

# Algorithm: Gauss Jacobi's Method

- Read number of equations say  $n$
- // Read equation
- For  $i = 0$  to  $(n - 1)$  in steps of 1 do
  - For  $j = 0$  to  $n$  in steps of 1 do
    - Read  $a[i][j]$
  - End forEnd for
- Read maxIteration and error
- For  $k = 0$  to  $(\text{maxIteration}-1)$  in steps of 1 do
  - big\_error = 0.0
  - For  $i = 0$  to  $(n-1)$  in steps of 1 do
    - sum = 0.0
    - For  $j = 0$  to  $(n-1)$  in steps of 1 do
      - If  $(i \neq j)$  then
        - ◆ sum +=  $a[i][j] * \text{old}_x[j]$End if
    - End for
    - $\text{new}_x[i] = \frac{a[i][n] - \text{sum}}{a[i][i]}$
    - $E = \text{abs}\left(\frac{\text{new}_x[i] - \text{old}_x[i]}{\text{new}_x[i]}\right)$
    - If  $(E > \text{big\_error})$  then
      - big\_error = EEnd for
  - If  $(\text{rel\_error} \leq e)$  then
    - Print "Solution is convergent. It converges in (k) iterations"
    - Print new\_x
    - STOPEnd if
  - For  $i = 0$  to  $(n-1)$  in steps of 1 do
    - $\text{old}_x[i] = \text{new}_x[i]$End forEnd for
- Print "Solution is not convergent in maxIteration"
- Print new\_x
- END