

eg: Vertices 1 2 3 4
 Keys 5 10 15 20
 Freq 3 1 2 4.

$$C[x, y] = \min \{ C[x, k-1] + C[k, y] \} + w[x, y]$$

j	0	1	2	3	4
i	0	3 ¹	5 ¹	10 ¹	19 ³
1		0	1 ²	4 ³	11 ⁴
2			0	2 ³	8 ⁴
3				0	4 ⁴
4					0

$\{j-i=0\}$

$$C[0,0] = 0$$

$$C(0,1) = 0$$

$$C(1,2) = 0$$

$$C(2,3) = 0$$

$$C(3,4) = 0$$

Let find $C(0,1), C(1,2), C(2,3),$

$j-i=1$

$C(3,4)$

2nd stage -

$$\textcircled{1} \quad c(0, 1)$$

$$\Rightarrow j - i = 1$$

$$\min \{ c[0, 0] + c[1, 1] \} + w[0, 1]$$

$$= \{ c[0, 0] + c[1, 1] \} + w[0, 1]$$

$$= 0 + 0 + 3 = 3$$

$$\textcircled{2} \quad c(1, 2)$$

$$\min \{ c[1, 1] + c[2, 2] \} + w[1, 2]$$

$$= 0 + 0 + 1 = 1$$

$$\textcircled{3} \quad c(2, 3)$$

$$\min \{ c[2, 2] + c[3, 3] \} + w[2, 3]$$

$$0 + 0 + 2 = 2$$

$$\textcircled{4} \quad c(3, 4)$$

$$= \min \{ c[3, 3] + c[4, 4] \}$$

$$+ w(3, 4)$$

$$= 0 + 0 + 4 = 4$$

$$c(0, 2), c(1, 3), c(2, 4) \quad | \quad \boxed{1 - 1 = 2}$$

$$\textcircled{5} \quad c(0, 2)$$

$$= \min \{ c[0,] + c[, 2] \}$$

$$+ w(0, 2)$$

$$= \min \{ c[0, 0] + c[1, 2],$$

$$c[0, 1] + c[2, 2]$$

$$+ w(0, 2)$$

$$= \min \{ \underline{0+1}, 3+0 \} + w(0, 2)$$

$$= 1 + 3 + 1 = 5 //$$

~~c~~

$$b) C(1, 3)$$

$$= \min \{ C[1, 1] + C[2, 3], \\ C[1, 2] + C[3, 3] \} + w(1, 3)$$

$$= \min \{ 0 + 2, 1 + 0 \} + (1 + 2)$$

$$= 1 + 1 + 2 = 4^3$$

$$\textcircled{7} C(2, 4)$$

$$= \min \{ C[2, 2] + C[3, 4], \\ C[2, 3] + C[4, 4] \}$$

$$+ w(2, 4)$$

$$= \min \{ 0 + 4, 2 + 0 \} + (2 + 4)$$

$$= 2 + 2 + 4 = 8^4$$

$$\boxed{y-i=3}$$

$$c(0,3), c(1,4).$$

$$8) c(0,3)$$

$$= \min \left\{ \begin{aligned} &c[0,0] + c[1,3] \\ &c[0,1] + c[2,3] \\ &c[0,2] + c[3,3] \end{aligned} \right\} + w(0,3)$$

$$c[0,2] + c[3,3]$$

$$= \min \{ 0+4, 3+2, 5+0 \} + w(0,3)$$

$$= 4 + (3+1+2)$$

$$= 10$$

$$9) c(1,4)$$

$$= \min \{ c[0,1] + c[2,4] \\ c[1,2] + c[3,4] \\ c[1,3] + c[4,4] \} + w(1,4)$$

$$c[1,2] + c[3,4]$$

$$c[1,3] + c[4,4] \} + w(1,4)$$

$$= \min \{ 0+8, 1+4, 4+0 \} + w(1,4)$$

$$= 4 + (1+2+4)$$

$$= 11^4$$

$$\boxed{j-i=4}$$

$$(0,4).$$

$$= \min = \{ c[0,0] + c[1,4],$$

$$c[0,1] + c[0,2,4], + w(0,4)$$

$$c[0,2] + c[3,4]$$

$$c[0,3] + c[4,4] \}$$

$$= \min \{ 0+11, 3+8, \underline{5+4}, 10+0 \} + w(0,4)$$

$$= 9 + (3+1+2+4)$$

$$= 19^3$$



