

■ Implementierung:

Folie 32 f

$$Ax = b$$

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

1. Schritt:

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

$$j = \overline{1, n}$$

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

$$i = \overline{2, n}$$

1 → k

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

$$i, j = \overline{2, n}$$

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

$$b_i^{(k)} = b_i^{(0)} - l_{ik} c_1$$

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

Zerlegen / Vorwärtsrechnen:

FOR $k := 1$ STEP 1 UNTIL $n-1$ DO

FOR $i := k+1$ STEP 1 UNTIL n DO

$$l_{ik} := a_{ik}^{(k-1)} / a_{kk}^{(k-1)}$$

$$b_i^{(k)} := b_i^{(k-1)} - l_{ik} b_k^{(k-1)}$$

FOR $j := k+1$ STEP 1 UNTIL n DO

$$a_{ij}^{(k)} := a_{ij}^{(k-1)} - l_{ik} a_{kj}^{(k-1)}$$

ENDFOR

ENDFOR

ENDFOR

⋮