

Assignment3.m

```

1 %Decompose Matrix using Gauss Elimination in the LDU form
2 clc
3
4 close all
5
6 clear all
7
8 A=input("Enter the elements in Matrix form")
9
10 N=length(A);
11
12 for i=1:N
13     for j=i+1:N
14         Etta = A(j,i)/A(i,i);
15         A(j,:) = A(j,:)-Etta*A(i,:);
16         EttaMatrix((j-1)+1,i) = Etta;
17     end
18 end
19
20 L=EttaMatrix;
21 L(:,N)=zeros(N,1);
22 for i = 1:N
23     L(i,i)=1;
24 end
25 Lower_Triangular_Matrix=L
26
27 Temp=diag(A);
28 D(:,N)=zeros(N,1);
29 for i = 1:N
30     D(i,i)=Temp(i);
31 end
32 Diagonal_Matrix=D
33
34 I = eye(length(D));
35 Aug = [D I];
36 N = length(D);
37 for i=1:N
38     Aug(i,:) = Aug(i,+)/Aug(i,i);
39     for j=1:N
40         if j~=i
41             Key = Aug(j,i);
42             Aug(j,:) = Aug(j,)-Key*Aug(i,);
43         end
44     end
45 end
46 r=(length(Aug)/2+1);
47
48 DM = Aug(:,r:end);
49 U = DM*A;
50 Upper_Triangular_Matrix = U
51
52 Product_of_LDU_decomposition = L*D*U
53

```

Printed for: omammu311@gmail.com
 Powered by Octave Online
<http://octave-online.net>