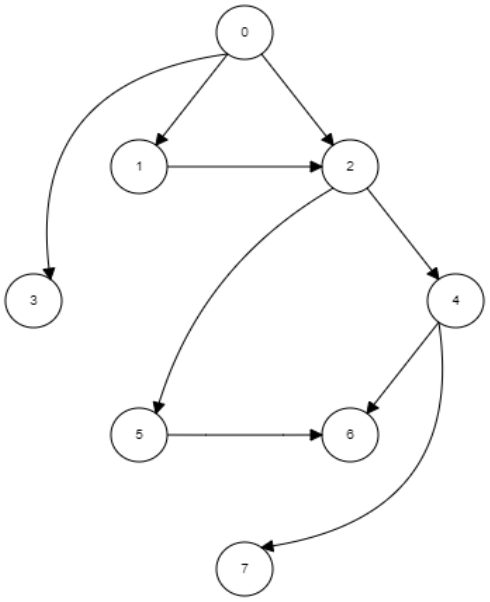
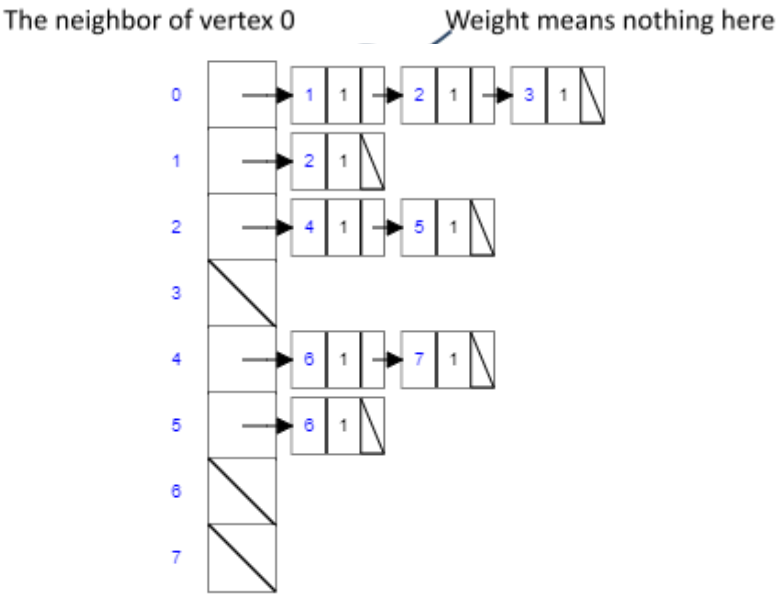
CS2040C Week 12 Exercise

Topological Sort

Here is a graph (left) and its adjacency list (right) with the neighbors and weights.



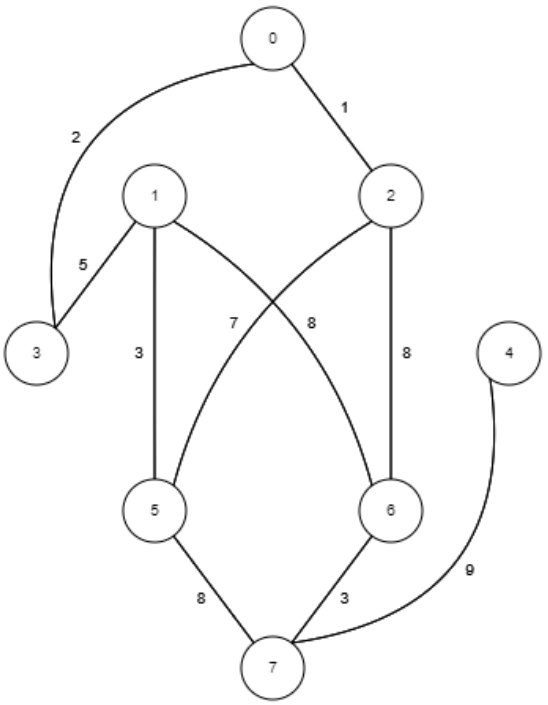


Perform a topological sort and list the order below:

Order	1	2	3	4	5	6	7	8
Node								

Kruskal MST

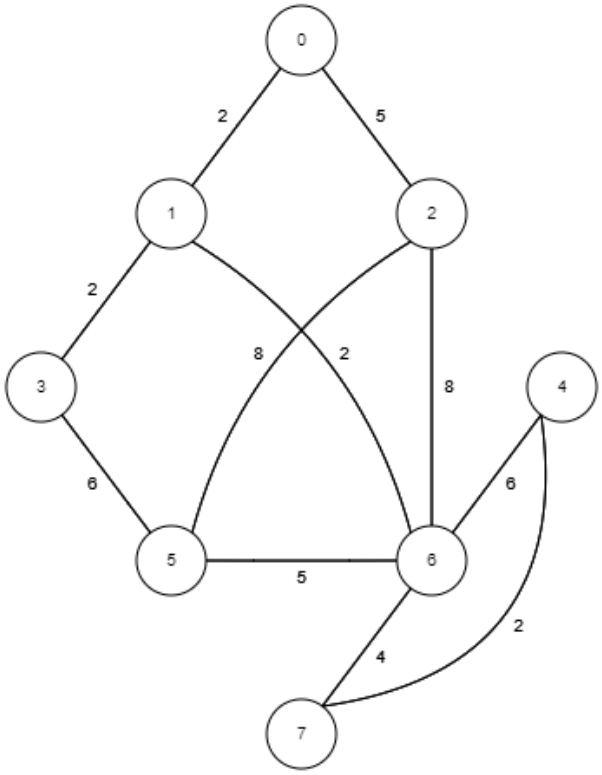
Edge	W	In MST?
0-2	1	
0-3	2	
1-5	3	
6-7	3	
1-3	5	
2-5	7	
1-6	8	
2-6	8	
5-7	8	
4-7	9	

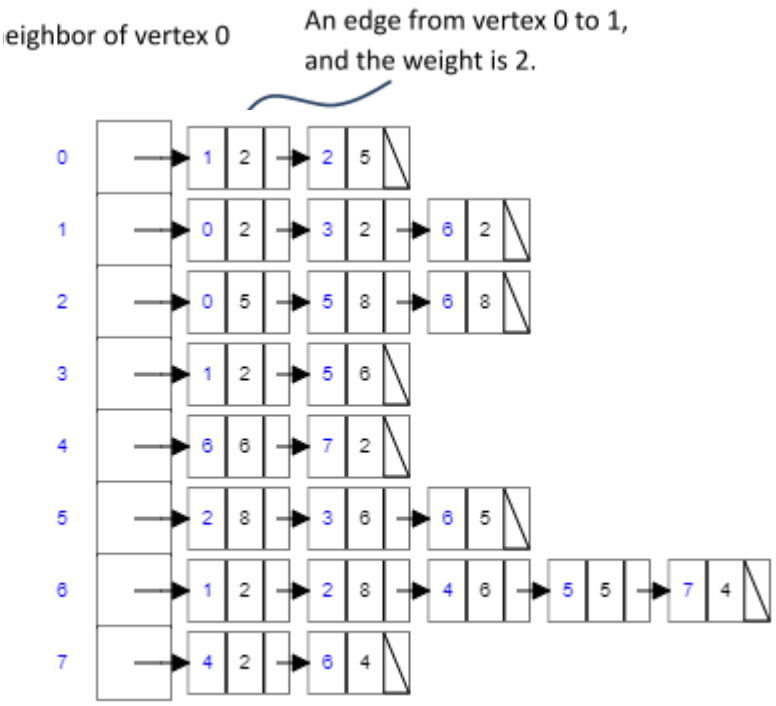


1. Sort all the edges according to the weights in ascending order. (The first edge is done for you)
2. Add edges according to the ascending if they do not create a cycle
3. Shade/thicken the edge in the graph to make your MST obvious.

Prim's MST

Here is a graph again with weighted edges. Run Prim's algorithm starting with the node 0 to construct the MST





Node	W	From
0	0	nil

Node	W	From

Node	W	From
		1
		1
		0

Node	W	From

Node	W	From

Node	W	From

Node	W	From

Node	W	From

At last, shade/thicken the edges of the graph in the MST.