

```

%                               Experiment No-3
%                               Basic Operations on
Signals and sequences

clc;
clear all;
close all;
t=0:.01:1;
% generating two input signals
x1=sin(2*pi*4*t);
x2=sin(2*pi*8*t);
subplot(2,2,1);
plot(t,x1);
axis([0 1 -2 2]);
xlabel('time');
ylabel('amplitude');
title('signal1:sine wave of frequency
4Hz');

subplot(2,2,2);
plot(t,x2);
axis([0 1 -2 2]);
xlabel('time');
ylabel('amplitude');
title('signal2:sine wave of frequency
8Hz');

% addition of signals
y1=x1+x2;
subplot(2,2,3);
plot(t,y1);
axis([0 1 -2 2]);

```

```

xlabel('time');
ylabel('amplitude');
title('resultant signal:signal1+signal2');

% multiplication of signals
y2=x1.*x2;
subplot(2,2,4);
plot(t,y2);
axis([0 1 -2 2]);
xlabel('time');
ylabel('amplitude');
title('Element wise multiplication of
signal1 and signal2');
figure;

% amplitude scaling of a signal1
A=4;
y3=A*x1;
subplot(2,2,1);
plot(t,x1);
axis([0 1 -2 2]);
xlabel('time');
ylabel('amplitude');
title('sine wave of frequency 4Hz')
subplot(2,2,2);
plot(t,y3);
axis([0 1 -5 5]);
xlabel('time');
ylabel('amplitude');
title('amplified input signal1 ');
A=0.5;
y4=A*x1;

```

```
subplot(2,2,3);  
plot(t,y4);  
axis([0 1 -5 5]);  
xlabel('time');  
ylabel('amplitude');  
title('attenuated input signal1 ');
```

```
% folding of a signal1  
y5=fliplr(x1);  
nt=-fliplr(t);  
subplot(2,2,4);  
plot(nt,y5);  
axis([-1 1 -2 2]);  
xlabel('nt');  
ylabel('amplitude');  
title('folded signal');
```

```
%shifting of a signal  
figure;  
t1=-5:.01:5;  
x3=sinc(t1);  
subplot(3,1,1);  
plot(t1,x3);  
axis([-6 6 -1.5 1.5]);  
xlabel('time t1');  
ylabel('amplitude');  
title('sinc function');
```

```
subplot(3,1,2);  
y6=sinc(t1-3);  
plot(t1,y6);  
axis([-6 6 -1.5 1.5]);
```

```

xlabel('Time');
ylabel('amplitude');
title('right shifted signal');
subplot(3,1,3);
y7=sinc(t1+3);
plot(t1,y7);
axis([-6 6 -1.5 1.5]);
xlabel('Time');
ylabel('amplitude');
title('left shifted signal');
figure;

```

```

% time scaling of a signal1
x4 = sin(2*pi*4*t);
subplot(3,1,1)
plot(x4);
xlabel(' Time');
ylabel(' Amplitude');
title('Input Signal');

```

```

a = 2;
x5= sin(2*pi*4*a*t);
subplot(3,1,2);
plot(x5);
xlabel('Time');
ylabel('Amplitude');
title('Scaled signal');

```

```

b = 0.5;
x6= sin(2*pi*4*b*t);
subplot(3,1,3);
plot(x6);

```

```
xlabel('Time');  
ylabel('Amplitude');  
title('Scaled Signal');
```