```
An example of solving Ax = b, using Gaussian Elimination:


A = [2 0 -5; 1 2.2 -7; 3 9 12]

A =

    2.0000         0   -5.0000
    1.0000    2.2000   -7.0000
    3.0000    9.0000   12.0000

b = [1; 3; 2]

b =

     1
     3
     2

%solve for x, where x satisfies Ax=b
%will use Gaussian Jordan elimination
C = [ A,b]

C =

    2.0000         0   -5.0000    1.0000
    1.0000    2.2000   -7.0000    3.0000
    3.0000    9.0000   12.0000    2.0000

%eliminate C(2,1) and C(3,1) using the first row
C(2,:)=C(2,:)-C(2,1)/C(1,1)*C(1,:)

C =

    2.0000         0   -5.0000    1.0000
         0    2.2000   -4.5000    2.5000
    3.0000    9.0000   12.0000    2.0000

C(3,:)=C(3,:)-C(3,1)/C(1,1)*C(1,:)

C =

    2.0000         0   -5.0000    1.0000
         0    2.2000   -4.5000    2.5000
         0    9.0000   19.5000    0.5000

%Now eliminate C(3,2) using the second row
C(3,:)=C(3,:)-C(3,2)/C(2,2)*C(2,:)

C =

    2.0000         0   -5.0000    1.0000
         0    2.2000   -4.5000    2.5000
         0         0   37.9091   -9.7273

%Now eliminate C(1,3) and C(2,3) using the third row
C(1,:)=C(1,:)-C(1,3)/C(3,3)*C(3,:)

C =

    2.0000         0         0   -0.2830
         0    2.2000   -4.5000    2.5000
         0         0   37.9091   -9.7273

C(2,:)=C(2,:)-C(2,3)/C(3,3)*C(3,:)

C =

    2.0000         0         0   -0.2830
         0    2.2000         0    1.3453
         0         0   37.9091   -9.7273

%problem has been reduced to a diagonal system
x = zeros(3,1);
x(1)=C(1,4)/C(1,1);  x(2)=C(2,4)/C(2,2); x(3)=C(3,4)/C(3,3);
x

x =
```

```
   -0.1415
    0.6115
   -0.2566

A*x-b

ans =

   1.0e-15 *

         0
         0
   -0.8882

%Ax-b is numerically zero, so the problem is solved!!!!
diary off
```