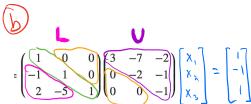
Using  $A = \begin{pmatrix} 3 & -7 & -2 \\ -3 & 5 & 1 \end{pmatrix} = \begin{pmatrix} 1 & 0 & 0 \\ -1 & 1 & 0 \end{pmatrix} \begin{pmatrix} 3 & -7 & -2 \\ 0 & 2 & -1 \end{pmatrix} = LU$ 

compute the solution to Ax = b with

(a) 
$$b = \begin{pmatrix} -3 \\ 3 \\ 2 \end{pmatrix}$$
;

(b) 
$$b = \begin{pmatrix} 1 \\ -1 \\ 1 \end{pmatrix}$$



v — h ....ith

$$X_{1}$$
 = 1  $X_{1}=1$   
 $-X_{1}+X_{2}$  = -1  $X_{3}=-1+1=0$   
 $2x_{1}-5x_{2}+x_{3}=1$   $X_{3}=1-2(1)+5(6)=-1$ 

## Steps to get Land U

- D Calculate upper using gaussian elimination and Save m, ma and ma fundamental matrices
  - (2) Create L prots and zeroes (100)
  - 3 Combine

    m, m2 m3

    and make all

    non identity numbers

    regative

 $A = \begin{pmatrix} 3 & -7 & -2 \\ -3 & 5 & 1 \\ 6 & -4 & 0 \end{pmatrix} \times \begin{pmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{pmatrix}^{2}$   $\begin{bmatrix} 3 & -7 & -3 \\ 0 & -3 & 1 \\ 6 & -4 & 0 \end{bmatrix} \times \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}^{2}$   $\begin{bmatrix} 3 & -7 & -3 \\ 0 & -3 & 1 \\ 0 & 10 & 4 \end{bmatrix} \times \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 5 & 1 \end{bmatrix}^{2}$ 

$$\begin{bmatrix} 3 & -7 & -2 \\ 0 & -2 & -1 \\ 0 & 0 & -1 \end{bmatrix} = \mathbf{U}$$