Lab # 8 EX3

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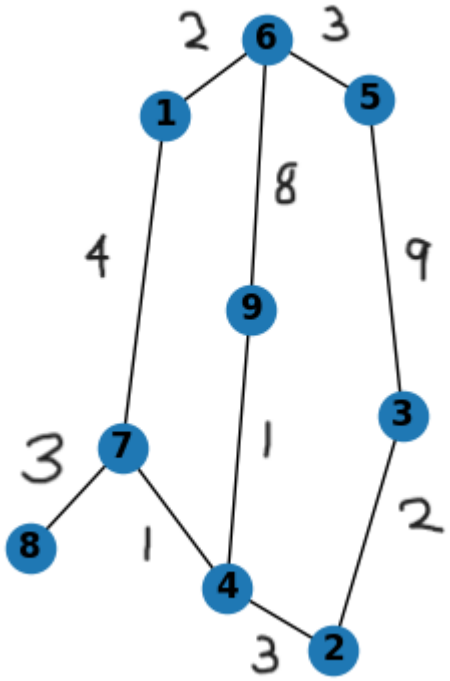
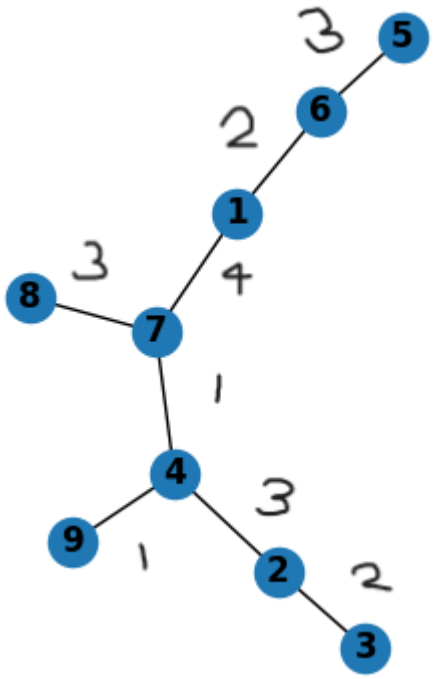
Question 1. A spanning tree is a tree made from a graph which removes any unnecessary edges. A minimum spanning tree is a spanning tree that has the minimum sum of edge weights of the original graph. Essentially, a minimum spanning tree is a tree that turns a graph into an optimized network of connections between vertices.



The above graph is not a spanning tree, in fact, it is not a tree at all.

We know this because there are cycles present (for example, 1, 6, 9, 4, 7, 1...). We can modify this graph into a minimum spanning tree by removing edges that are redundant and simultaneously finding the minimum sum of edge weights.



This tree is a minimum spanning tree because there is no way to form a tree from the original graph with a smaller sum of edge weights.