Reporte de operaciones con S.E.L

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Análisis numérico

Reducción gaussiana con sustitución hacia atrás

Resolución del sistema de ecuaciones lineales A

$$A = \begin{array}{rrrrr} 6.87678e+08a_0 + 576a_1 & +8468a_2 + 4844a_3 & +565448a_4 + 58644a_5 & = & 5.67568e+08 \\ 5a_0 + 8654a_1 & +658a_2 + 5a_3 & +586a_4 + 4a_5 & = & 568567 \\ 84568a_0 + 46a_1 & +8.46585e+06a_2 + 54a_3 & +64a_4 + 6584a_5 & = & 5588 \\ 56a_0 + 4a_1 & +864a_2 + 65a_3 & +456a_4 + 486a_5 & = & 6.85676e+07 \\ 46a_0 + 4568a_1 & +4568a_2 + 4586a_3 & +456a_4 + 456a_5 & = & 675 \\ 46a_0 + 456a_1 & +4658a_2 & +456a_4 + 4865a_5 & = & 7 \end{array}$$

Proceso de reducción gaussiana con la matriz aumentada $[\mathbf{A}, \mathbf{B}] = \tilde{\mathbf{A}}^{(1)}$

$$\tilde{A}^{(1)} = \left[\begin{array}{rrrrrr|r} 6.87678e+08 & 576 & 8468 & 4844 & 565448 & 58644 & 5.67568e+08 \\ 5 & 8654 & 658 & 5 & 586 & 4 & 568567 \\ 84568 & 46 & 8.46585e+06 & 54 & 64 & 6584 & 5588 \\ 56 & 4 & 864 & 65 & 456 & 486 & 6.85676e+07 \\ 46 & 4568 & 4568 & 4586 & 456 & 456 & 675 \\ 46 & 456 & 4658 & 0 & 456 & 4865 & 7 \end{array}\right]$$

$$\tilde{A}^{(2)} = \left[\begin{array}{rrrrrr|r} 6.87678e+08 & 576 & 8468 & 4844 & 565448 & 58644 & 5.67568e+08 \\ 0 & 8654 & 658 & 4.99996 & 585.996 & 3.99957 & 568563 \\ 0 & 45.9292 & 8.46584e+06 & 53.4043 & -5.53658 & 6576.79 & -64209.2 \\ 0 & 3.99995 & 863.999 & 64.9996 & 455.954 & 485.995 & 6.85675e+07 \\ 0 & 4568 & 4568 & 4586 & 455.962 & 455.996 & 637.034 \\ 0 & 456 & 4658 & -0.000324024 & 455.962 & 4865 & -30.9656 \end{array}\right] \begin{array}{l} E_2 - (7.27084e-09)\, E_1 \\ E_3 - (0.000122976)\, E_1 \\ E_4 - (8.14334e-08)\, E_1 \\ E_5 - (6.68917e-08)\, E_1 \\ E_6 - (6.68917e-08)\, E_1 \end{array}$$

$$\tilde{A}^{(3)} = \left[\begin{array}{rrrrrr|r} 6.87678e+08 & 576 & 8468 & 4844 & 565448 & 58644 & 5.67568e+08 \\ 0 & 8654 & 658 & 4.99996 & 585.996 & 3.99957 & 568563 \\ 0 & 0 & 8.46584e+06 & 53.3778 & -8.64662 & 6576.77 & -67226.8 \\ 0 & 0 & 863.695 & 64.9973 & 455.683 & 485.993 & 6.85673e+07 \\ 0 & 0 & 4220.68 & 4583.36 & 146.645 & 453.885 & -299478 \\ 0 & 0 & 4623.33 & -0.263784 & 425.085 & 4864.79 & -29989.9 \end{array}\right] \begin{array}{l} E_3 - (0.00530728)\, E_2 \quad \rightarrow \quad E_3 \\ E_4 - (0.000462209)\, E_2 \quad \rightarrow \quad E \\ E_5 - (0.527848)\, E_2 \quad \rightarrow \quad E_5 \\ E_6 - (0.0526924)\, E_2 \quad \rightarrow \quad E_6 \end{array}$$

$$\tilde{A}^{(4)} = \left[\begin{array}{rrrrrr|r} 6.87678e+08 & 576 & 8468 & 4844 & 565448 & 58644 & 5.67568e+08 \\ 0 & 8654 & 658 & 4.99996 & 585.996 & 3.99957 & 568563 \\ 0 & 0 & 8.46584e+06 & 53.3778 & -8.64662 & 6576.77 & -67226.8 \\ 0 & 0 & 0 & 64.9918 & 455.684 & 485.322 & 6.85673e+07 \\ 0 & 0 & 0 & 4583.33 & 146.65 & 450.606 & -299444 \\ 0 & 0 & 0 & -0.292935 & 425.089 & 4861.19 & -29953.2 \end{array}\right] \begin{array}{l} E_4 - (0.000102021)\, E_3 \quad \rightarrow \quad E \\ E_5 - (0.000498554)\, E_3 \quad \rightarrow \quad E \\ E_6 - (0.000546116)\, E_3 \quad \rightarrow \quad E \end{array}$$

$$\tilde{A}^{(5)} = \left[\begin{array}{rrrrrr|r} 6.87678e+08 & 576 & 8468 & 4844 & 565448 & 58644 & 5.67568e+08 \\ 0 & 8654 & 658 & 4.99996 & 585.996 & 3.99957 & 568563 \\ 0 & 0 & 8.46584e+06 & 53.3778 & -8.64662 & 6576.77 & -67226.8 \\ 0 & 0 & 0 & 64.9918 & 455.684 & 485.322 & 6.85673e+07 \\ 0 & 0 & 0 & 0 & -31988.9 & -33775.1 & -4.83578e+09 \\ 0 & 0 & 0 & 0 & 427.143 & 4863.38 & 279097 \end{array}\right] \begin{array}{l} E_5 - (70.5217)\, E_4 \quad \rightarrow \quad E_5 \\ E_6 - (-0.00450725)\, E_4 \quad \rightarrow \quad \end{array}$$

$$\tilde{A}^{(6)} = \left[\begin{array}{cccccc|c} 6.87678e+08 & 576 & 8468 & 4844 & 565448 & 58644 & 5.67568e+08 \\ 0 & 8654 & 658 & 4.99996 & 585.996 & 3.99957 & 568563 \\ 0 & 0 & 8.46584e+06 & 53.3778 & -8.64662 & 6576.77 & -67226.8 \\ 0 & 0 & 0 & 64.9918 & 455.684 & 485.322 & 6.85673e+07 \\ 0 & 0 & 0 & 0 & -31988.9 & -33775.1 & -4.83578e+09 \\ 0 & 0 & 0 & 0 & 0 & 4412.39 & -6.42923e+07 \end{array}\right] \qquad E_6 - (-0.0133528)\, E_5 \quad \rightarrow \quad E$$

Solución encontrada:

a_0	a_1	a_2	a_3	a_4	a_5
-134.846	-11204.2	11.5067	-3961.94	166555	-14570.9