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% Name : Sarthak Abhay PATIL
% Roll no. : TYMEB228
% Div. : B / B4

%INPUT
n = input('Enter the no. of the Equation= ');
for i=1:1:n
    for j=1:1:n
        a(i,j)= input('Enter the value of a(i,j)= ');
    end
    b(i)= input('Enter the value of b(i)= ');
end
for i=1:1:n-1
    max= abs(a(i,i));
    Rn=i;

    for k=i+1:1:n
        if max<abs(a(k,i))
            max= abs(a(k,i));
            Rn= k;
        end
    end
    if Rn~=i
        for j=1:1:n
            temp = a(i,j);
            a(i,j) = a(Rn,j);
            a(Rn,j)= temp;
        end
        temp = b(i);
        b(i) = b(Rn);
        b(Rn)= temp;
    end
end
Acc = input('Enter the value of Accuracy= ');
err = 1;
xold = zeros(n,1);
xnew = zeros(n,1);

while err>Acc
    for i=1:1:n
        xold(i)=xnew(i);
    end
    for i=1:1:n
        term = b(i);
        for j= 1:1:n
            if j~=i
                if j>i
                    term = term-a(i,j)*xold(j);
                else
                    term = term-a(i,j)*xnew(j);
                end
            end
        end
    end
end
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        end
    end
    xnew(i) = (term/a(i,i));
    e(i)= abs(xnew(i)-xold(i));
end

err = e(1);
for i=2:1:n
    if err<e(i)
        err=e(i);
    end
end
end
for i=1:1:n
    fprintf('xnew(i)=%f',xnew(i))
end
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%OUTPUT

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Enter the no. of the Equation= 3
Enter the value of a(i,j)= 1
Enter the value of a(i,j)= 20
Enter the value of a(i,j)= 9
Enter the value of b(i)= -23
Enter the value of a(i,j)= 2
Enter the value of a(i,j)= -7
Enter the value of a(i,j)= -20
Enter the value of b(i)= -57
Enter the value of a(i,j)= 20
Enter the value of a(i,j)= 2
Enter the value of a(i,j)= 6
Enter the value of b(i)= 28
Enter the value of Accuracy= 0.001
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xnew(i)=0.514832xnew(i)=-2.945151xnew(i)=3.932286>>
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