```
% Q3


% a.
A = [1.01 0.99; 0.99 1.01];
b1 = [2; 2];
x = A\b1


% b.
A = [1.01 0.99; 0.99 1.01];
b2=[2.02;1.98];
x2 = A\b2


% c.
A = [1.01 0.99; 0.99 1.01];
b1 = [2; 2];
x = A\b1;
b2 = [2.02; 1.98];
x2 = A\b2;
fprintf('The condition number of the given Matrix is :');
kappa = cond(A)
fprintf('The upper bound on the possible change in x indicates changes
 in all of the significant digits :')
kappa*norm(b1 - b2)/norm(b1)
fprintf('The actual change in x resulting from this perturbation
 is :');
norm(x - x2)/norm(x)
fprintf('Relative Error in observation is :');
norm(b1 - b2)/norm(b1)


x =

    1.0000
    1.0000


x2 =

    2.0000
   -0.0000

The condition number of the given Matrix is :
kappa =

  100.0000

The upper bound on the possible change in x indicates changes in all
 of the significant digits :
ans =
```

```
    1.0000

The actual change in x resulting from this perturbation is :
ans =

    1.0000

Relative Error in observation is :
ans =

    0.0100
```

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