```
%% Gauss Seidel Method
%% Solution of x in Ax=b using Gauss Seidel 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]'

A= input('A =');
b= input('b = ');
x= input('x = ');

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

    for i=1:n

        sigma=0;

        for j=1:i-1
                sigma=sigma+A(i,j)*x(j);
        end

        for j=i+1:n
                sigma=sigma+A(i,j)*x_old(j);
        end

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

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