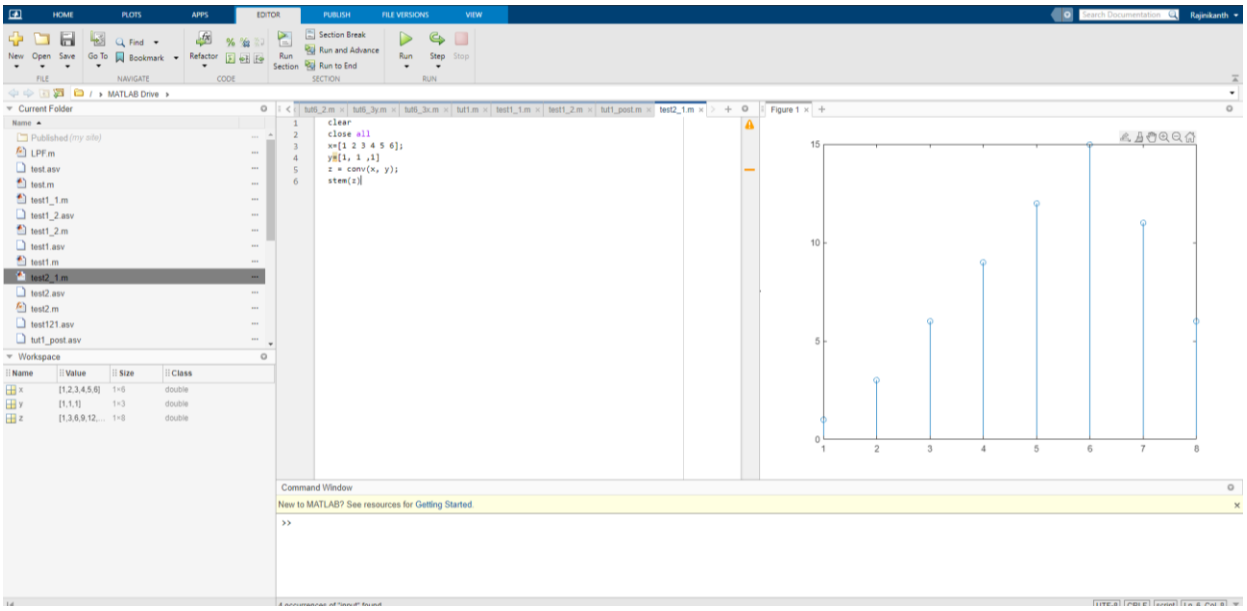
TUTORIAL-2

In-TUTORIAL:

1. Write a MATLAB program to compute the convolution of the following sequences x=[1 2 3 4 5 6], y=[1, 1 ,1].
   (a) Plot the signal x and y using stem plots as two subplots in a single figure window
   (b) Plot t the convolved sequence in a separate figure window

clear

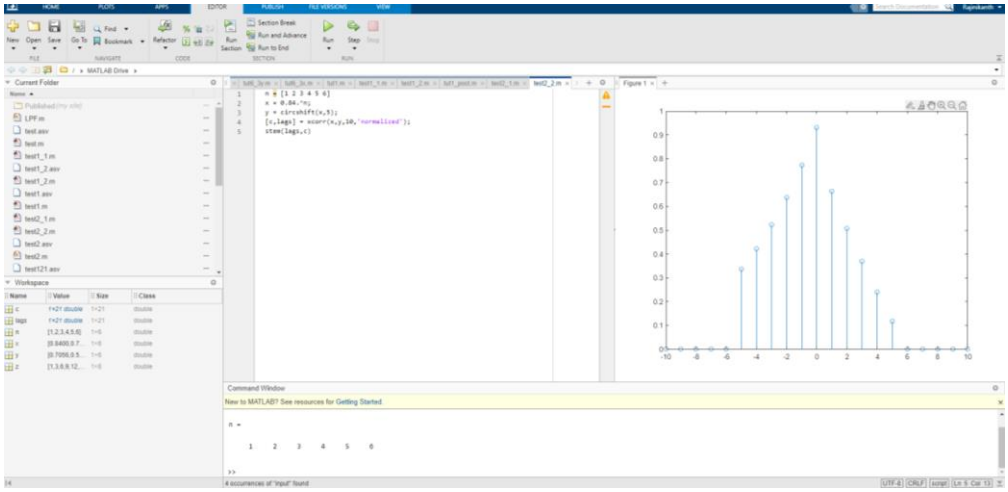
```
close all
x=[1 2 3 4 5 6];
y=[1, 1 ,1]
z = conv(x, y);
stem(z)
```



2. Write a MATLAB program to compute the autocorrelation of the following sequence x=[1 2 3 4 5 6]
   (a) Plot the signal x and y using stem plots as two subplots in a single figure window (Note : Do not use built in function 'xcorr' in MATLAB)

(b) Plot the convolved sequence in a separate figure window

```
n = [1 2 3 4 5 6]
x = 0.84.^n;
y = circshift(x,5);
[c,lags] = xcorr(x,y,10,'normalized');
stem(lags,c)
```



Post-TUTORIAL:

1. Write a MATLAB program to read a speech file in '.wav' format
   (a) Plot the signal
   (b) Convolve the signal using sequence 1/3 [1,1,1]
   (c) Plot the convolved speech signal in a MATLAB figure window
   (d) Write the inferences on the convolved output

```
clc; % Clear the command window.
close all; % Close all figures (except those of imtool.)
imtool close all; % Close all imtool figures.
clear; % Erase all existing variables.
workspace; % Make sure the workspace panel is showing.
fontSize = 24;
fullFileName = 'C:\Users\Rajinikanth\OneDrive\Desktop\f1.wav';
if exist(fullFileName, 'file')
[s1,f,b]=audioread(fullFileName);
subplot(2,1,1);
```

```
plot(s1);
grid on;
title('Original Signal', 'FontSize', fontSize);
windowSize = 201; % or whatever.
s1_filtered = conv(s1, ones(1, windowSize ) / windowSize );
subplot(2,1,2);
plot(s1_filtered);
grid on;
title('Filtered Signal', 'FontSize', fontSize);
% Enlarge figure to full screen.
set(gcf, 'units','normalized','outerposition',[0 0 1 1]); % Maximize figure.
set(gcf,'name','Demo by ImageAnalyst','numbertitle','off')
else
message = sprintf('File found:\n%s', fullFileName);
uiwait(warndlg(message));
end
```