

HW7 - Prim's Algorithm

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5) Prim's Algorithm

Find the Minimum Spanning Tree using Prim's Algorithm (see pictures below)

5.) Prim's Alg.

Step 1: Pick Random Node (in this case, "A")
Add smallest edge and node ($A \xrightarrow{5} D$)

Step 2: From D, add next smallest edge
and node ($D \xrightarrow{1} F$)

Step 3: From F, add next smallest edge and node
($F \xrightarrow{1} C$)

Step 4: From F, add next smallest edge and node
($F \xrightarrow{6} G$)

Step 5: From G, add next smallest edge and node
($G \xrightarrow{1} E$)

Step 6: From G, add next smallest edge and node
($G \xrightarrow{3} B$)

Step 7: From E, add next smallest edge and node
($E \xrightarrow{5} I$)

End: All nodes have been visited; we now
have the minimum spanning tree! \textcircled{A}

Figure 1: Steps to find the minimum spanning tree using Prim's Algorithm.

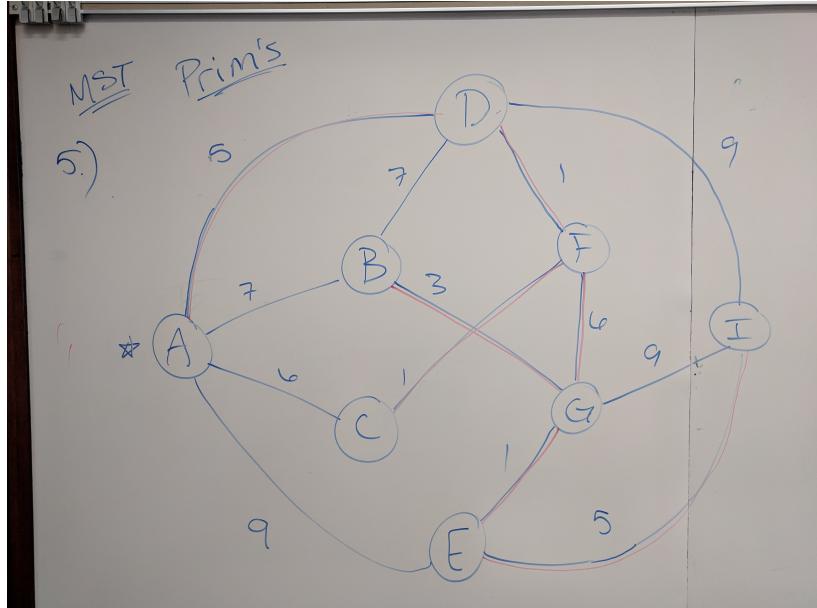


Figure 2: Entire graph with red indicating the edges used to create the minimum spanning tree.

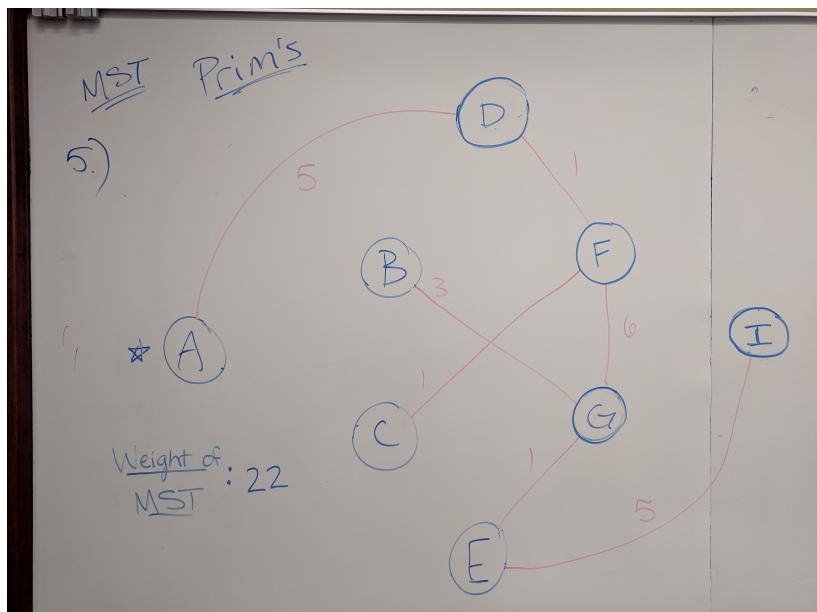


Figure 3: The final MST. It has a weight of 22.