Punto 5 algebra lineal

$$x_i = b - \sum_{j=0}^{k-1} A_{ij} x_i$$

Supongo $A = M(n \times n)$ tal que $Ax = b$

$$\Rightarrow \begin{bmatrix} A_{11} & 0 & \cdots & 0 \\ A_{21} & A_{22} & \cdots & 0 \\ A_{m1} & A_{m2} & \cdots & A_{nn} \end{bmatrix} \begin{bmatrix} x_1 \\ x_2 \\ x_n \end{bmatrix} = \begin{pmatrix} b_1 \\ b_2 \\ \vdots \\ b_n \end{pmatrix}$$

$\Rightarrow A_{11} \cdot x_1 = b_n$

$\quad A_{21} x_1 + A_{22} x_2 = b_2$

$\quad \vdots$

$\quad A_{m1} x_1 + A_{m2} x_2 \cdots A_{nn} x_n = b_n$

Para mayor entendimiento
- $k = n$
- $n = i$
- $m = j$

$\Rightarrow$ Si $m = n$ $\qquad A_{ij} = 1$

$\Rightarrow x_1 = b_1$

$\quad A_{21} x_1 + x_2 = b_2$

$\quad \vdots$

$\quad A_{m1} x_1 + A_{n2} x_2 \cdots x_n = b_n$

$\Rightarrow$ Despejamos x_n

$\quad A_{m1} x_1 + A_{n2} x_2 \cdots x_n = b_n$

$\quad \sum_{n=0}^{n-1} A_{mn} x_n + x_n = b_n$

$\quad x_n = \sum_{n=0}^{m-1} A_{mn} x_n - b_n$

Punto 6 de algebra lineal

$$x_i = b - \sum_{j=i+2}^{n} A_{ij} x_j \qquad i = n, n-1, \ldots 0$$

Suponga $A = M(n \times n)$ x un vector de n filas y b uno de m filas

$\Rightarrow$ tal que $Ax = b$

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

$\quad A_{11} x_1 + A_{12} x_2 \cdots A_{nn} x_n = b_1$

$\quad A_{22} x_2 \cdots A_{2n} x_n = b_2$

$\quad A_{nm} x_n = b_n$

Para mayor entendimiento
- $k = n$
- $n = i$
- $m = j$

$\Rightarrow$ Despejamos x_n

$\quad A_{11} x_1 + A_{12} x_2 \cdots A_{nn} x_n = b_1$

$\quad \sum_{n=0}^{n-1} A_{mn} x_n + A_{nn} x_n = b_n$

$\quad x_n = \underbrace{\sum_{m=n-1}^{K} A_{mn} x_n - b_n}_{A_{nn}} \Rightarrow \text{tq } n = K, K-1 \ldots, 0)$