Quiz 6

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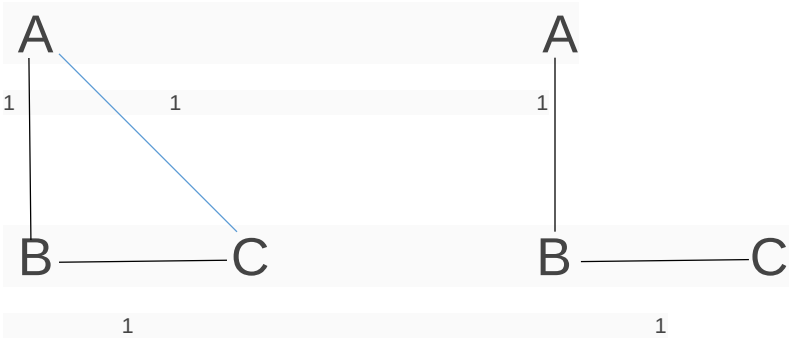
For there to be the possibility of multiple MSTs, at least two edges in the graph must be equal. As a result the quiz problem is depends on comparator. If the comparator can compare the case where both edges are equal in cost and have the same max(source, target) character, then Prim's Algorithm and Kruskal's Algorithm will never declare any two edges equal and thus always give the same MST. However, if the comparator declares the same weighted edges equal, than there is a possibility that the algorithms will generate different MSTs, depending on which edge they consider first.

For example:

Prim's Algorithm

If all the edge is 1 and we start with A. Firstly, we will find the minimum edge between edge(A,B) and edge (A,C). Since their weight are same we assume considering edge(A,B) to be the first remove from the priority queue and add it to the tree. Then we consider vertex B, we add edge(B,C) to the tree and it form the MST as below.



Kruskal's Algorithm

If all the edge is 1 and our considering order is edge(C,B), edge(C,A) and edge(B,A). Firstly, we remove edge(C,B) from the priority add it to the tree. Then we add edge(C,A) to the tree and it form the MST as below.