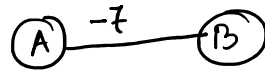


Dijkstra Algo -

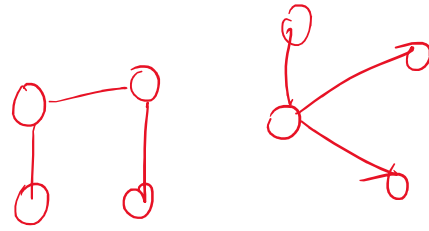
Src Node  $\longrightarrow$  Other nodes.  
distance.

- ① Directed & Undirected Graph.
- ② Graph connected.
- ③ Weighted Graph.
- ④ No Negative edges

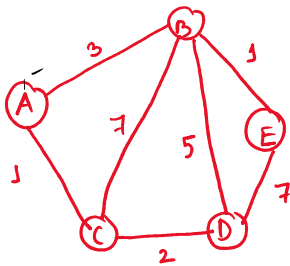


Minimum  $D(A \text{ to } B)$   
 $= -7$

$$\begin{array}{rcl} A \rightarrow B & = & -7 \\ B \rightarrow A & = & -7 \\ A \rightarrow B & = & -7 \\ \hline & = & -21 \end{array}$$



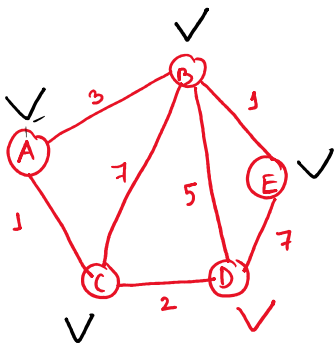
Dijkstra - distance of every other nodes from a single source.



Source = C

Node C  $\rightarrow$  A  
C  $\rightarrow$  D  
C  $\rightarrow$  B  
C  $\rightarrow$  E } Min<sup>m</sup> Distance.

edge weight



Selected Node	Distance of nodes from src.				
	A	B	C	D	E
C	$\infty$	$\infty$	0	$\infty$	$\infty$
A	<u>1</u>	7		<u>2</u>	$\infty$
D		<u>4</u>		<u>4</u>	<u>9</u>
B					5
E					

$$\begin{aligned} d(\text{src to } E) &= d(\text{src to } B) + d(B \text{ to } E) \\ &= 4 + 1 = 5 \end{aligned}$$

$$\begin{aligned} d(\text{src to } v) &= d(\text{src to } u) + d(u \text{ to } v). \\ d(\text{src to } B) &= d(\text{src to } A) + d(A \text{ to } B) - 3 \\ &= 4. \\ d(\text{src to } E) &= d(\text{src to } D) + d(D \text{ to } E) \\ &= 4 + 5 = 9. \end{aligned}$$

H/W Src ① A ② B ③ E.