$$\begin{array}{ccc} A & \vec{x} & \vec{b} \end{array}$$

- $$\begin{pmatrix} A_{11} & A_{12} & A_{13} & \cdots & A_{1n} \\ 0 & A_{22} & A_{23} & \cdots & A_{2n} \\ 0 & 0 & A_{33} & & \vdots \\ \vdots & \vdots & \vdots & \ddots & \vdots \\ 0 & 0 & 0 & \cdots & A_{nn} \end{pmatrix} \begin{pmatrix} x_1 \\ x_2 \\ \vdots \\ x_n \end{pmatrix} = \begin{pmatrix} b_1 \\ b_2 \\ \vdots \\ b_n \end{pmatrix}$$

- Matriz triangular superior A con dimension $n \times n$

- las soluciones del sistema $A\vec{x} = \vec{b}$ se pueden escribir de manera iterativa como:

$$b_n = A_{nn} \cdot x_n \rightarrow x_n = \frac{b_n}{A_{nn}}$$

$$b_{n-1} = A_{n-1\,n-1} \cdot x_{n-1} + A_{n-1\,n} x_n \rightarrow x_{n-1} = \frac{b_{n-1} - A_{n-1\,n} x_n}{A_{n-1\,n-1}}$$

$$b_{n-2} = A_{n-2\,n-2} x_{n-2} + A_{n-2\,n-1} x_{n-1} + A_{n-2\,n} x_n$$

$$\rightarrow x_{n-2} = \frac{b_{n-2} - A_{n-2\,n-1} x_{n-1} - A_{n-2\,n} x_n}{A_{n-2\,n-2}}$$

$$\vdots$$

$$b_1 = A_{11} x_1 + A_{12} x_2 + \cdots + A_{1n} x_n \rightarrow x_1 = \frac{b_1 - A_{12} x_2 - A_{13} x_3 - \cdots A_{1n} x_n}{A_{11}}$$

$\rightarrow$ En general:

$$b_i = A_{ii} x_i + A_{i\,i+1} x_{i+1} + \cdots + A_{in} x_n \rightarrow \boxed{x_i = \frac{b_i - \sum_{j=i+1}^{n} A_{ij} x_j}{A_{ii}}}$$