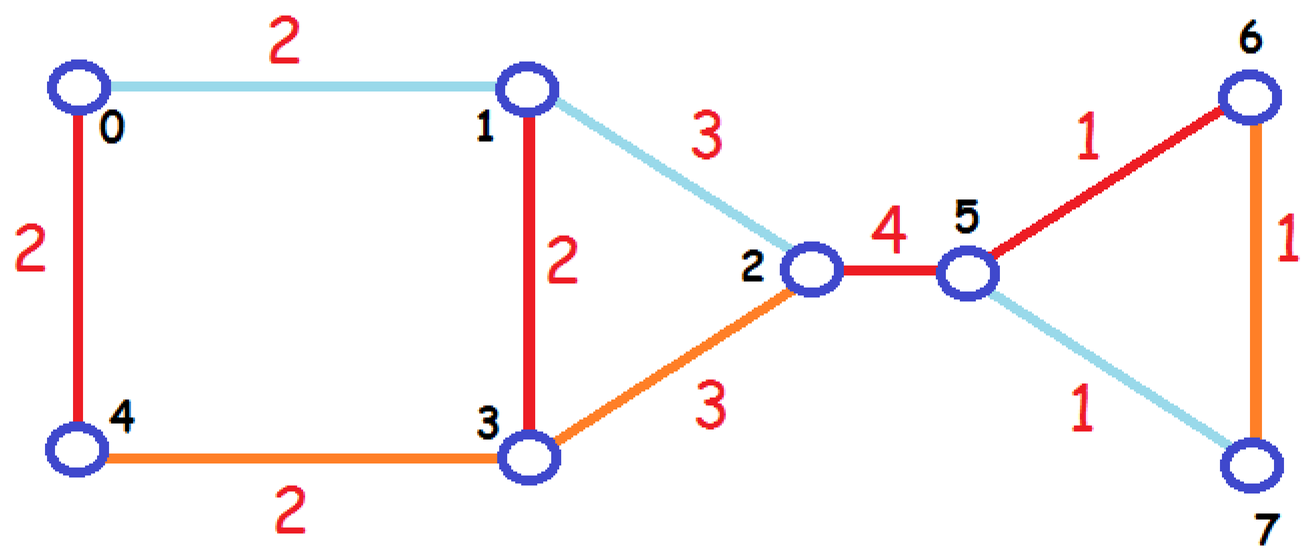
[1, (5,6)]
[1, (5,7)]
[1, (6,7)]
[2, (0,1)]
[2, (0,4)]
[2, (1,3)]
[2, (3,4)]
[3, (1,2)]
[3, (2,3)]
[4, (2,5)]

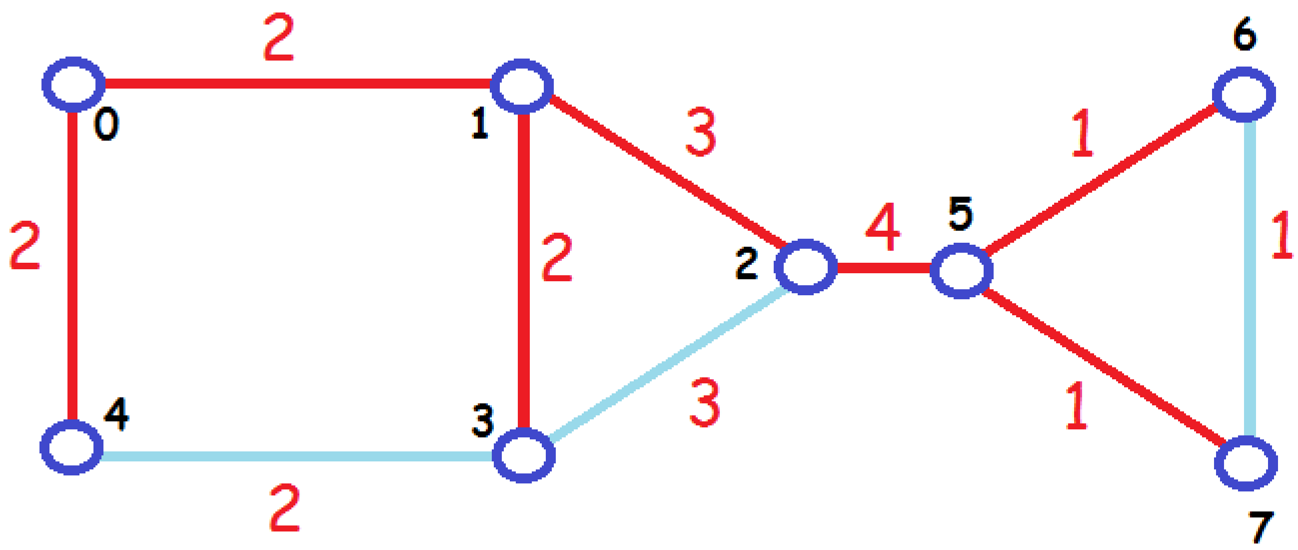


The MST you get with the edges sorted in this order:



Another MST (red and orange edges):



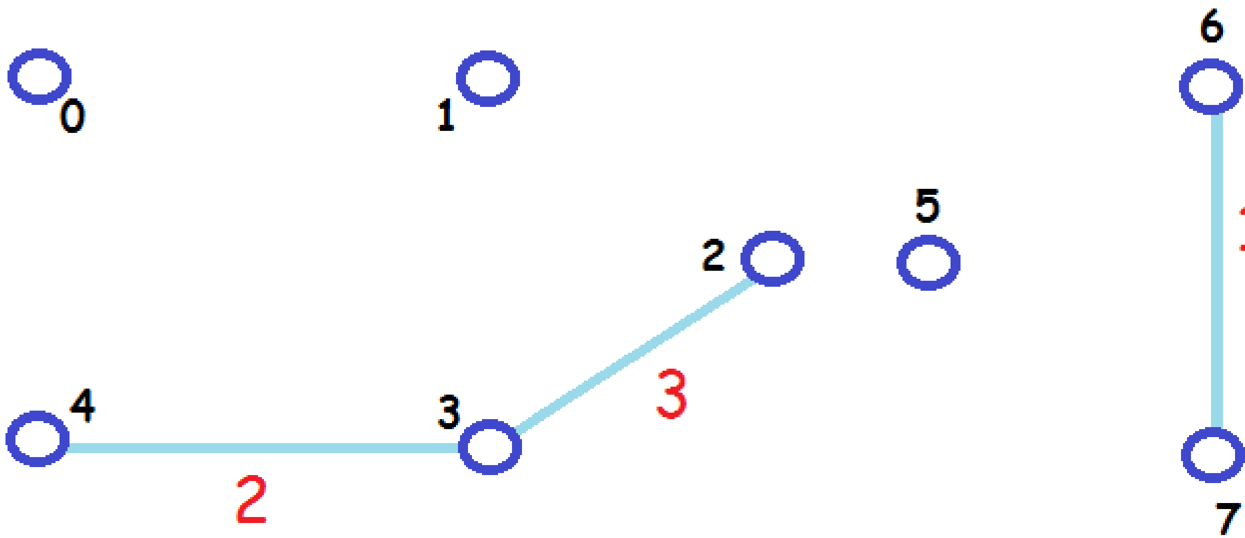


If a graph has repeated edge weights, then it is possible that it has more than one MST:

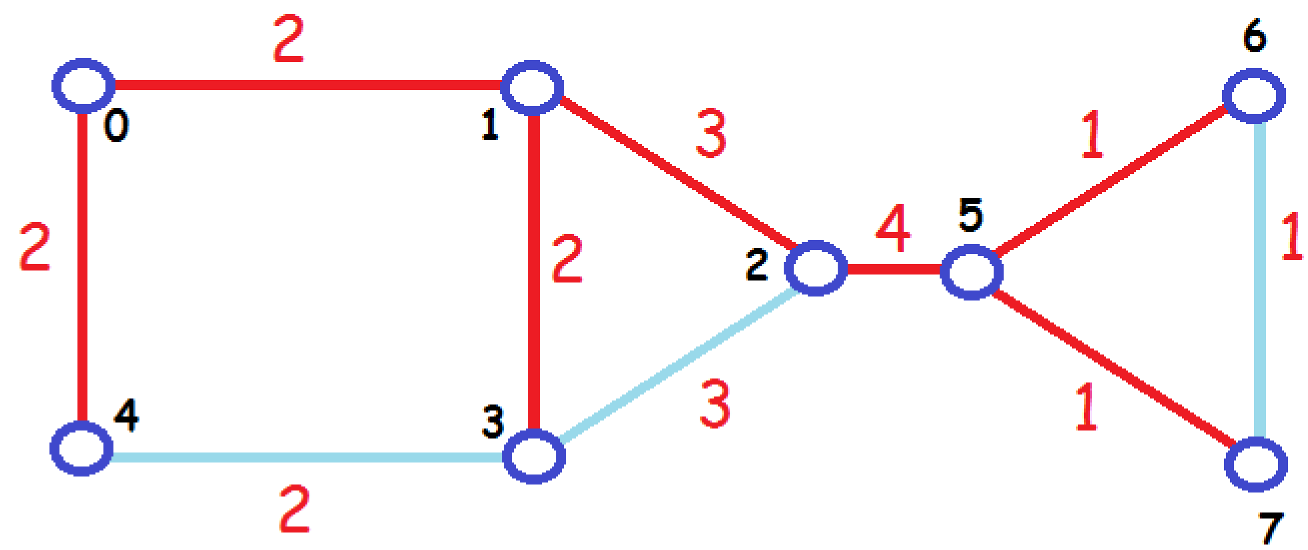
If T has a chord e, then T+e has a unique cycle C.

If f is on C and has the same weight as e then T+e-f is another MST.

The subgraph induced by the chords:



This subgraph has the same number of vertices as the original graph. Some of its vertices may be isolated points.



Observations:

A MST can contain an edge of maximum weight.

The maximum edge weight could be smaller than the maximum vertex number, but it also could be greater than or equal to the maximum vertex number.