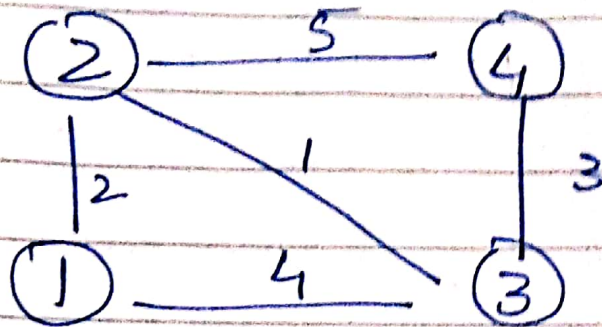## Floyd Warshall Algorithm

Sol:

$$D^{(0)} = \begin{bmatrix} 0 & 2 & 4 & \infty \\ 2 & 0 & 1 & 5 \\ 4 & 1 & 0 & 3 \\ \infty & 5 & 3 & 0 \end{bmatrix} \quad P^{(0)} = \begin{bmatrix} 0 & -1 & -1 & -1 \\ -1 & 0 & -1 & -1 \\ -1 & -1 & 0 & -1 \\ -1 & -1 & -1 & 0 \end{bmatrix}$$

k=1,

$$D^{(1)} = \begin{bmatrix} 0 & 2 & 4 & \infty \\ 2 & 0 & 1 & 5 \\ 4 & 1 & 0 & 3 \\ \infty & 5 & 3 & 0 \end{bmatrix} \quad P^{(1)} = \begin{bmatrix} 0 & -1 & -1 & -1 \\ -1 & 0 & -1 & -1 \\ -1 & -1 & 0 & -1 \\ -1 & -1 & -1 & 0 \end{bmatrix}$$

k=2,

$$D^{(2)} = \begin{bmatrix} 0 & 2 & 3 & 6 \\ 2 & 0 & 1 & 4 \\ 3 & 1 & 0 & 3 \\ 6 & 4 & 3 & 0 \end{bmatrix} \quad P^{(2)} = \begin{bmatrix} 0 & -1 & 2 & 2 \\ -1 & 0 & -1 & -1 \\ 2 & -1 & 0 & -1 \\ 2 & -1 & -1 & 0 \end{bmatrix}$$

$$k = 3,$$

$$D^{(3)} = \begin{bmatrix} 0 & 2 & 3 & 6 \\ 2 & 0 & 1 & 4 \\ 3 & 1 & 0 & 3 \\ 6 & 4 & 3 & 0 \end{bmatrix} \qquad P^{(3)} = \begin{bmatrix} 0 & -1 & 2 & 3 \\ -1 & 0 & -1 & 3 \\ 2 & -1 & 0 & -1 \\ 3 & 3 & -1 & 0 \end{bmatrix}$$

$$k = 4,$$

$$D^{(4)} = \begin{bmatrix} 0 & 2 & 3 & 6 \\ 2 & 0 & 1 & 4 \\ 3 & 1 & 0 & 3 \\ 6 & 4 & 3 & 0 \end{bmatrix} \qquad P^{(4)} = \begin{bmatrix} 0 & -1 & 2 & 3 \\ -1 & 0 & -1 & 3 \\ 2 & -1 & 0 & -1 \\ 3 & 3 & -1 & 0 \end{bmatrix}$$