

# ASSIGNMENT 2

AIM 1:-Write a program to find mean, standard deviation, variance.

Code:-

```
h1=imread('tvr.tif');
h=im2double(h1);
sz=size(h);
sum=0;
v1=0;
v2=0;
for i=1:sz(1)
    for j=1:sz(2)
        sum=sum+h(i,j);
    end
end
mn=sum/(sz(1)*sz(2));
disp('Mean is::');
disp(mn);
for i=1:sz(1)
    for j=1:sz(2)
        v1=h(i,j)-mn;
        v2=v2+v1;
    end
end
varn=v2/((sz(1)*sz(2))-1);
disp('Variance is::');
disp(varn);
disp('Standard Deviation is::');
disp(sqrt(double(varn)));
```

## Output:-



```
Command Window
>> assignment21
Mean is::
    0.4438

Variance is::
   -1.1605e-14

Standard Deviation is::
    0.0000e+00 + 1.0773e-07i

fx >>
```

AIM 2:-Write a program which contains following functionalities.

- 1)Read Logical, Gray scale and Color image by selecting options 1,2 and 3.
- 2)Convert image into binary, grayscale image (if possible)
- 3)Separate r, g, b plane from color image and display it (if possible)

Code:-

```
% Read  grayscale, color images

clear all;
clc;
close all;

t1=imread('lena.jpg'); %Original img
max=0;
countz=0;
count1=0;
grayc=0;
colorc=0;
num=input('PRESS 1:LOGICAL 2:GRAYSCALE 3:COLORED::');
sz=size(t1);
disp(ndims(t1))

if ndims(t1)==3
    colorc=colorc+1;

elseif ndims(t1)==2
    for i=1:sz(1)
        for j=1:sz(2)
            if t1(i,j)>1 & t1(i,j)<=255
                grayc=grayc+1;
            end
        end
    end
end

if num==3
    if colorc>0
```

```

        subplot(2,2,1)

        imshow(t1);
        t2=rgb2gray(t1);
        subplot(2,2,2)
        imshow(t2);
        t3=im2bw(t1);
        subplot(2,2,3)
        imshow(t3);
        title('ALL CONVERSIONS ARE POSSIBLE.')
    elseif (colorc==0) & (grayc>0)

        subplot(2,2,1)
        imshow(t1);
        t3=im2bw(t1);
        subplot(2,2,2)
        imshow(t3);
        title('HERE SELECTED IMAGE IS GRAYSCALE SO ONLY BINARY IS
POSSIBLE.')
    elseif (colorc==0) & (grayc==0)
        subplot(2,2,1)
        imshow(t1);
    end
elseif num==2
    if colorc>0
        disp('INVALID IMAGE')
    elseif (colorc==0) & (grayc>0)
        subplot(2,2,1)
        imshow(t1);
        t3=im2bw(t1);
        subplot(2,2,2)
        imshow(t3);

        title('HERE SELECTED IMAGE IS GRAYSCALE SO ONLY BINARY IS
POSSIBLE.')
    elseif (colorc==0) & (grayc==0)
        subplot(2,2,1)
        imshow(t1);
    end
elseif num==1
    if colorc>0
        disp('INVALID IMAGE')
    elseif (colorc==0) & (grayc>0)
        disp('INVALID IMAGE')
    elseif (colorc==0) & (grayc==0)
        subplot(2,2,1)
        imshow(t1);

```

```
        title('HERE SELECTED IMAGE IS BINARY SO NO HIGHER  
CONVERSIONS ARE POSSIBLE.')  
    end
```

```
end
```

```
a=imread('898.jpg');  
[r c d] = size(a);  
red= a(:,:,1);  
green = a(:,:,2);  
blue = a(:,:,3);  
plane = zeros(r,c);  
R = cat(3,red,plane,plane);  
G = cat(3,plane,green,plane);  
B = cat(3,plane,plane,blue);  
subplot(2,2,1)  
imshow(a);  
subplot(2,2,2)  
imshow(R);  
subplot(2,2,3)  
imshow(G);  
subplot(2,2,4)  
imshow(B);
```

Output:-



