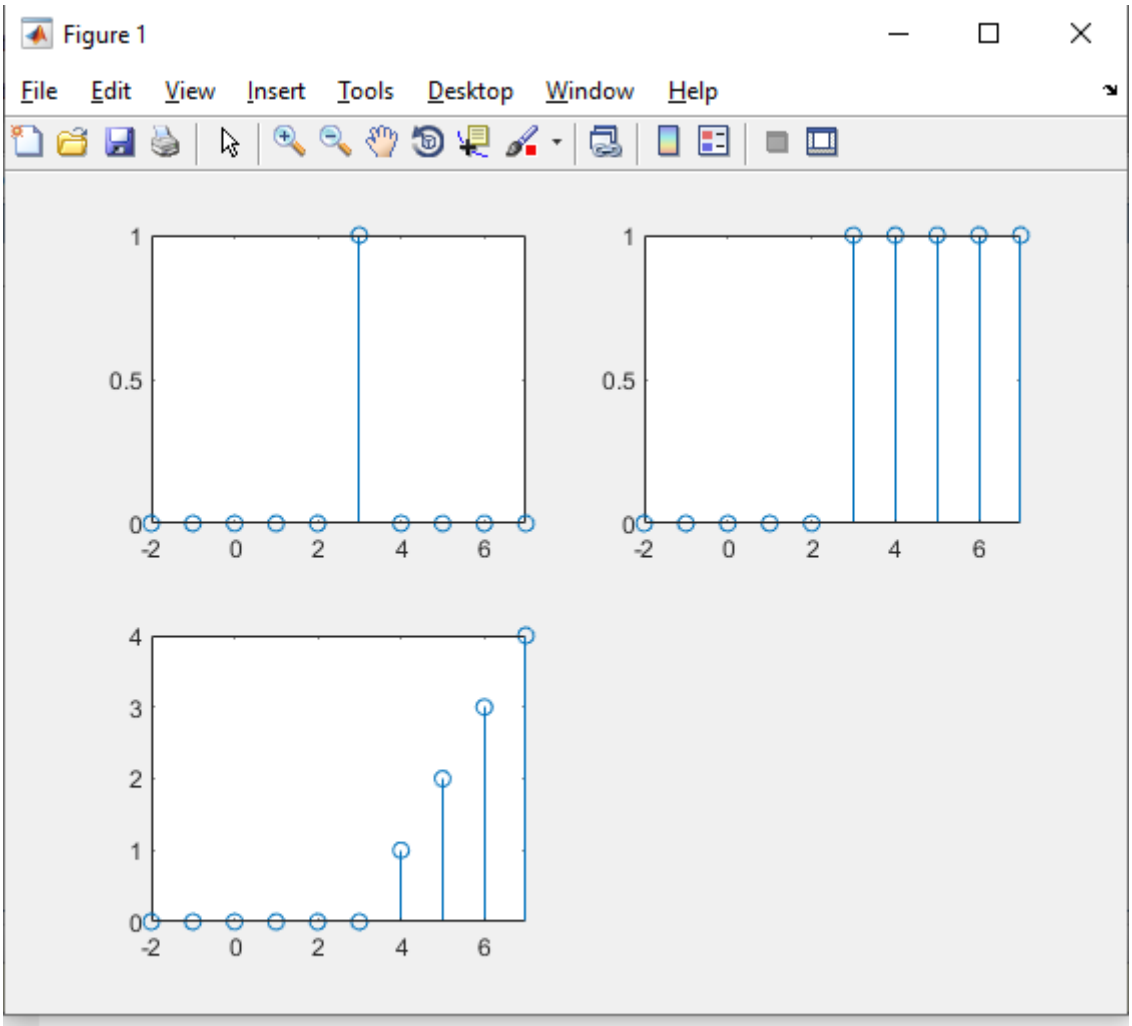
Lab-2

Experiment 1-B

Write a MATLAB program for generation of DT unit impulse, step, and ramp sequence for a given initial time, final time and start of sequence.

```
clc;
clear;
close all;

n1 = input('Enter alue of n1 : ');
n2 = input('Enter alue of n2 : ');
n0 = input('Enter alue of n0 : ');

range = n2 - n1;
x = n1:n2;
unit_impulse = [zeros(1,abs(n0-n1)) ones(1,1) zeros(1,n2-n0)];

figure(1);
subplot(2,2,1);
stem(x,unit_impulse);

unit_step = [zeros(1,abs(n0-n1)) ones(1,n2-n0+1)];
subplot(2,2,2);
stem(x,unit_step);

ramp = [zeros(1,abs(n0-n1)) 0:n2-n0];
subplot(2,2,3);
stem(x,ramp);
```




```
Enter alue of n1 : -2
Enter alue of n2 : 7
Enter alue of n0 : 3
```

Experiment 1-C

Write a MATLAB program for generation of an audio tone with given amplitude, frequency, phase,

sampling frequency and length of the sequence. Store it in .wav file with given sampling frequency and BitsPerSample, read back and play the audio file.

```
clc;
clear all;
close all;
ampl = input('Enter sin Wave amplitude :');
freq  = input('Enter sin Wave Frequency(Hz) :');
phase  = input('Enter sin Wave Phase in radian(ex: pi/2 ):');
sam_freq = input('Enter sin Wave Sampling frequency(samples par sec) :');
length_of_secquence = input('Enter sin Wave length of the sequence :');
f = freq/sam_freq;
n = 0:1:length_of_secquence-1;
y_n = ampl*sin(2*pi*f*n+phase);
```

```
audiowrite('exp1c.wav',y_n,sam_freq,'Bitspersample',16);
a = audioread('exp1c.wav');
p = audioplayer(a,sam_freq);
play(p);
```

Generated wav file