**Jacobi Iterative Method**

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

b=[-1;2;3]

N=40

x=[1,1,1]

jacobi(A, b, N)

function jacobi(A, b, N)

test=all((2\*abs(diag(A)))- sum(abs(A),2)>=0);

if test==0

A([1 2],:) = A([2 1],:);

b([1 2]) = b([2 1]);

end

test=all((2\*abs(diag(A)))- sum(abs(A),2)>=0);

if test==0

A([2 1],:) = A([1 2],:);

b([2 1]) = b([1 2]);

A([1 3],:) = A([3 1],:);

b([1 3]) = b([3 1]);

disp("not a dominant vector")

end

disp(" dominant vector")

d=diag(A);

D=diag(d);

disp("Displaying the diagonal matrix")

disp(D)

D\_inv=inv(D);

disp("Displaying the inverse of diagonal matrix")

disp(D\_inv)

E=A-D;

disp("Displaying remainder matrix")

disp(E)

x=[1;1;1];

T=-D\_inv\*E;

C=D\_inv\*b;

for j=1:N

x=T\*x+C;

end

disp("Here are the result of the following matrix: ")

disp(x)

end

**OUTPUT**