%circular convolution

clc;

clear;

close all;

x1 = input('Enter the first sequence: ');

x2 = input('Enter the second sequence: ');

N = max(length(x1), length(x2));

x1 = [x1, zeros(1, N - length(x1))];

x2 = [x2, zeros(1, N - length(x2))];

x3 = zeros(1, N);

for m = 0:N-1

for n = 0:N-1

j = mod(m - n, N);

x3(m+1) = x3(m+1) + x1(n+1) \* x2(j+1);

end

end

y = cconv(x1, x2, N);

figure;

subplot(4, 1, 1);

stem(x1, 'filled');

title('First Input Sequence');

xlabel('Samples');

ylabel('Amplitude');

subplot(4, 1, 2);

stem(x2, 'filled');

title('Second Input Sequence');

xlabel('Samples');

ylabel('Amplitude');

subplot(4, 1, 3);

stem(x3, 'filled');

title('Circular Convolution (Manual)');

xlabel('Samples');

ylabel('Amplitude');

subplot(4, 1, 4);

stem(y, 'filled');

title('Circular Convolution (Inbuilt Function)');

xlabel('Samples');

ylabel('Amplitude')