

$$Ax = b \quad \begin{matrix} \text{red arrow} \end{matrix} \begin{bmatrix} a_{11} & a_{12} & \dots & a_{1n} \\ a_{21} & a_{22} & \dots & a_{2n} \\ \vdots & \vdots & & \vdots \\ a_{n1} & a_{n2} & \dots & a_{nn} \end{bmatrix} \begin{bmatrix} x_1 \\ x_2 \\ \vdots \\ x_n \end{bmatrix} = \begin{bmatrix} b_1 \\ b_2 \\ \vdots \\ b_n \end{bmatrix} \quad A^{(0)}x = b^{(0)}$$

1. Schritt:

$$u_{1j} = a_{1j}^{(0)} = a_{1j} \quad j = \overline{1, n}$$

$$l_{i1} = a_{i1}^{(0)} / a_{11}^{(0)} \quad i = \overline{2, n}$$

$$a_{ij}^{(1)} = a_{ij}^{(0)} - l_{i1} u_{1j} \quad i, j = \overline{2, n}$$

$$c_1 = b_1^{(0)} = b_1$$

$$b_i^{(1)} = b_i^{(0)} - l_{i1} c_1$$

Initialisierung:  $A^{(0)} = [a_{ij}^{(0)}] = A = [a_{ij}]$   
 $b^{(0)} = [b_i^{(0)}] = b = [b_i]$

Zerlegen / Vorwärtsschritt:

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FOR k = 1 STEP 1 UNTIL n-1 DO
  FOR i = k+1 STEP 1 UNTIL n DO
    lik := aik(k-1) / akk(k-1)
    bi(k) := bi(k-1) - lik bk(k-1)
  FOR j = k+1 STEP 1 UNTIL n DO
    aij(k) := aij(k-1) - lik akj(k-1)
  ENDFOR
ENDFOR
ENDFOR

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