# DSP Lab – Experiment 4 – Output

## Linear Convolution

```
1  // Linear Convolution - DSP Lab - Experime
   nt 4 - RA2011004010051 - Kunal Keshan
2  clc;
3  clf;
4  clear all;
5  x = input("Enter the first Sequence: ");
6  h = input("Enter the second sequence: ");
7  disp(conv(x, h), "Convolution = ");
8  y = conv(x, h);
9
```

Scilab 6.1.1 Console

```
Enter the first Sequence: [1 2 3 4 5 6 7 8]

Enter the second sequence: [5 4 5 2 1]

    column 1 to 7

5.   14.   28.   44.   61.   78.   95.

    column 8 to 12

112.   84.   60.   23.   8.


"Convolution = "

-->
```

# Circular Convolution Using Concentric Circle Method

```
1   // Circular Convolution -- DSP Lab - Experiment 4 -- RA2011004010051 -- Kunal Kes
2   clc;
3   clf;
4   clear all;
5   g=input("Enter the first sequence:");
6   h=input("Enter the second sequence:");
7   N1=length(g);
8   N2=length(h);
9   N=max(N1,N2);
10  N3=N1-N2;
11  if(N3>=0)then
12      h=[h, zeros(1,N3)];
13  else
14      g=[g, zeros(1,-N3)];
15  end
16  for n=1:N
17      y(n)=0;
18      for i=1:N
19          j=n-i+1;
20          if(j<=0)
21              j=N+j
22          end
23          y(n)=y(n)+g(i)*h(j);
24      end
25  end
26  disp('sequence y:=');
27  disp(y);
28  plot2d3(y);
```

```
Enter the first sequence: [2 1 2 1]

Enter the second sequence: [1 2 3 4]

"sequence y ="

        column 1 to 7

14.    16.    14.    16.    61.    78.    95.

        column 8 to 12

112.   84.    60.    23.    8.

-->
```

# Circular Convolution Using DFT Computation
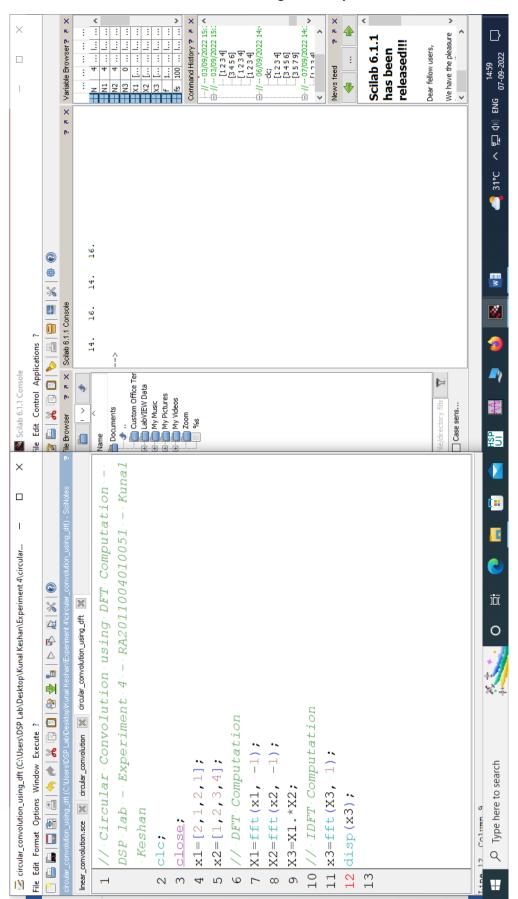
```
1   // Circular Convolution using DFT Computation -
    DSP lab - Experiment 4 - RA2011004010051 - Kunal
    Keshan
2   clc;
3   close;
4   x1=[2,1,2,1];
5   x2=[1,2,3,4];
6   // DFT Computation
7   X1=fft(x1,-1);
8   X2=fft(x2,-1);
9   X3=X1.*X2;
10  // IDFT Computation
11  x3=fft(X3,1);
12  disp(x3);
13
```

Console output:

```
    14.    16.    14.    16.

-->
```

**Post Lab**



Scilab 6.1.1 Console

Enter the first Sequence: [3, -1, 0, 1, 3, 2, 0, 1, 2, 1]

Enter the second sequence: [1, 1, 1]

```
        column 1 to 11
  3.   2.   2.   0.   4.   6.   5.   3.   3.   4.   3.
        column 12
  1.
```

"Convolution = "

-->



Scilab 6.1.1 Console

Enter the first Sequence: [3, 2, 1, 2]

Enter the second sequence: [1, 2, 1, 2]

```
  3.   8.   8.   12.   9.   4.   4.
```

"Convolution = "

-->

Enter the first sequence: [3, 2, 1, 2]

Enter the second sequence: [1, 2, 3, 1]


   "sequence y ="

   12.    15.    16.    13.    9.    4.    4.

-->