2019-10-06

iv) Diagonal Matrix

$$D = \begin{bmatrix} d_1 & 0 & \cdots & 0 \\ 0 & d_2 & \cdots & 0 \\ \vdots & \vdots & \ddots & \vdots \\ 0 & 0 & \cdots & d_N \end{bmatrix}$$

off-diagonal

diagonal

$$D \in \mathbb{R}^{N \times N}$$

↳ Diagonal Matrix doesn't have to be a square matrix.

$$D = \begin{bmatrix} d_1 & 0 & \cdots & 0 \\ 0 & d_2 & \cdots & 0 \\ \vdots & \vdots & \ddots & \vdots \\ 0 & 0 & \cdots & d_n \\ 0 & 0 & \cdots & 0 \\ 0 & 0 & \cdots & 0 \end{bmatrix}$$

$$D \in \mathbb{R}^{N \times M}$$

np.diag([1,2,3])

v) Identity Matrix

$$I = \begin{bmatrix} 1 & 0 & \cdots & 0 \\ 0 & 1 & \cdots & 0 \\ \vdots & \vdots & \ddots & \vdots \\ 0 & 0 & \cdots & 1 \end{bmatrix}$$

$$I \in \mathbb{R}^{N \times N}$$

np.eye(4)

vi) Symmetric Matrix

~~$S = S^T$~~ $S^T = S$

$$S \in \mathbb{R}^{N \times N}$$