

Time Division Multiplexing

```
clc;
close all;
clear all;
% Signal generation
x=0:.5:4*pi;                    % signal taken upto 4pi
sig1=8*sin(x);                 % generate 1st sinusoidal signal
l=length(sig1);
sig2=8*triang(l);              % Generate 2nd triangular Signal

% Display of Both Signal
subplot(2,2,1);
plot(sig1);
title('Sinusoidal Signal');
ylabel('Amplitude--->');
xlabel('Time--->');
subplot(2,2,2);
plot(sig2);
title('Triangular Signal');
ylabel('Amplitude--->');
xlabel('Time--->');

% Display of Both Sampled Signal
subplot(2,2,3);
stem(sig1);
title('Sampled Sinusoidal Signal');
ylabel('Amplitude--->');
xlabel('Time--->');
subplot(2,2,4);
stem(sig2);
title('Sampled Triangular Signal');
ylabel('Amplitude--->');
xlabel('Time--->');
l1=length(sig1);
l2=length(sig2);
for i=1:l1
    sig(1,i)=sig1(i);          % Making Both row vector to a
matrix
    sig(2,i)=sig2(i);
end

% TDM of both quantize signal
tdmsig=reshape(sig,1,2*l1)
% Display of TDM Signal
figure
stem(tdmsig);
title('TDM Signal');
ylabel('Amplitude--->');
xlabel('Time--->');

% Demultiplexing of TDM Signal
demux=reshape(tdmsig,2,l1);
for i=1:l1
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```
sig3(i)=demux(1,i); % Converting The matrix into row
vectors
sig4(i)=demux(2,i);
end

% display of demultiplexed signal
figure
subplot(2,1,1)
plot(sig3);
title('Recovered Sinusoidal Signal');
ylabel('Amplitude--->');
xlabel('Time--->');
subplot(2,1,2)
plot(sig4);
title('Recovered Triangular Signal');
ylabel('Amplitude--->');
xlabel('Time--->');
```