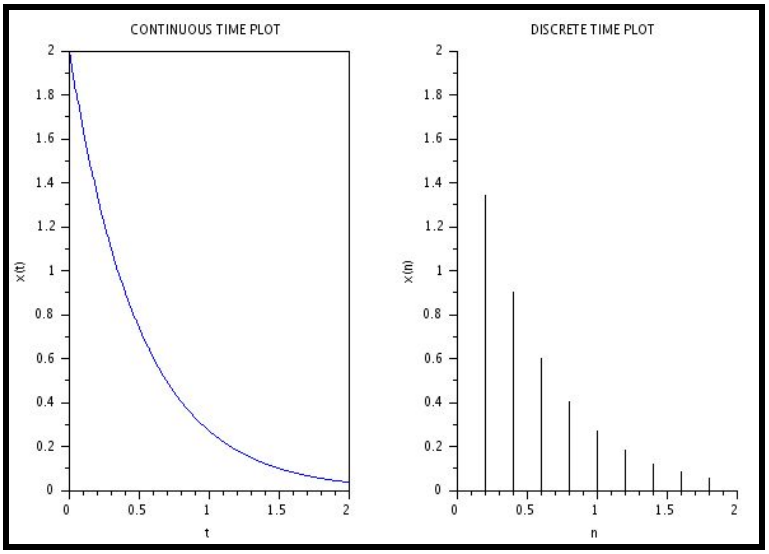
Exp 1: Sampling and Reconstruction of signal

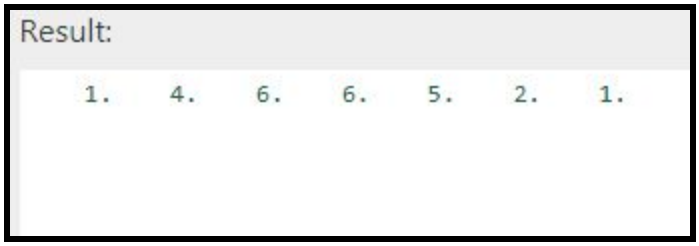
```
clear; // Remove clear, clc from code if you want to access existing stored variable from the memory
//Example 1.1
//Sketch the continuous time signal x(t)=2*exp(-2t) and also its discrete time equivalent signal with a sampling period T = 0.2sec
clear;
clc ;
close ;
t=0:0.01:2;
x1=2*exp(-2*t);
subplot(1,2,1);
plot(t,x1);
xlabel('t');
ylabel('x(t)');
title('CONTINUOUS TIME PLOT');
n=0:0.2:2;
x2=2*exp(-2*n);
subplot(1,2,2);
plot2d3(n,x2);
xlabel('n');
ylabel('x(n)');
title('DISCRETE TIME PLOT');
```



Exp 2: Cross-correlation

clear; // Remove clear, clc from code if you want to access existing stored variable from the memory

```
//Example 1.18
//Program to Compute Cross-correlation  of given sequences
//x(n)=[1 2 1 1], h(n)=[1 1 2 1];
clear;
clc ;
close ;
x=[1 2 1 1];
h=[1 1 2 1];
h1=[1 2 1 1];
y=convol(x,h1);
disp(round(y));
```



Exp 4: DISCRETE FOURIER TRANSFORM (8 point DFT)

```
clear; // Remove clear, clc from code if you want to access existing stored variable from the memory

//Example 3.3
//Program to Compute the 8-point DFT of the Sequence x[n]=[1,1,1,1,1,1,0,0]
clear;
clc ;
close ;
x = [1,1,1,1,1,1,0,0];
//DFT Computation
X = fft (x , -1);
//Display sequence X[k] in command window
disp(X,"X[k]=");
```

Result:

```
X[k]=
        column 1 to 5
   6.  - 0.7071068 - 1.7071068i    1. - i      0.7071068 + 0.2928932i    0
        column 6 to 8
   0.7071068 - 0.2928932i    1. + i    - 0.7071068 + 1.7071068i
```

Exp 3: Circular Convolution

clear; // Remove clear, clc from code if you want to access existing stored variable from the memory

```
//Example 3.16
//Program to Compute circular convolution of following sequences
//x1[n]=[1,1,2,1]
//x2[n]=[1,2,3,4]
clear;
clc ;
close ;
x1=[1,1,2,1];
x2=[1,2,3,4];
//DFT Computation
X1=fft(x1,-1);
X2=fft(x2,-1);
X3=X1.*X2;
//IDFT Computation
x3=fft(X3,1);
//Display sequence x3[n] in command window
disp(x3,"x3[n]=");
```

Result:

```
 x3[n]=
    13.    14.    11.    12.
```

Exp 5: FAST FOURIER TRANSFORM (8 point DFT)

```
clear; // Remove clear, clc from code if you want to access existing stored variable from the memory

//Example 4.24
//Program to Compute the 8-point DFT of given Sequence
//x[n]=[0,1,2,3,4,5,6,7] using DIF, radix-2,FFT Algorithm.
clear;
clc ;
close ;
x = [0,1,2,3,4,5,6,7];
//FFT Computation
X = fft (x , -1);
disp(X,'X(z) = ');
```

Result:

```
 X(z) =
         column 1 to 5
    28.  - 4. + 9.6568542i  - 4. + 4.i  - 4. + 1.6568542i  - 4.
         column 6 to 8
  - 4. - 1.6568542i  - 4. - 4.i  - 4. - 9.6568542i
```