$$A - \lambda I = 0. \quad I = \text{identity matrix}.$$

$$\begin{bmatrix} 0 & -1 \\ 2 & 3 \end{bmatrix} - \begin{bmatrix} \lambda & 0 \\ 0 & \lambda \end{bmatrix} = 0.$$

$$\therefore \begin{bmatrix} -\lambda & -1 \\ 2 & 3-\lambda \end{bmatrix} = 0.$$

$$\therefore -\lambda(3-\lambda) - (-1 \times 2) = 0.$$

$$\therefore -3\lambda + \lambda^2 + 2 = 0$$

$\therefore \quad -2v_1 - v_2 = 0$

$\therefore \; -2v_1 = v_2$

$\therefore \; v_1 = \frac{-v_2}{2}.$

$\therefore$ eigenvector $= \begin{bmatrix} 1 \\ -2 \end{bmatrix}.$

$S = \{v_1, v_2 \ldots\ldots v_n\}.$

For any constant c;

$$c_i = \bar{v}_i \cdot S$$

where $S = \{v_1, v_2 - - - v_n\}$.

This ~~gi~~ dot product gives projection of v_i, returning the value of constant.

$$C = [c_1 \quad c_2 \quad c_3 \ldots \quad c_n].$$

$$S = \begin{bmatrix} \vdots & \vdots & & \vdots \\ v_1 & v_2 & \cdots & v_n \end{bmatrix}$$