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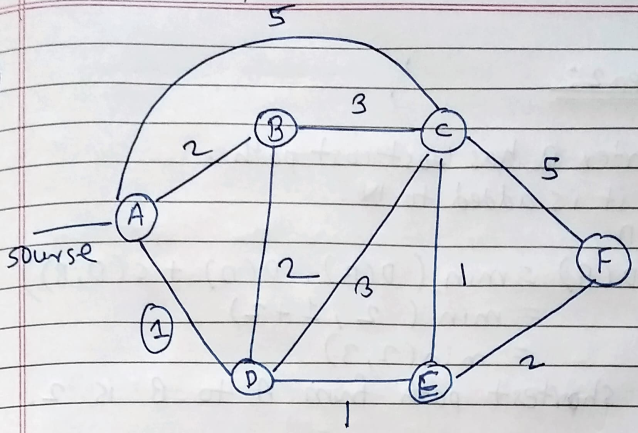

→ find link cost from nodes A to F using link state braddcast algorithm

⇒ c(i, j) = link cost from node i to node j
D(v) = cost from source code to destination v that has least cost
P(v) = previous node (neighbor of v) along with least cost path from V
N = total number of nodes available

Step 1 :

Sourse is A

A to B → 2
A to C → 5
A to D → 1
A to E → ∞
A to F → ∞

step	N	D(B), P(B)	D(C), P(C)	D(D), P(D)	D(E), P(E)	D(F), P(F)
1	A	2, A	5, A	1, A	∞	∞

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Step 2:

Vertex D has least cost path.

$\therefore$ it is added to N.

$v = B, w = D$

$\therefore D(B) = \min(D(B), D(D) + c(D,B))$

$= \min(2, 1+2)$

$= \min(2,3)$

$\therefore$ Shortest path from A to B is 2.

$v = C, w = D$

$D(C) = \min(D(C), D(D) + c(D,C))$

$= \min(5, 1+3)$

$= \min(5,4)$

$\therefore$ shortest path from A to C is 4

$v = E, w = D$

$D(E) = \min(D(E), D(D) + c(D,E))$

$= \min(\infty, 1+1)$

$= \min(\infty, 2)$

$\therefore$ shortest path from A to E is 2.

D(F) is ∞

step	N	D(B), P(B)	D(C), P(C)	D(D), P(D)	D(E), P(E)	D(F), P(F)
1	A	2, A	5, A	1, A	∞	∞
2	AD	2, A	4, D		2, D	∞

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Step 3 :

Both E & B have least cost path is step 2.
Have to determine the least cost path of remaining vertices through E.

v = B , w = E

$D(B) = \min(D(B), D(E) + c(E, B))$

$= \min(2, 2 + \infty)$

$= \min(2, \infty)$

Shortest path from A to B is 2.

v = C , w = E

$D(B) = \min(D(C), D(E) + c(E, C))$

$= \min(4, 2 + 1)$

$= \min(4, 3)$

∴ shortest path from A to C is 3

v = F , w = E

$D(B) = \min(D(F), D(E) + c(E,F))$

$= \min(\infty, 2 + 2)$

$= \min(\infty, 4)$

Shortest path from A to F is 4

Step	N	D(B), P(B)	D(C), P(C)	D(D), P(D)	D(E), P(E)	D(F), P(F)
1	A	2, A	5, A	1, A	∞	∞
2	AD	2, A	4, D		2, D	∞
3	ADE	2, A	3, E			4, E

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Step 4:

B vertex has least cost path in step 3.
∴ It is added in N.
Now, need to determine the least cost path of remaining vertices through B.

v = C , w = B
D (B) = min (D(C), D(B) + c(B,C))
= min (3, 2 +3)
= min (3, 5)
∴ shortest path from A to C is 3

v = F, w = B
D (B) = min (D (F), D (B) + c(B,F)
= min (4, ∞)
= min (4, ∞)
∴ shortest path from A to F is 4.

Step	N	D(B), P(B)	D(C), P(C)	D(D), P(D)	D(E), P(E)	D(F), P(F)
1	A	2, A	5, A	1, A	∞	∞
2	AD	2, A	4, D		2, D	∞
3	ADE	2, A	3, E			4, E
4	ADEB		3, E			4, E

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Step 5:

C vertex has the least cost path in step 4.
∴ it is added to N.
Now, need to determine least cost path of remaining vertices through C.

$V = F, w = C$

$D(B) = \min(D(F), D(C) + c(C,F))$
$= \min(4, 3+5)$
$= \min(4, 8)$

∴ shortest path from A to F is 4.

Step	N	D(B),P(B)	D(C),P(C)	D(D),P(D)	D(E),P(E)
5	ADEBC		~~3,E~~		4, E

Final table :-

Step	N	D(B),P(B)	D(C),P(C)	D(D),P(D)	D(E),P(E)	D(F), P(F)
1	A	2, A	5, A	1, A	∞	∞
2	AD	2, A	4, D		2D	∞
3	ADE	2, A	3, E			4, E
4	ADEBC		3E			4E
5	ADEBC					4, E
6	ADEBCF					