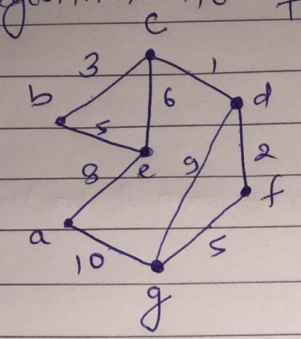
Q.
* Kruskal algorithm to find edges of graph that forms a minimum spanning tree for graph.



Ans: * Minimum Spanning tree for a weighted, connected and undirected graph is a spanning tree with weight less than or equal to the weight of every other spanning tree. The weight of a spanning tree is the sum of weights given to each edge of the spanning tree.

* A minimum spanning tree has (V-1) edges where V is the number of vertices in given graph.
So, our MST will contain 6 edges since our graph has 7 vertices from a to g.

* Steps to find Minimum Spanning tree using Kruskal's algo.
(1) Sort all the edges in non-decreasing order of their weights.
(2) Select the smallest edge. Check whether it forms a cycle with the spanning tree formed so far. If cycle is not there, include this edge, else discard it.
(3) Repeat step 2 until there are (V-1) edges in the spanning tree.

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(2.)

This is a Greedy algorithm.

Solutions:

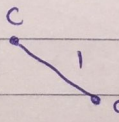
The graph contains 7 vertices and 9 edges. So the minimum spanning tree will be having (7-1) = 6 edges.

After sorting:-

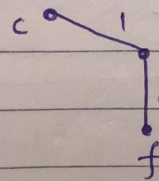
weight	source	destination
1	c	d
2	d	f
3	b	c
5	b	e
5	f	g
6	c	e
8	a	e
9	d	g
10	a	g

Now picking edges one by one ~~from~~ sorted list of edges.

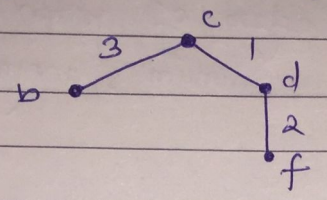
(1) Select edge c-d : No cycle is formed, include it



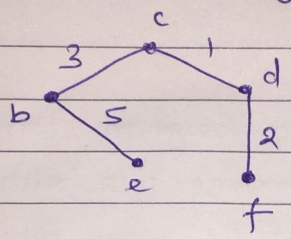
2) Select edge d-f : No cycle is formed, include it.



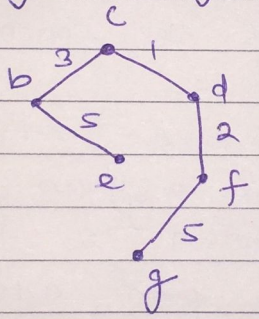
3) select edge b-c : No cycle is formed, include it



4) select edge b-e : No cycle is formed, include it

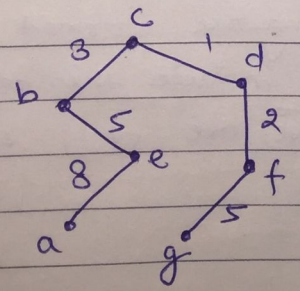


5) select edge f-g : No cycle is formed, include it



6) select edge c-e : since including this results in cycle, so discard it.

7) select edge a-e : No cycle is formed, include it.



8) select edge d-g: since including this results in cycle, so discard it.

9) select edge a-g: since including this results in cycle, so discard it

Since the number of edges included equals (v-1), the algorithm stops here.

Final Answer:-