**Name**: Adwait S Purao

**UID**: 2021300101

**Batch**: B2

LU Decomposition

**Code**:

printf("Adwait Purao\n")

printf("UID:2021300101 Batch:B2\n")

A = [1 5 1;2 1 3;3 1 4]

B = [14;13;17]

u11 = A(1,1)

u12 = A(1,2)

u13 = A(1,3)

l21 = A(2,1)/u11

l31 = A(3,1)/u11

u22 = A(2,2)-l21\*u12

u23 = A(2,3)-l21\*u13

l32 = (A(3,2)-l31\*u12)/u22

u33 = A(3,3)-l31\*u13-l32\*u23

L = [1 0 0;l21 1 0;l31 l32 1]

U = [u11 u12 u13;0 u22 u23;0 0 u33]

printf("\nMatrix L")

disp(L)

printf("\nMatrix U")

disp(U)

y11 = B(1,1)

y21 = B(2,1) - l21\*y11

y31 = B(3,1) - l31\*y11 - l32\*y21

Y = [y11;y21;y31]

printf("\nMatrix Y")

disp(Y)

x31 = Y(3,1)/U(3,3)

x21 = (Y(2,1)-U(2,3)\*x31)/U(2,2)

x11 = (Y(1,1)-U(1,2)\*x21 - U(1,3)\*x31)/U(1,1)

X = [x11 x21 x31]

printf("\nMatrix X")

disp(X)

Screenshot of code:

A screenshot of a computer

Description automatically generated with medium confidence

**Output**:

A screenshot of a computer

Description automatically generated with low confidence

**Problem solved on paper:**

A notebook with writing on it

Description automatically generated with low confidence

A notebook with writing on it

Description automatically generated with low confidence

A paper with writing on it

Description automatically generated with low confidence