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1 //To perform Convolution on given sequences
2 // 1) Linear Convolution using inbuilt function
3 clc ;
4 close;
5 clear;
6 ieee(1);
7 a = input('Enter starting point of x[n]: ');
8 b = input('Enter starting point of y[n]: ');
9 x = input('First sequence: ');
10 h = input('Second Sequence: ');
11 z = conv(x,h);
12 m = length(x);
13 n = length(h);
14 nx = a:(a+m-1);
15 nh = b:(b+n-1);
16 nz = a+b:length(z)+a+b-1;
17 scf(0);
18 plot2d3('gnn',nx,x,2);
19 f = gca();
20 f.x_location = "origin";//get current axes
21 f.y_location = "origin";//to change reference axis
22 title('First Sequence','fontsize',3);
23 xlabel("Discrete Time, n","fontsize",2);
24 ylabel("x[n]","fontsize",2);
25 scf(1);
26 plot2d3(nh,h,2);
27 f = gca();
28 f.x_location = "origin";
29 f.y_location = "origin"
30 title('Second Sequence','fontsize',3);
31 xlabel("Discrete Time, n","fontsize",2);
32 ylabel("h[n]","fontsize",2);
33 scf(2);
34 plot2d3('gnn',nz,z,3);
35 f = gca();
36 f.x_location = "origin";
37 f.y_location = "origin"
38 title('Convolution Sequence','fontsize',3);
39 xlabel('Discrete Time, n','fontsize',2);
40 ylabel('z[n]','fontsize',2);
41 disp("Convolution Sum = ",z);
42 // 2) Linear Convolution using Convolution Sum formula
43 for i = 1 : n + m - 1
44     conv_sum = 0;
45     for j = 1 : i
46         if ((i - j + 1) <= n) & (j <= m))
47             conv_sum = conv_sum + x(j) * h(i - j + 1);
48         end;
49         Z(1,i) = conv_sum;
50     end;
51 end;
52 disp('Convolution Sum using Direct Formula = ',Z)
53
54
55
56

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