Contents


```
% HW 2 Problem 1(b)

clear
clc
close all

load('testproblem.mat');

% A = [80 -20 -20; -20 40 -20; -20 -20 130]
% b = [20 20 20]'

[L,U] = DLLUF(A,b);
```

```
Doolittle LU factorization:
L =
  Columns 1 through 7

    1.0000         0         0         0         0         0         0
    0.4641    1.0000         0         0         0         0         0
   -0.1350   -0.4295    1.0000         0         0         0         0
    0.2876   -0.2767    0.0696    1.0000         0         0         0
   -0.2974   -0.4159    0.3247    1.4176    1.0000         0         0
   -0.3940   -1.0627   -0.3439    2.1578    8.1997    1.0000         0
    0.9163    0.9053    0.9062   -0.7006    4.3450    0.8867    1.0000
    0.1742   -0.0886   -0.1767    0.6487   -1.1912   -0.1647   -2.0441

  Column 8

         0
         0
         0
         0
         0
         0
         0
    1.0000

U =
  Columns 1 through 7

   -1.0149   -2.1321    2.1778   -0.2730   -0.7841   -0.4677   -0.2841
         0    2.1349    0.1277    1.7030   -1.4414    0.0922    0.0452
         0         0   -2.1480    0.2136    1.1336    1.4554   -1.4883
         0         0         0    0.8624   -0.8568   -0.8022    0.3901
         0         0         0         0    0.1172    1.3485   -0.9577
         0         0         0         0         0   -8.6038    6.3411
         0         0         0         0         0         0    0.7162
         0         0         0         0         0         0         0

  Column 8

   -0.2883
    0.4839
```

```
   -1.6670
    1.3688
    1.1407
  -11.5207
    7.2391
   13.5981
```

Use only backsub function to solve for x

```
disp('LUx = b; therefore, Ux = inv(L)*b, so the solution for x is: ')
x = backsub(cat(2,U,inv(L)*b));
disp('x = ')
disp(x)
```

```
LUx = b; therefore, Ux = inv(L)*b, so the solution for x is:
x =
    1.0000
    2.0000
    3.0000
    4.0000
    5.0000
    6.0000
    7.0000
    8.0000
```

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