jacobi.m | gauss.m

```
%% Jacobi Method
%% Solution of x in Ax=b using Jacobi Method
% * _*Initailize 'A' 'b' & intial guess 'x'*_
%%

A=[ 5 -2 3 0; -3 9 1 -2; 2 -1 -7 1; 4 3 -5 7]
b=[-1 2 3 0.5]'
x=[0 0 0 0]'

A=[ 17 -2 -3;
    -5 21 -2;
    -5 -5 22]
b=[500 200 30]'
x=[0 0 0]'

n=size(x,1);
normVal=Inf;
%%
% * _*Tolerence for method*_
tol=1e-5; itr=0;
%% Algorithm: Jacobi Method
%%
while normVal>tol
    xold=x;

    for i=1:n
        sigma=0;

        for j=1:n

            if j~=i
                sigma=sigma+A(i,j)*x(j);
            end

        end

        x(i)=(1/A(i,i))*(b(i)-sigma);
    end

    itr=itr+1;
    normVal=abs(xold-x);
end
%%
fprintf('Solution of the system is : \n%f\n%f\n%f\n%f in %d
```

Command Window

```
                ELIMINACION GAUSSIANA SIMPLE (SOLUCION POR ETAPAS)


Ingrese la matriz A =
[1 , 2, 3 ;
3, 3, 4]

Ingrese el vector b, correspondiente a los terminos independientes b=
[2, 2;
2, 5]

La Matriz C, que corresponte a la matriz aumentada [Ab] es =
     1     2     3     2     2
     3     3     4     2     5


ERROR: La matriz NO es cuadrada



SOLUCION:


La matriz Ab final:
     1     2     3     2     2
     3     3     4     2     5


>> jacobi

A =

     5    -2     3     0
    -3     9     1    -2
     2    -1    -7     1
     4     3    -5     7


b =

  -1.000000000000000
   2.000000000000000
   3.000000000000000
   0.500000000000000


x =

     0
     0
     0
     0


A =

    17    -2    -3
    -5    21    -2
    -5    -5    22


b =

   500
   200
    30


x =

     0
     0
     0


Solution of the system is :
33.996312
18.892826
13.383895
8.000000 in
```