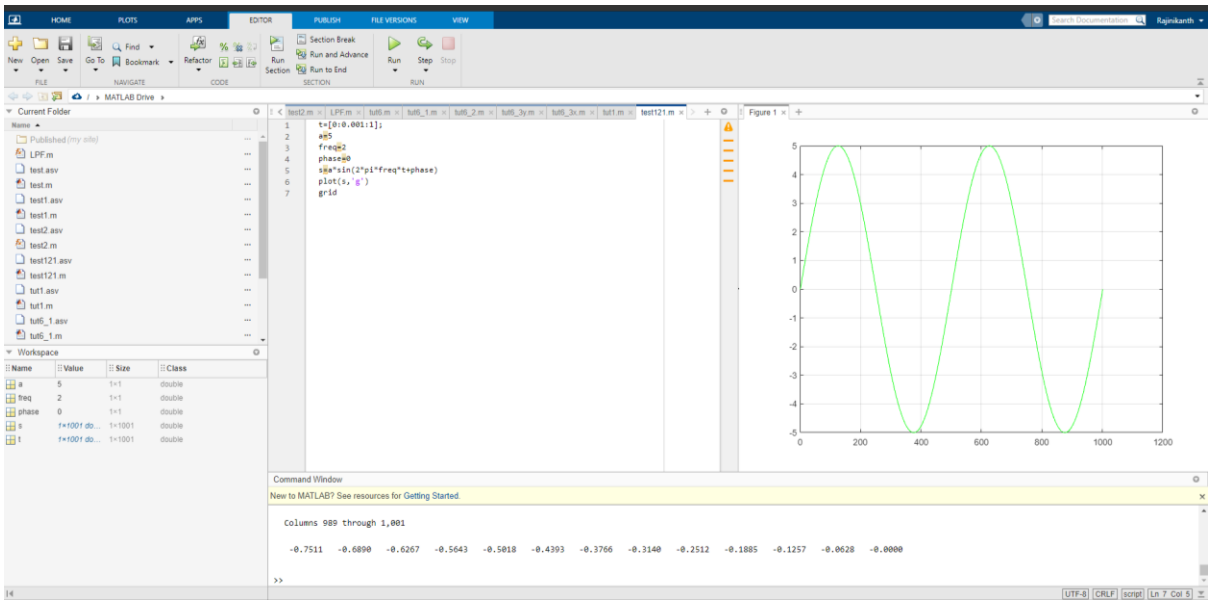
TUTORIAL-1

In-TUTORIAL:

1. Write a MATLAB program to generate a signal, $s = 5\sin(10\pi t)$ having duration of 1 sec.
   (a) Plot the signal in the MATLAB figure window
   (b) Write the MATLAB program to generate, $s = 5\sin(10\pi t + \pi/3)$
   (c) Plot the signals in the signals in the MATLAB figure window

   Code:

```
t=[0:0.001:1];
a=5
freq=2
phase=0
s=a*sin(2*pi*freq*t+phase)
plot(s,'g')
grid
```

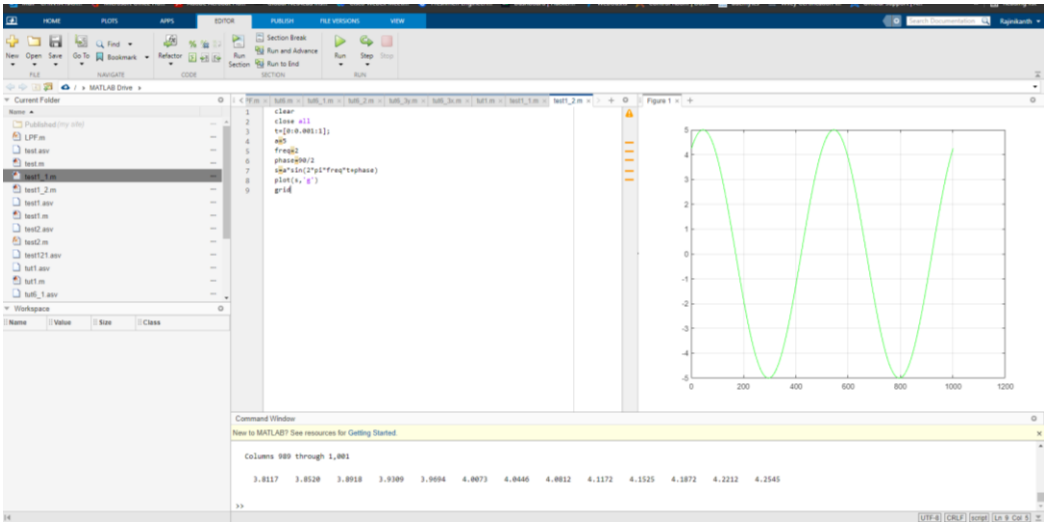


2. Write a MATLAB program to generate a signal, $s = 5\sin(10\pi t)$

(a) Write MATLAB program to normalize the signal to the amplitude range (-1 +1)

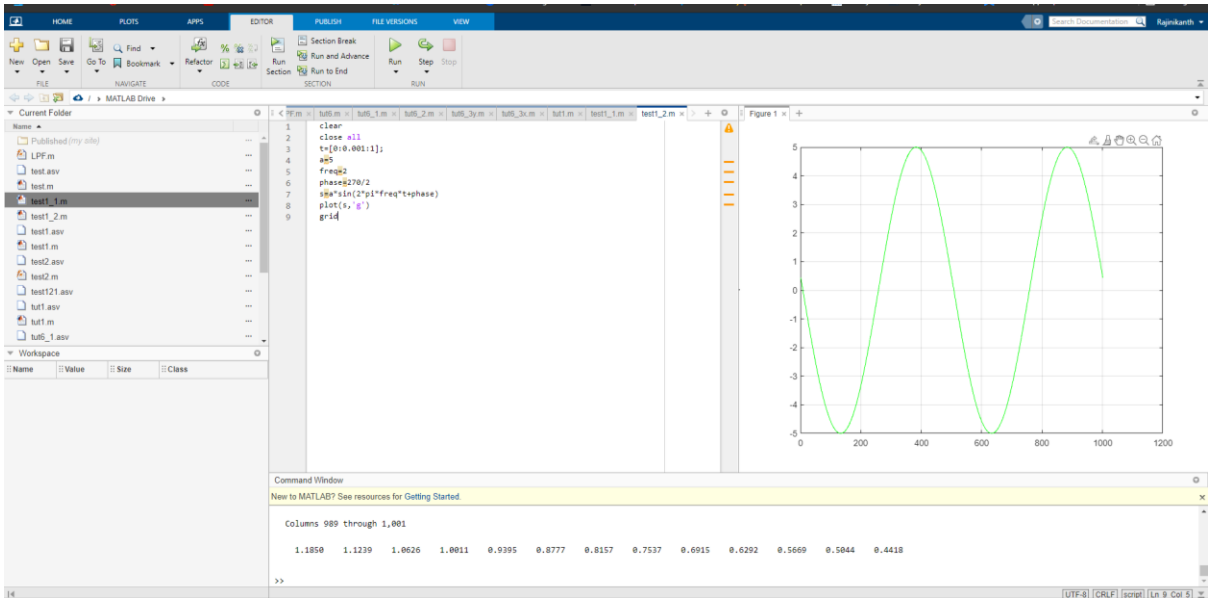
(b) Plot the signal before normalization and after normalization in a single figure window using different colors

```
clear
    close all
    t=[0:0.001:1];
    a=5
    freq=2
    phase=90/2
    s=a*sin(2*pi*freq*t+phase)
    plot(s,'g')
    grid
```



```
    clear
    close all
    t=[0:0.001:1];
    a=5
    freq=2
    phase=270/2


    s=a*sin(2*pi*freq*t+phase)
    plot(s,'g')
    grid
```



Post-TUTORIAL:

1. Write a MATLAB program to read a speech file in '.wav' format
   (a) Plot the signal
   (b) Normalize the signal in the amplitude range (-1,1)
   (c) Plot the normalized speech signal in a MATLAB figure window

```
 input=zeros(1,1600);
input1=zeros(1,1600);
input2=zeros(1,1600);
for i=1:32:1600
input(i)=1;
end
for i=1:64:1600
input1(i)=1;
end
for i=1:128:1600
input2(i)=1;
end
b=[1];
a=[1,-3.2892,5.4471,-5.9843,4.8318,-2.66040,0.7669];
y=filter(b,a,input);
y1=filter(b,a,input1);
y2=filter(b,a,input2);
%pause;
```

```
%sound(y1);
%pause;
%sound(y1);
subplot(321),stem(input(1:320)),subplot(322),plot(y(1:320));
subplot(323),stem(input1(1:320)),subplot(324),plot(y1(1:320));
subplot(325),stem(input2(1:320)),subplot(326),plot(y2(1:320));
y=y./(1.1+max(abs(y)));
audiowrite('y.wav', y, 16000);
y1=y1./(1.1+max(abs(y1)));
audiowrite('y1.wav',y1,16000);
y2=y2./(1.1+max(abs(y2)));
audiowrite('y2.wav',y2,16000);
```