

e.g.

$$A = \begin{bmatrix} c & c & \dots & c \\ c & c & \dots & c \\ c & c & \dots & c \\ \vdots & \vdots & \ddots & \vdots \\ c & c & \dots & c \end{bmatrix}_{n \times n}$$

$$\begin{aligned} |xI - A| &= x^{n-1}(x - nc) \\ &= x^n - ncx^{n-1} \end{aligned}$$

$$\begin{aligned} d &= 0, \quad d = nc \\ \text{trace} &= \frac{nc}{1} \end{aligned}$$

λ is an eigen value of A iff $C(\lambda) = 0$
i.e. λ is a root of $C(\lambda) = 0$

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