MST

~~Minimum~~ MST (Minimum spanning tree)

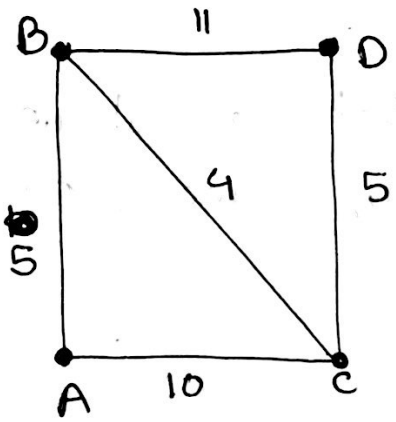
(i) Spanning of a graph is a tree that has all the vertices of the graph connected by some ~~ge~~ ages.

(ii) A Graph can have one or more number of spanning tree.

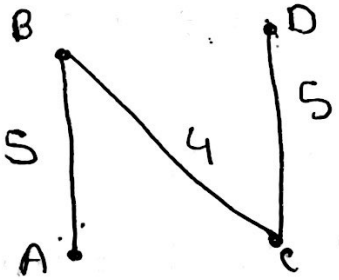
(iii) If graph ~~have~~ has end vertices then the spanning tree will have n-1 edges.

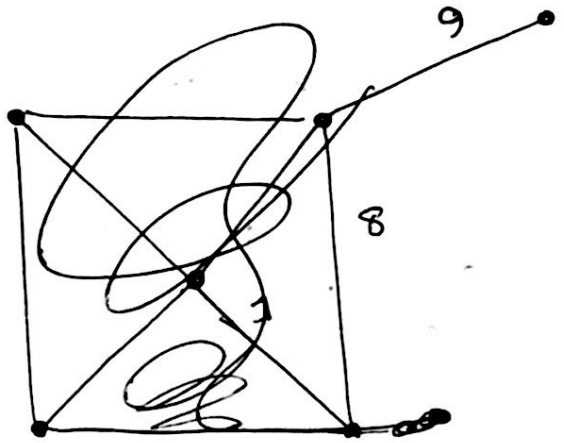
(iv) MST is a spanning tree ^ that has the minimum weight ~~wave~~ then all other spanning tree of the graph.

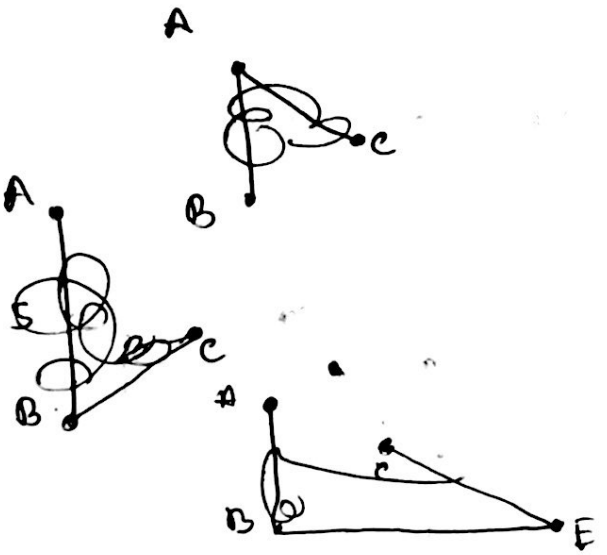
Prim's Algorithm

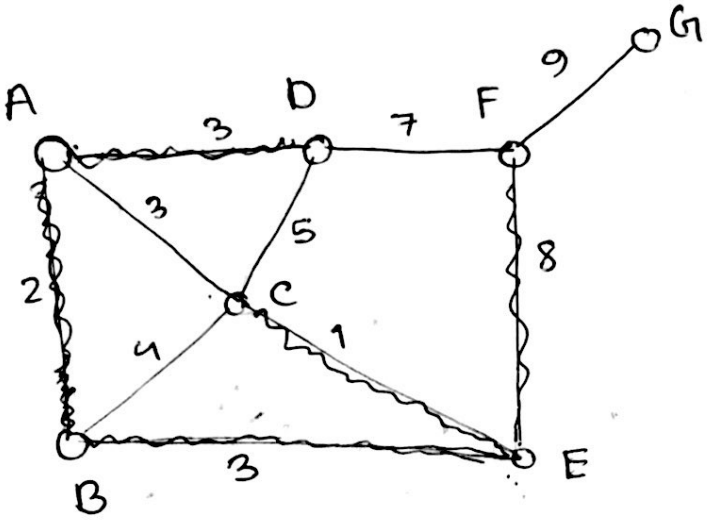


	A	B	C	D
A	0	(5)	10	∞
B	(5)	0	(4)	11
C	10	(4)	0	(5)
D	∞	11	(5)	0

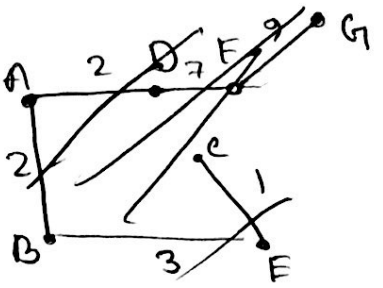




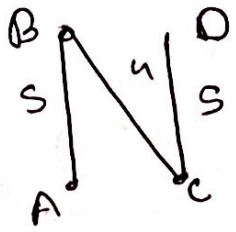


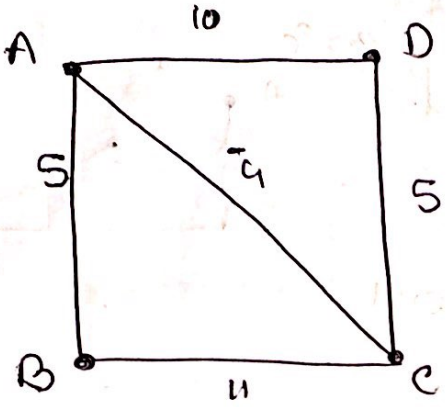


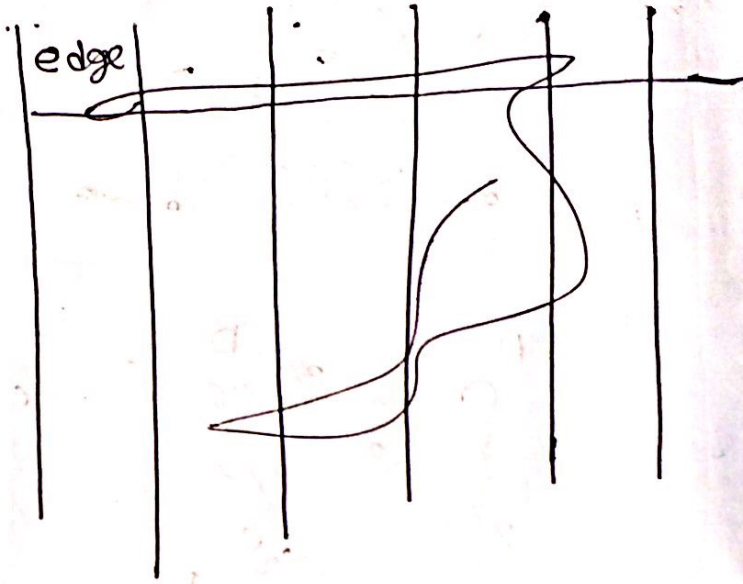
	A	B	C	D	E	F	G
A	0	(2)	3	3	∞	∞	∞
B	(2)	0	4	∞	(3)	∞	∞
C	(3)	4	0	5	(1)	∞	∞
D	3	∞	5	0	∞	7	∞
E	∞	(3)	(1)	∞	0	8	∞
F	∞	∞	∞	7	8	0	9
G	∞	∞	∞	∞	∞	9	0



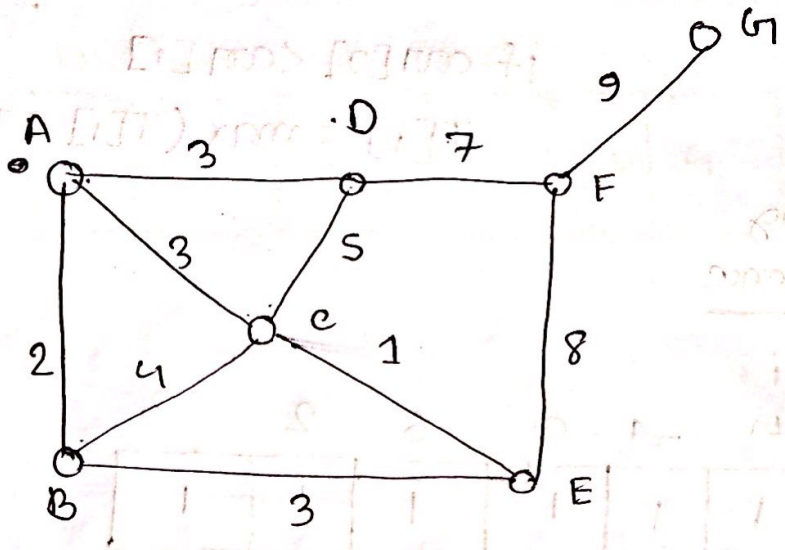
Kruskal's Algorithm



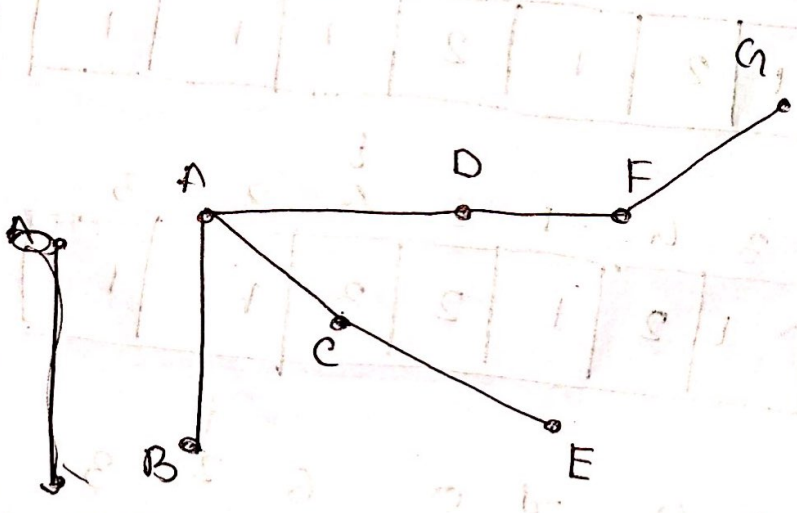




edge	BC	AB	CD	BD	AC
weight	4	5	5	10	11



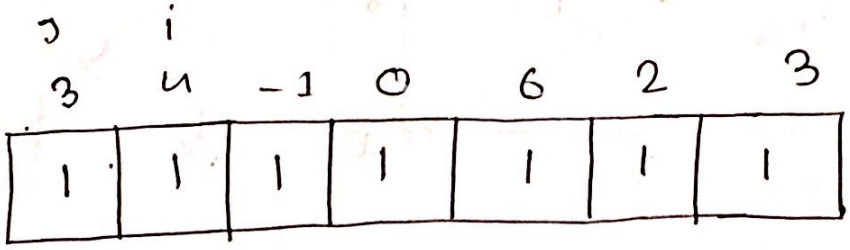
edge	CE	AB	AC	AD	BE	BC	CD	DF	EF	FG
					✓	✓	✓	✓	✓	✓
weight	1	2	3	3	3	4	5	7	8	9

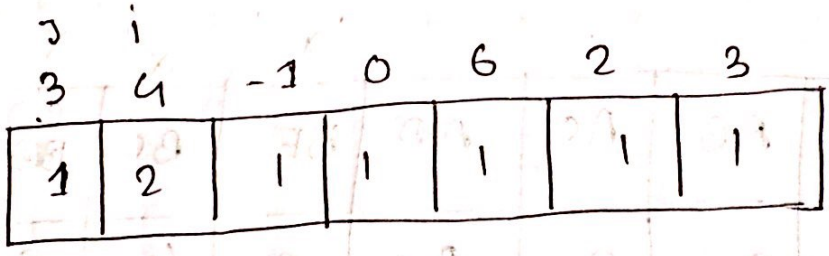


if arr[j] < arr[i]

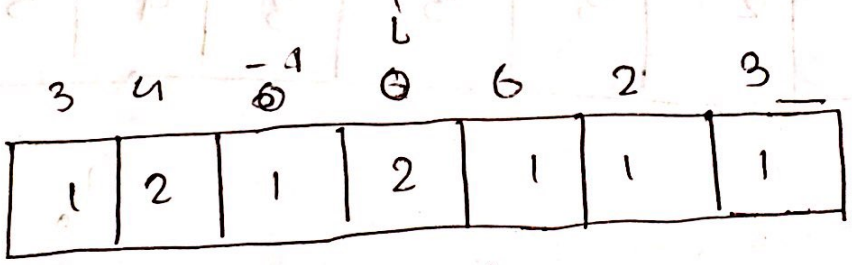
T[i] = max (T[i] or T[j] + 1)

Longest Increasing sequence

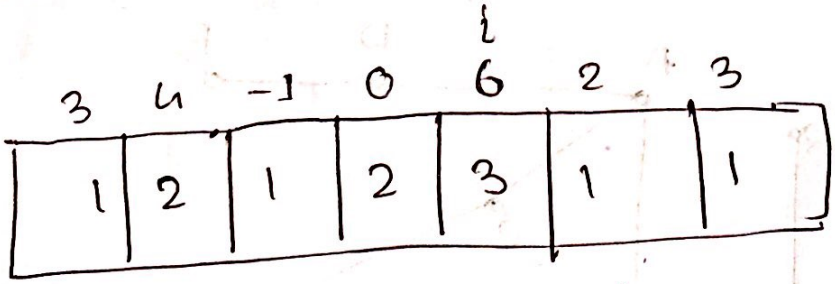




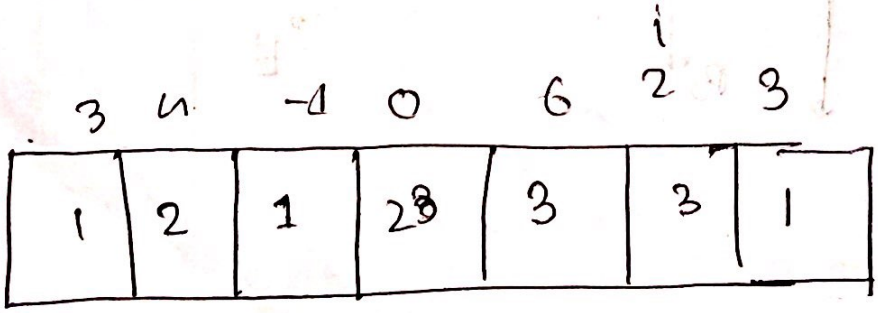
{3,4}



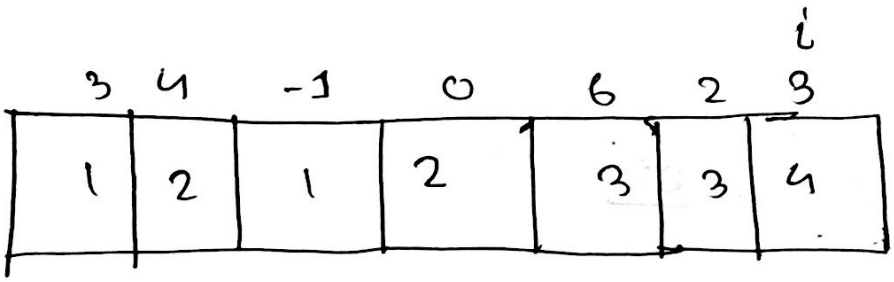
{3,4} {-1,0}



{3,4,6}, {-1,0}



{3,4,6}, {-1,0,2}



{3,4,6},{-1,0,2,3}

Coin Changing using DP

	0	1	2	3	4	5	6	7	8	9	10	11
1	0	1	2	3	4	5	6	7	8	9	10	11
5	0	1	2	3	4	1	2 (S+1)	3 (S+1+1)	4	5	2	3
6	0	1	2	3	4	1	1	2	3	4	2	2
8	0	1	2	3	4	1	1	2	1	2	2	2

SCC Strongly connected component

Topo

Dijkstra

Bellman

BFS/DFS

Coin change use DP

Longest

Spanning tree

minimum span

Prims Algo

Kruskal algo