D2014 18.11.20

Wednesday, November 18, 2020 2:08 PM

Prim's Algorithm to find MST :→

Let G be a connected graph with n vertices.

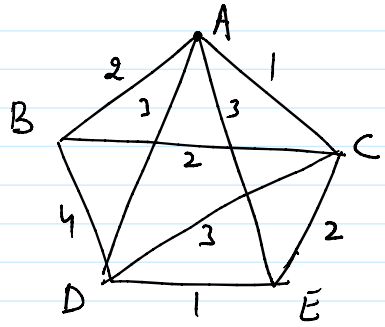
Step-1 :– Select any Vertex v_i of the graph G, or start from the given Vertex.

Step-2 :– Connect v_i to the nearest adjacent Vertex say v_j

Step-3 : Taking (v_i, v_j) as one subgraph of G., connect this subgraph to the the vertex v_k which is nearest to v_i, v_j, but not form a cycle.

Step-4 : go on repeating step 3 untill all n-vertices have been connected by (n-1) edges.

Q. Find MST by using Prim's Algo.



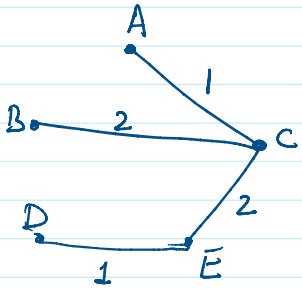
Sol :→ ~~Let us~~ start from Vertex A.

(i) Select the Vertex C
Insert edge AC

(ii) Select the Vertex E
Insert Edge CE

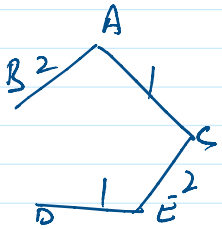
(iii) Select the Vertex D
Insert Edge ED

(iv) Select B Insert Edge BC



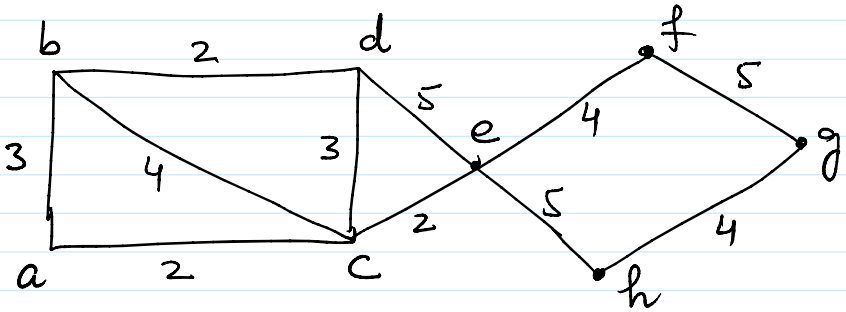
No. of Vertices = 5

No. of Edges Needed in MST = n-1
= 5-1
= 4

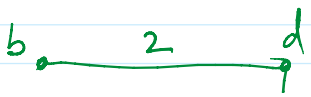


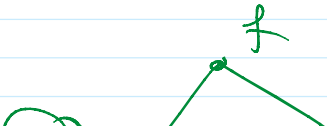
Which is Req. M.S.T

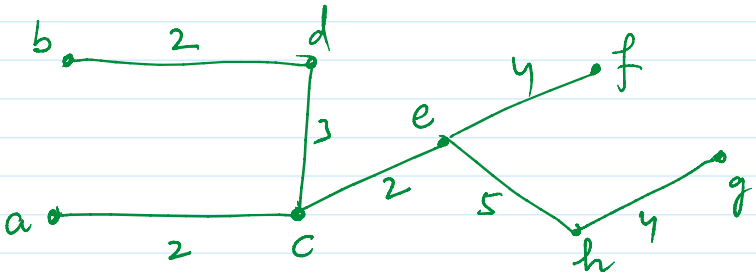
Weight of MST = 1+1+2+2 = 6

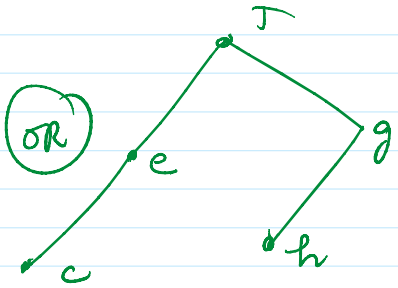


Find MST By Using Prim's Algo.

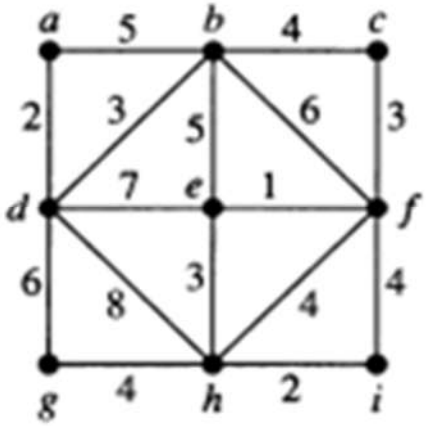




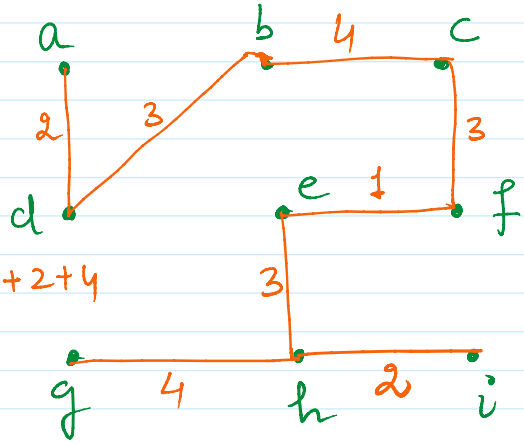




Sum of weight = 22



Find MST By using Prim's Algo.



2+3+4+3+1+3+2+4
= 22