%Experiment No-6

%Auto correlation and Cross correlation

```matlab
clc;
close all;
clear all;
% two input sequences
x=input('enter first sequence');
y=input('enter second  sequence');
subplot(2,2,1);
stem(x);
xlabel('n');
ylabel('x(n)');
title('first sequence');
subplot(2,2,2);
stem(y);
xlabel('n');
ylabel('y(n)');
title('second sequence');
% cross correlation between two sequences
z=xcorr(x,y);
subplot(2,2,3);
stem(z);
```

```matlab
xlabel('n');
ylabel('z(n)');
title(' cross correlation between two sequences ');
% auto correlation of input sequence
z1=xcorr(x,x);
subplot(2,2,4);
stem(z1);
xlabel('n');
ylabel('z(n)');
title('auto correlation of input sequence');
% cross correlation between two signals
% generating two input signals
t=0:0.2:10;
x1=3*exp(-2*t);
y1=exp(t);
figure;
subplot(2,2,1);
plot(t,x1);
xlabel('t');
ylabel('x1(t)');
title('first signal');
subplot(2,2,2);
```

```matlab
plot(t,y1);
xlabel('t');
ylabel('y1(t)');
title('second signal');
% cross correlation
subplot(2,2,3);
z2=xcorr(x1,y1);
plot(z2);
xlabel('t');
ylabel('z2(t)');
title('cross correlation ');
% auto correlation
subplot(2,2,4);
z3=xcorr(x1,x1);
plot(z3);
xlabel('t');
ylabel('z3(t)');
title('auto correlation ');
```