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

$$A = \begin{array}{rrrrr} 54548a_0 + 4a_1 & +a_2 + 245a_3 & +48a_4 = -55 \\ 7a_0 + 84a_1 & +51a_2 + 7a_3 & +8a_4 = 4 \\ 5a_0 + 15a_1 & +7a_2 + 48a_3 & +89a_4 = 54057 \\ 89a_0 + 123a_1 & +298a_2 + 95a_3 & +64616a_4 = 1 \\ 6a_0 + 16a_1 & +798768a_2 + 7a_3 & +59a_4 = 57 \end{array}$$

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

$$\tilde{A}^{(1)} = \left[\begin{array}{rrrrr|r} 54548 & 4 & 1 & 245 & 48 & -55 \\ 7 & 84 & 51 & 7 & 8 & 4 \\ 5 & 15 & 7 & 48 & 89 & 54057 \\ 89 & 123 & 298 & 95 & 64616 & 1 \\ 6 & 16 & 798768 & 7 & 59 & 57 \end{array}\right]$$

$$\tilde{A}^{(2)} = \left[\begin{array}{rrrrr|r} 54548 & 4 & 1 & 245 & 48 & -55 \\ 0 & 83.9995 & 50.9999 & 6.96856 & 7.99384 & 4.00706 \\ 0 & 14.9996 & 6.99991 & 47.9775 & 88.9956 & 54057 \\ 0 & 122.993 & 297.998 & 94.6003 & 64615.9 & 1.08974 \\ 0 & 15.9996 & 798768 & 6.97305 & 58.9947 & 57.006 \end{array}\right] \begin{array}{l} E_2 - (0.000128327)\, E_1 \rightarrow E_2 \\ E_3 - (9.16624e-05)\, E_1 \rightarrow E_3 \\ E_4 - (0.00163159)\, E_1 \rightarrow E_4 \\ E_5 - (0.000109995)\, E_1 \rightarrow E_5 \end{array}$$

$$\tilde{A}^{(3)} = \left[\begin{array}{rrrrr|r} 54548 & 4 & 1 & 245 & 48 & -55 \\ 0 & 83.9995 & 50.9999 & 6.96856 & 7.99384 & 4.00706 \\ 0 & 0 & -2.10704 & 46.7332 & 87.5682 & 54056.3 \\ 0 & 0 & 223.323 & 84.3968 & 64604.2 & -4.77746 \\ 0 & 0 & 798758 & 5.64573 & 57.4721 & 56.2428 \end{array}\right] \begin{array}{l} \\ \\ E_3 - (0.178568)\, E_2 \rightarrow E_3 \\ E_4 - (1.46422)\, E_2 \rightarrow E_4 \\ E_5 - (0.190472)\, E_2 \rightarrow E_5 \end{array}$$

$$\tilde{A}^{(4)} = \left[\begin{array}{rrrrr|r} 54548 & 4 & 1 & 245 & 48 & -55 \\ 0 & 83.9995 & 50.9999 & 6.96856 & 7.99384 & 4.00706 \\ 0 & 0 & -2.10704 & 46.7332 & 87.5682 & 54056.3 \\ 0 & 0 & 0 & 5037.6 & 73885.5 & 5.72937e+06 \\ 0 & 0 & 0 & 1.77161e+07 & 3.31962e+07 & 2.04922e+10 \end{array}\right] \begin{array}{l} \\ \\ \\ E_4 - (-105.989)\, E_3 \rightarrow E_4 \\ E_5 - (-379089)\, E_3 \rightarrow E_5 \end{array}$$

$$\tilde{A}^{(5)} = \left[\begin{array}{rrrrr|r} 54548 & 4 & 1 & 245 & 48 & -55 \\ 0 & 83.9995 & 50.9999 & 6.96856 & 7.99384 & 4.00706 \\ 0 & 0 & -2.10704 & 46.7332 & 87.5682 & 54056.3 \\ 0 & 0 & 0 & 5037.6 & 73885.5 & 5.72937e+06 \\ 0 & 0 & 0 & 0 & -2.26642e+08 & 3.43323e+08 \end{array}\right] \begin{array}{l} \\ \\ \\ \\ E_5 - (3516.77)\, E_4 \rightarrow E_5 \end{array}$$

Solución encontrada:

a_0	a_1	a_2	a_3	a_4
-5.20065	-95.9981	-0.00801637	1159.54	-1.51483