```
% demo_Gauss_Seidel.m

function [x, Iter] = Gauss_Seidel(A,b)

%INIT
n = length(b);

x = zeros(n,1);   %INITIAL VALUE
xnew = zeros(n,1);   % output x
iterLimit = 1000;
Iter = 1;
tol = 1e-6;

while Iter < iterLimit
  for i = 1 : n
    xnew(i) =(-A(i,1:i-1)*xnew(1:i-1)-A(i,i+1:n)*x(i+1:n)+b(i))/A(i,i);
  end
  if norm(xnew - x, inf) < tol
    break;
  end
  x = xnew;
  Iter = Iter+1;
end
Iter
end
```