

Gaussian Simple

- 1) Ask the user for matrix A
- 2) Ask the user for computable vector b and whole number n
 - a) For $i = 1 < n$
 - (i) For $j = 1 < n+1$
 - (ii) Read A_{ij}
 - b) Next j
 - c) Next i
- 3) Apply Gauss elimination on Matrix A
 - a) For $i = 1 < n-1$
 - (i) If $A_{ij} = 0$
 - (ii) Print "Mathematical Error!"
 - (iii) Stop
 - b) End if
 - c) For $j = i+1 < n$
 - (i) $\text{Ratio} = A_{ij} / A_{ii}$
 - (ii) For $k = 1 \text{ to } n+1$
 - (1) $A_{jk} = A_{jk} - \text{Ratio} * A_{ik}$
 - d) Next k
 - e) Next j
 - f) Next i
- 4) Obtaining solution by back substitution
 - a) $X_n = A_{n,n+1} / A_{nn}$
 - b) For $i = n-1 < 1$ (Step: -1)
 - (i) $X_i = A_{i,n+1}$
 - (ii) For $j = i + 1 < n$
 - (1) $x_i = x_i - A_{ij} * x_j$
 - (iii) next j
 - (iv) $x_i = x_i / A_{ii}$
 - c) next i
- 5) Display solution

- a) For $i = 1 < n$
 - (i) Print x_i
- b) Next i
- 6) Stop

Note: All array indexes are assumed to start from 1.