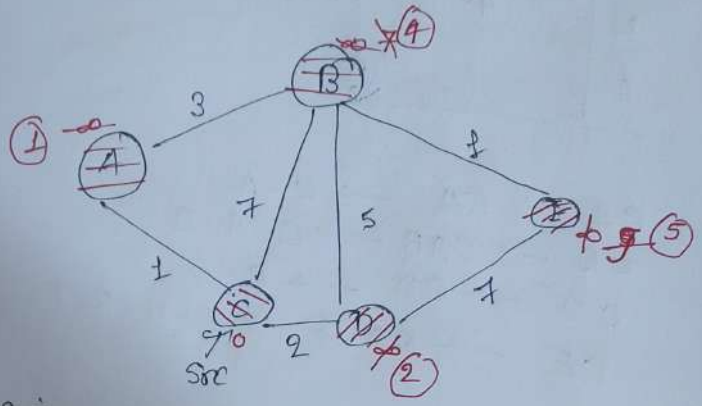
Dijkstra's Algorithm

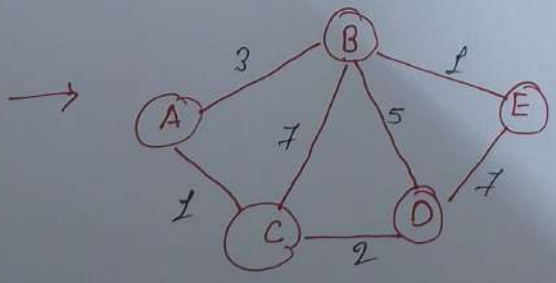
Dijkstra's Algorithm (Single - Source shortest path)

Q1. Find the shortest path in the given weighted graph by Dijkstra algorithm.



Rules :-

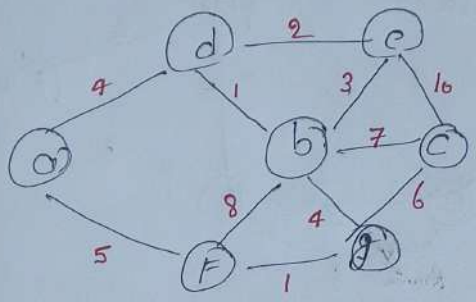
1. Solution to the single-source shortest path problem in graph theory.
2. Both directed and undirected graph
3. All edge must have non-negative weight
4. Graph must be Connected.
5. Remove all self loop and parallel edge.
6. it is applied on weighted graph.



Selected vertex	A	B	D	E
A	(1)	7	2	∞
D		4	(2)	∞
B		(4)		7
E				(5)

C A → CA → C-A
C B → CAB → C-A-B
C D → CD → C-D
C E → CABE → C-A-B-E

Prim - Minimum Spanning Tree

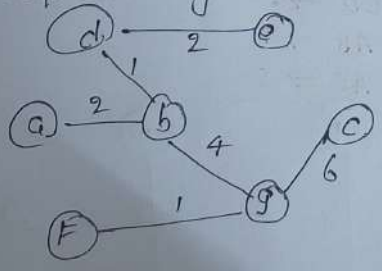


→ Minimum Spanning Tree

SubGraph

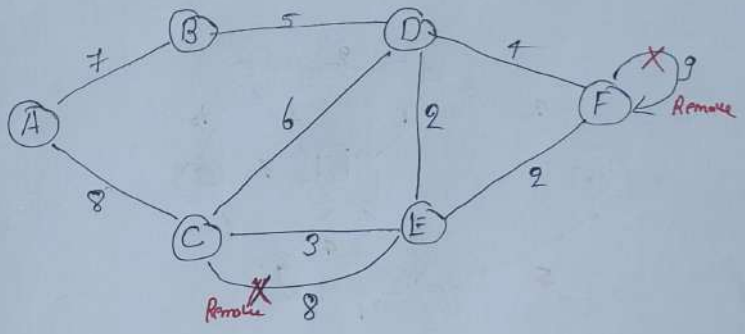
- All Vertices
- Connected
- No cycles

→ 1. Choose an arbitrary start vertex.
2. Keep including connected min edges [No cycle]



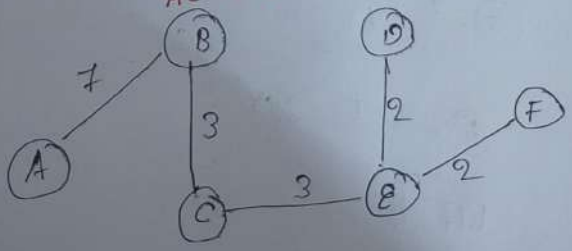
Wt = 16

Kruskal's Algorithm



1. Remove all loops Edges
2. Remove all parallel edges with Minimum node
3. According order

EF → 2
ED → 2
CE → 3
CB → 3
DF → 4
BD → 5
CD → 6
AB → 7
AC → 8



$E = |V| - 1$

$E = 6 - 1 = 5$