SONA COLLEGE OF TECHNOLOGY

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Name :

Branch :

Semester :

Register No. :

Certified that this is the Bona-fide Record of work done by the above Student in .....

during the year

Lab- in - charge. *Head of the Department.*

Submitted for the University Practical Examination held on.....

Internal Examiner. External Examiner.

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Program:

```
clc;
clear all;
close all;
a= imread('rose.jpg');
subplot(3,2,1), imshow(a), title ('original image');
subplot(3,2,2), imshow(grayslice(a,128),gray(128));
title ('image with 128 gray level');
subplot(3,2,3), imshow(grayslice(a, 64), gray(64));
title ('Image with 64 gray level');
subplot(3,2,4), imshow(grayslice(a,32),gray(32));
title('Image with 32 gray level');
subplot(3,2,5), imshow(grayslice(a,16), gray(16));
title('Image with 16 gray level');
subplot(3,2,6), imshow(grayslice(a,8), gray(8));
title('Image with 8 gray level');
```

Date: Exp.No:01	Demonstrating False Contour Effect	Page.No:

Aim:

To write MATLAB program to Demonstrating False Contour Effect

Apparatus Required:

MATLAB R2022a

Output:

Result:

The MATLAB Program for Demonstrating False Contour Effect has successfully verified.

Program:

```
clc ;
clear all;
close all;
a = imread ('tree.jpg');
[m n]=size(a);
for i =1:m,
for j =1:n,
b7 (i,j)=bitand(a(i,j),128);
end
end
for i =1:m,
for j =1:n ,
end
end
b6 (i,j)= bitand(a(i,j),64 );
for i =1:m,
for j =1:n,
b5 (i,j)=bitand(a(i,j),32 );
end
end
for i =1:m,
for j =1:n,
b4 (i,j)=bitand(a(i,j),16 ) ;
end
end
for i =1:m,
for j =1:n,
b3 (i,j)=bitand(a(i,j),8);
end
end
for i =1:m,
for j =1:n,
b2(i,j)=bitand(a(i,j),4);
end
end
for i =1:m,
for j =1:n ,
b1(i,j)=bitand(a(i,j),2);
end
end
for i =1:m,
for j =1:n ,
b0(i,j)=bitand(a(i,j),1);
end
end
subplot(2,2,1),imshow(a),title( 'Original Image ' );
subplot(2,2,2),imshow(b5),title('5th Bitplane Image');
subplot(2,2,3),imshow(b6),title ('6th Bitplane Image');
subplot(2,2,4),imshow(b7), title('7 th bitplane image');
```

Date: Exp.No:02	Bit Plane Slicing	Page.No:

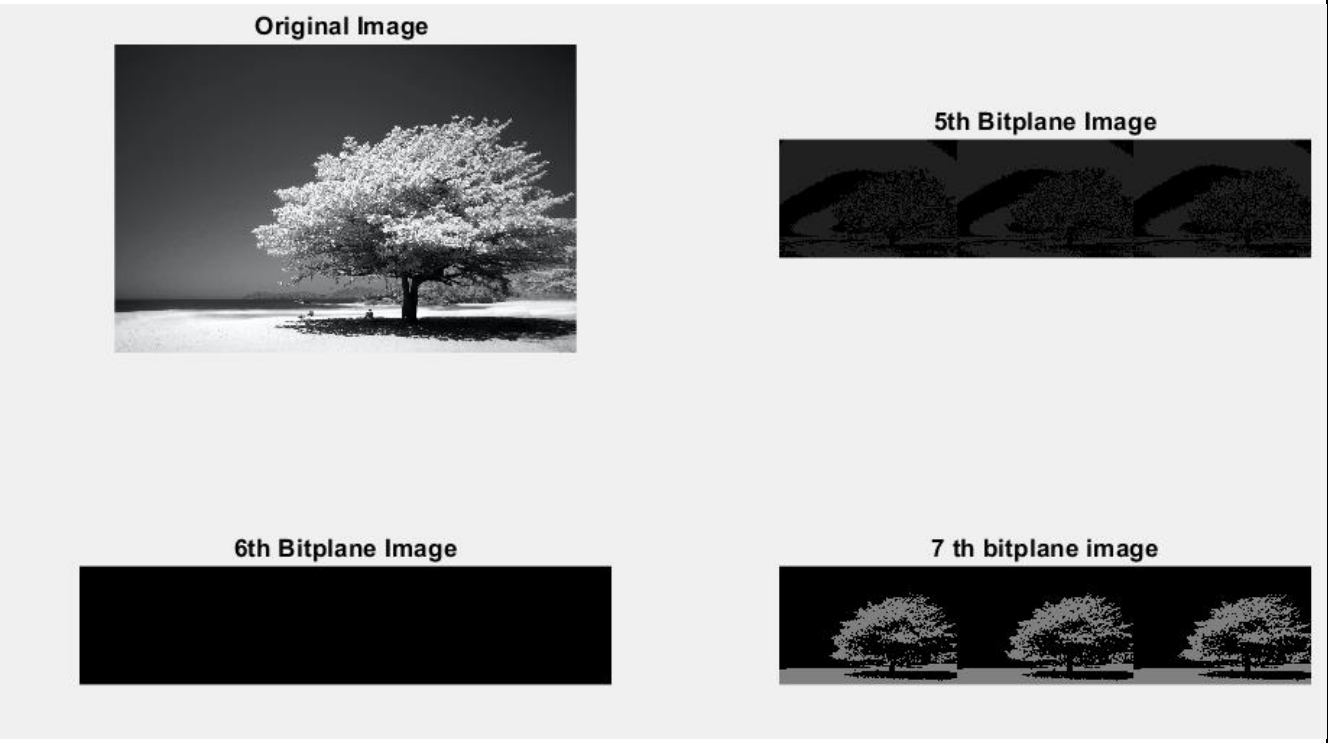
Aim:

To write MATLAB program to Extraction and display of each bits as an imagefor a given 8 bit gray scale image.

Apparatus Required:

MATLAB R2022a

Output:



Result:

The MATLAB Program for Extraction and display of each bits as an image for a given 8 bit grayscale image has successfully verified.

Program:

```
clc;
clear all;
close all;
image1=imread('panda.jpg');
size(image1)
image2=rgb2gray(image1);
subplot(2,2,4);
imshow(image2);
title('Grayscale');
[r c d ]=size(image1);
z = zeros(r,c);
tempr=image1;
tempr(:,:,2) = z;
tempr(:,:,3) = z;
subplot(2,2,1);
imshow(tempr);
title('RED');
tempg=image1;
tempg(:,:,1)=z;
tempg(:,:,3)=z;
subplot(2,2,2);
imshow(tempg);
title('GREEN');
tempb=image1;
tempb(:,:,1)=z;
tempb(:,:,2)=z;
subplot(2,2,3);
imshow(tempb);
title('BLUE');
```

Date: Exp.No:03	RGB Plane extraction	Page.No:

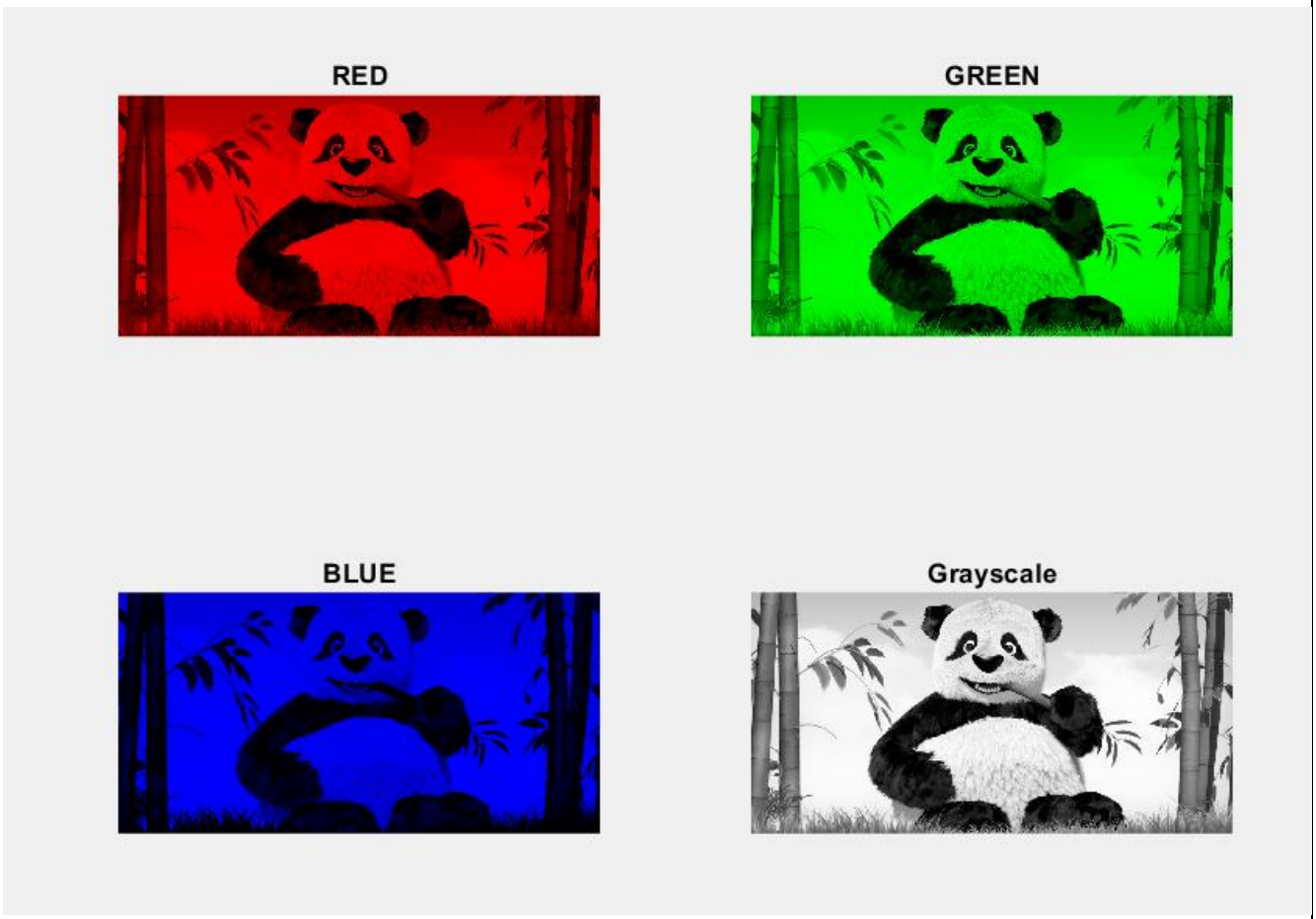
Aim:

To write MATLAB Program to RGB Plane extraction.

Apparatus Required:

MATLAB R2022a

Output:



Result:

The MATLAB Program for RGB Plane extraction has successfully verified.

Program:

```
clc;
clear all;
close all;
a = imread("pencil.jpg");
figure, imshow(a);
title('RGB Image');
I = double(a)/225;
R = I(:,:,1);
G = I(:,:,2);
B = I(:,:,3);
numi = 1/2*((R - G)+(R - B));
denom = ((R - G).^2+((R - B).*(G - B))).^0.5 ;
H = acosd(numi./(denom+0.000001));
H(B>G) = 360-H(B>G);
H=H/360;
S=1-(3./(sum(I,3)+0.000001)).*min(I,[],3);
I = sum(I,3)./3;
HSI = zeros(size(a));
HSI(:,:,1)=H;
HSI(:,:,2)=S;
HSI(:,:,3)=I;
figure,imshow(HSI);
title('HSI IMAGE');
```

Date: Exp.No:0 4	Conversion from RGB to HSI	Page.No:

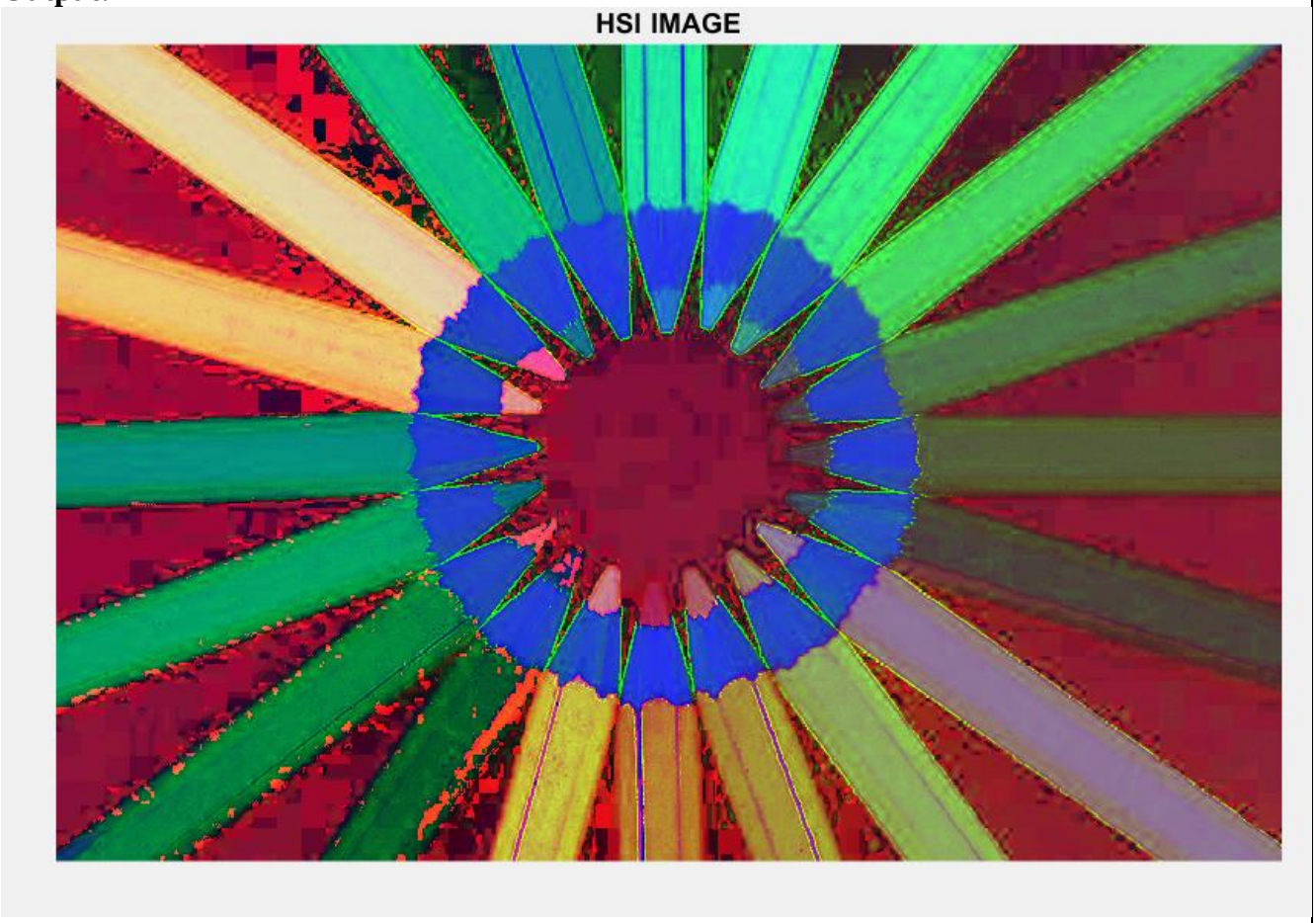
Aim:

To write MATLAB program to Conversion from RGB to HIS.

Apparatus Required:

MATLAB R2022a

Output:



Result:

The MATLAB Program for Conversion from RGB to HSI has successfully verified.

Program:

```
clc;
clear all;
close all;
a=imread('girls.jpg');
subplot(2,2,1);
imshow(a);
subplot(2,2,2);
imhist(a,255);
j=histeq(a);
subplot(2,2,3);
imshow(j);
subplot(2,2,4);
imhist(j,255);
```

Date: Exp.No:05	Histogram Mapping and Equalization	Page.No:

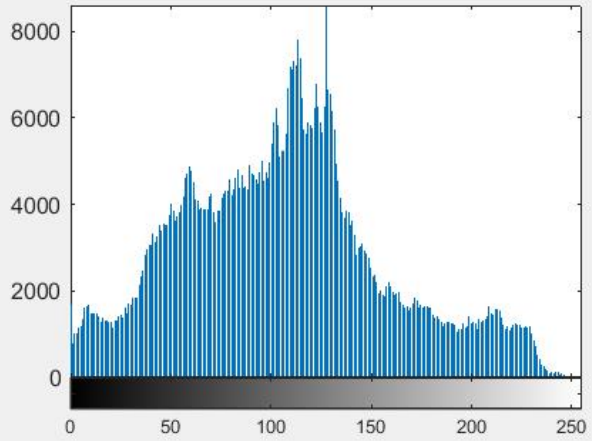
Aim:

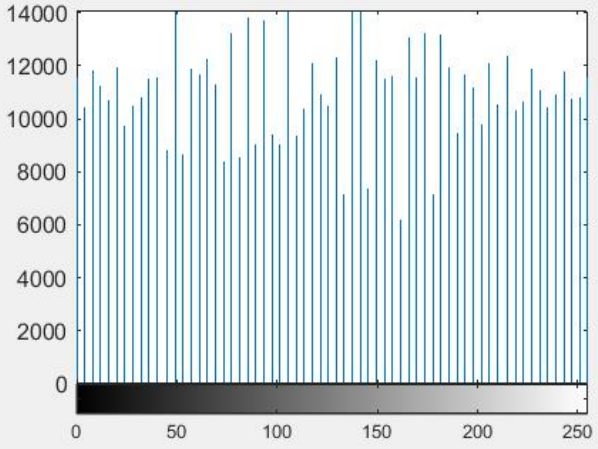
To write MATLAB program to histogram mapping and equalization.

Apparatus Required:

MATLAB R2022a

Output:





Result:

The MATLAB Program for histogram mapping and equalization has successfully verified.

Program:

```
clc;
clear all;
close all;
a = imread('Eagle.jpg');
figure(1);
subplot(3,3,1);
imshow(a);
title('original image');
s=rgb2gray(a);
subplot(3,3,2);
imshow(s);
title('gray scale image');
b=imadjust(a,[ ],[ ],0.1);
figure(1);
subplot(3,3,3);
imshow(b);
title('gamma Image');
d=imadjust(a,[0,1],[1,0]);
figure(1);
subplot(3,3,4);
imshow(d);
title('Newgative Image');
c=225/log(1+255);
e=c.*log(1+double(a));
figure(1);
subplot(3,3,5);
imshow(e);
title('logarithmic Function');
f=imadjust(a,stretchlim(a));
```

Date: Exp.No:06	Spatial Domain Image Enhancement	Page.No:

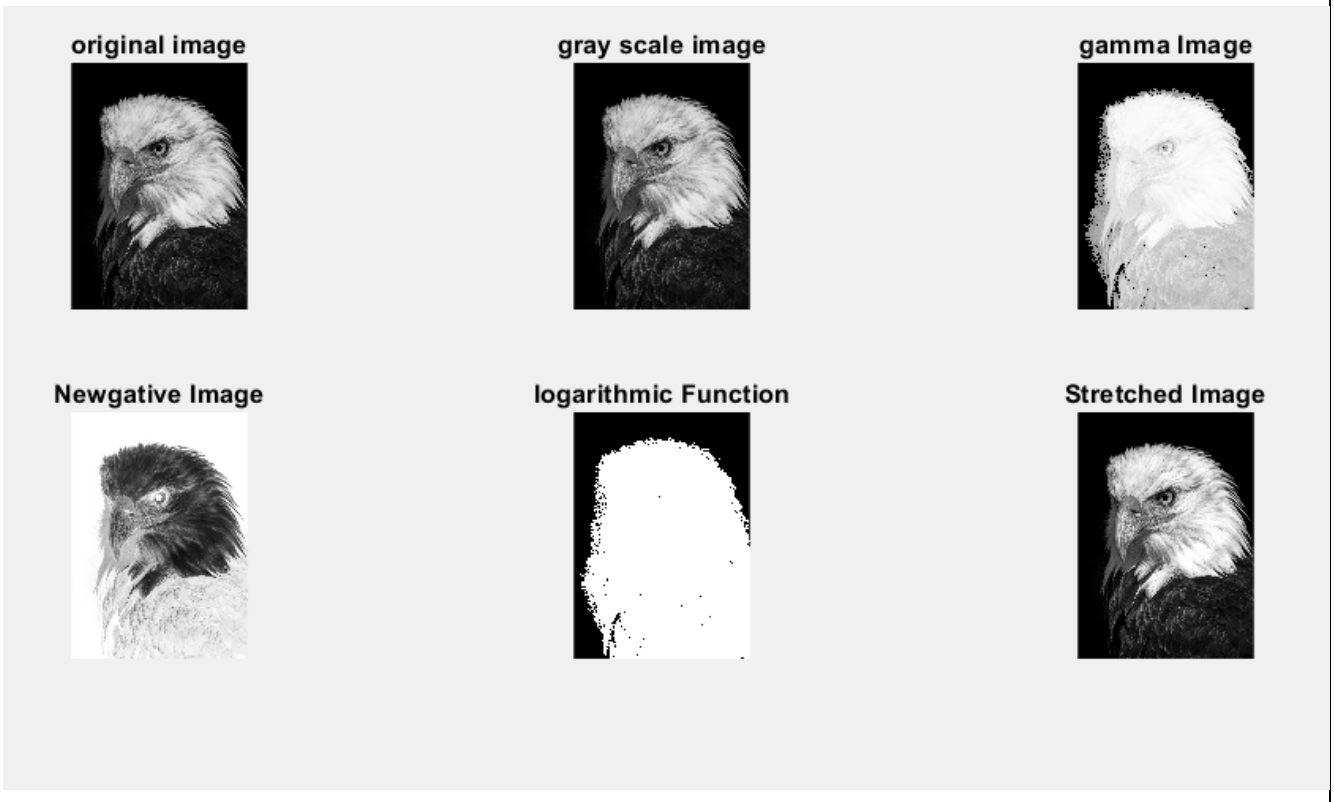
Aim:

To write MATLAB program to Spatial Domain Image Enhancement.

Apparatus Required:

MATLAB R2022a

Output:



Result:

The MATLAB Program for Spatial Domain Image Enhancement has successfully verified.

Program:

```
clc;
clear all;
close all;
a = imread('cat.jpg');
b = rgb2gray(a);
subplot(2,2,1);
imshow(b);
title('Original Image');
c1 = edge(b,'sobel');
subplot(2,2,2);
imshow(c1);
title('Sobel Operator');
c2= edge(b, 'prewitt');
subplot(2,2,3);
imshow(c2);
title('Prewitt Operator');
c3= edge(b,'roberts');
subplot(2,2,4);
imshow(c3);
title('Roberts Operator');
```

Date: Exp.No:0 7	Edge Detection Algorithms	Page.No:

Aim:

To write MATLAB program to Edge Detection Algorithms.

Apparatus Required:

MATLAB R2022a

Output:

Result:

The MATLAB Program for Edge Detection Algorithms has successfully run and results are verified.

Program:

```
clc;
clear all;
close all;
input_img=imread('dog.jpg');
[m n]= size(input_img);
input_img=double(input_img);
for i=1:m
    for j=1:n
    if input_img(i,j)>=0 & input_img(i,j)<50
    output_img(i,j,1)=input_img(i,j)+50;
    output_img(i,j,2)=input_img(i,j)+100;
    output_img(i,j,3)=input_img(i,j)+10;
    end
    if input_img(i,j)>=50 & input_img(i,j)<100
    output_img(i,j,1)=input_img(i,j)+35;
    output_img(i,j,2)=input_img(i,j)+128;
    output_img(i,j,3)=input_img(i,j)+10;
    end
    if input_img(i,j)>=100 & input_img(i,j)<150
    output_img(i,j,1)=input_img(i,j)+152;
    output_img(i,j,2)=input_img(i,j)+130;
    output_img(i,j,3)=input_img(i,j)+15;
    end
    if input_img(i,j)>=150 & input_img(i,j)<200
    output_img(i,j,1)=input_img(i,j)+50;
    output_img(i,j,2)=input_img(i,j)+140;
    output_img(i,j,3)=input_img(i,j)+25;
    end
    if input_img(i,j)>=200 & input_img(i,j)<=256
    output_img(i,j,1)=input_img(i,j)+120;
    output_img(i,j,2)=input_img(i,j)+160;
    output_img(i,j,3)=input_img(i,j)+45;
    end
    end
end
subplot(2,2,1),
imshow(uint8(input_img)),
title('Input Image')
subplot(2,2,2),
imshow(uint8(output_img)),
title('Pseudo Coloured Image')
```

Date: Exp.No:08	Pseudo Colouring	Page.No:

Aim:

To write MATLAB program to Pseudo Colouring.

Apparatus Required:

MATLAB R2022a

Output:

Result:

The MATLAB Program for Pseudo Colouring has successfully verified.

Program:

```
clc;
close all;
clear all;
myorigimg = imread('letter.jpg');
myorigimg = im2bw(rgb2gray(myorigimg));
subplot(3, 3, 1);
imshow(myorigimg);title('Originalimage');
se = strel('disk', 9);
mydilatedimg = imdilate(myorigimg, se);
subplot(3, 3, 2);
imshow(mydilatedimg);title('Dilated image');
myerodedimg = imerode(myorigimg, se);
subplot(3, 3, 3);
imshow(myerodedimg);title('Eroded image');
internalboundimg = mydilatedimg & ~ myerodedimg;
subplot(3, 3, 4);
imshow(internalboundimg,[]);title('Internal Boundary');
externalboundimg = mydilatedimg & ~myorigimg;
subplot(3, 3, 5);
imshow(externalboundimg,[]);title('External Boundary');
mymorphgradimg = imsubtract(myorigimg,myerodedimg);
subplot(3, 3, 6);
imshow(mymorphgradimg,[]);title('Morphological Gradient');
thinf = bwmorph(myorigimg,'thin');
subplot(3,3,7);
imshow(thinf);title('Thinning of the Image');
thickf = bwmorph(myorigimg,'thicken');
subplot(3,3,8);
imshow(thickf);title('Thickening of the Image');
skelf100 = bwmorph(myorigimg,'skel',9);
subplot(3,3,9);
imshow(skelf100);title('Skeletonization - 9 iterations');
```

Date: Exp.No:09	Morphological Operations on Binary Images	Page.No:

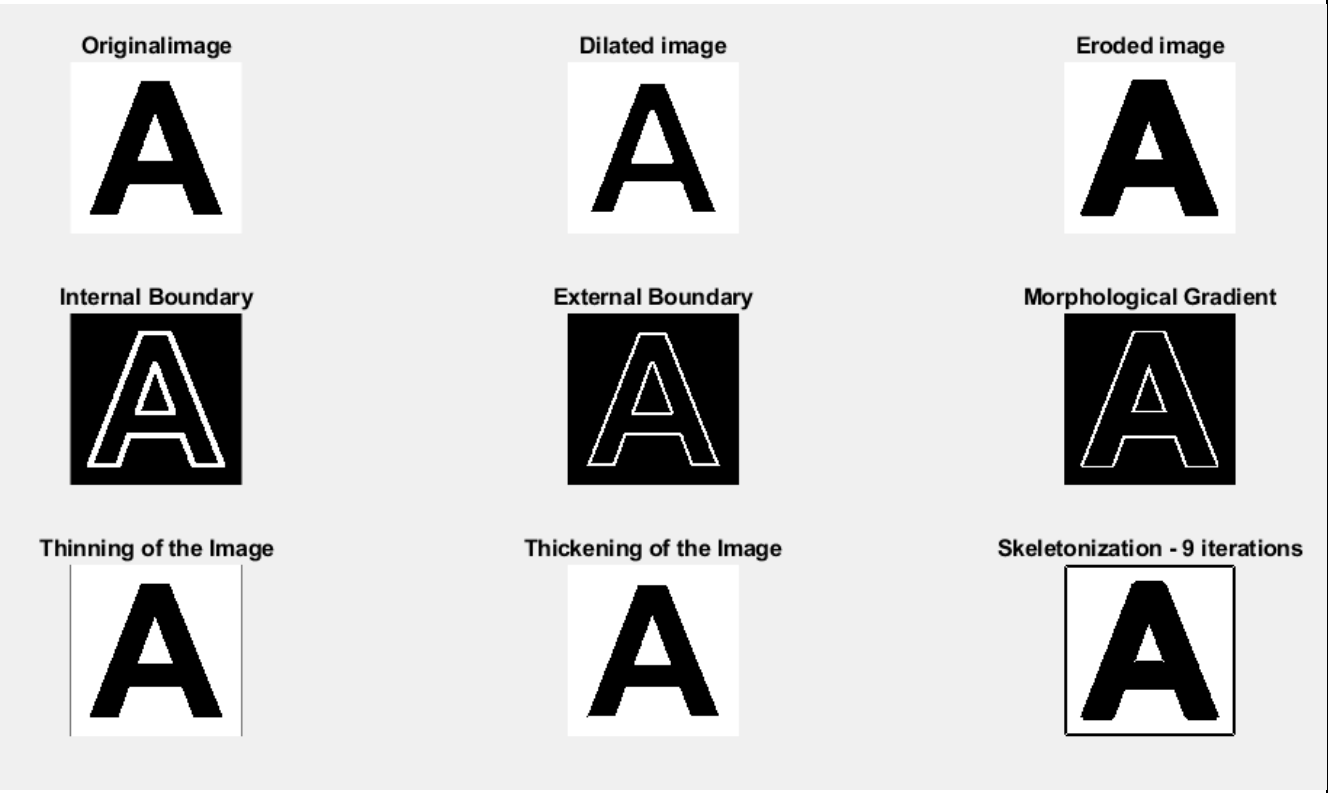
Aim:

To write MATLAB program to Morphological Operations on Binary Images.

Apparatus Required:

MATLAB R2022a

Output:



Result:

The MATLAB Program for Morphological Operations on Binary Images has successfully verified.

Program:

```
clc;
clear all;
close all;
a=imread('plane.jpg');
figure;imshow(a);
[ca ch cv cd]=dwt2(a,'haar');
figure;imshow([(ca/512),ch;cv,cd]);
figure;
subplot(2,2,1);imshow(ca/512);title('Approximation')
subplot(2,2,2);imshow(ch);title('Horizontal')
subplot(2,2,3);imshow(cv);title('Vertical')
subplot(2,2,4);imshow(cd);title('Diagonal')
```

Date: Exp.No:10	Computing the DWT	Page.No:

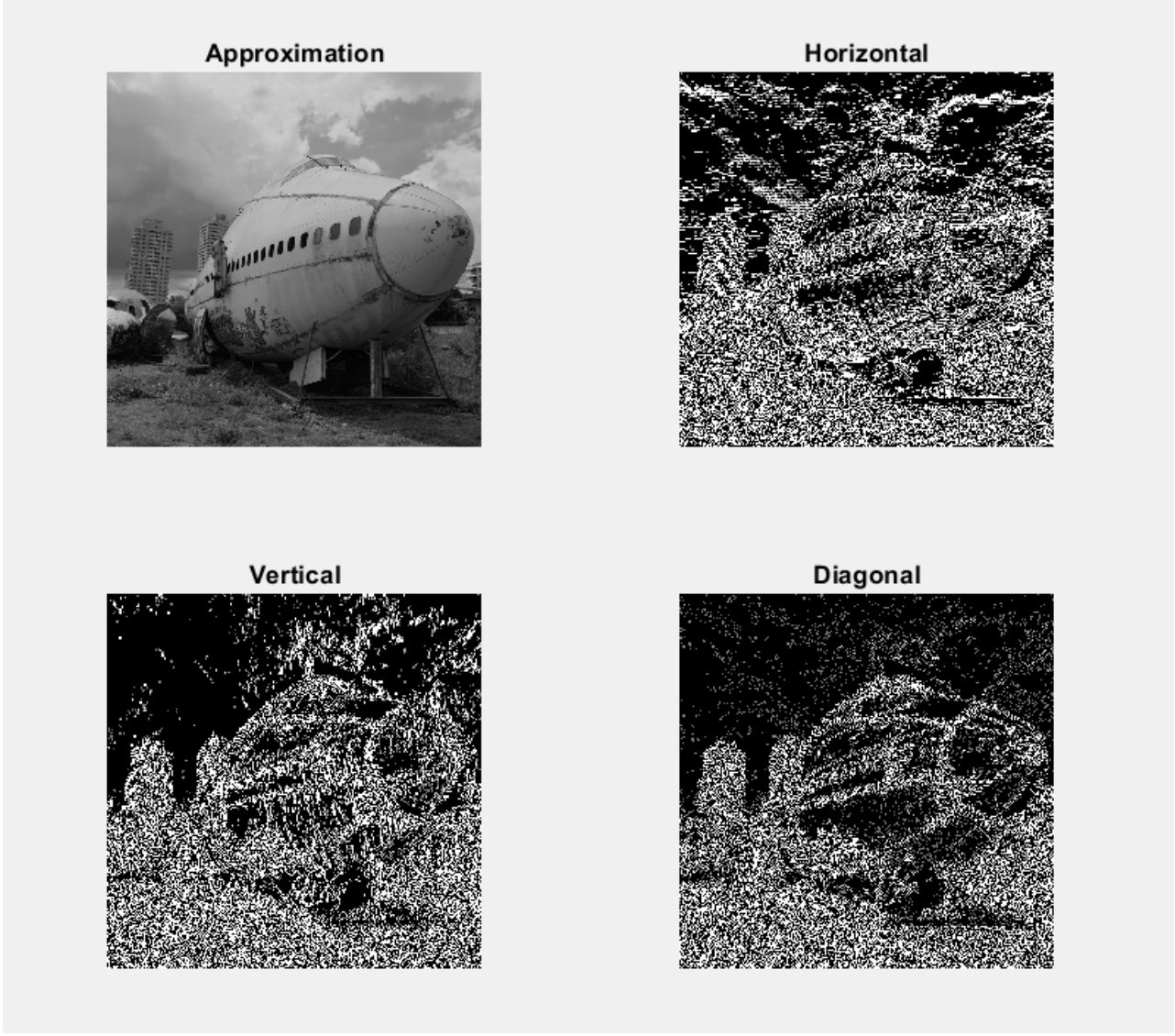
Aim:

To write MATLAB program to Computing the DWT of an image and displaying the LL, LH, HL and HH images.

Apparatus Required:

MATLAB R2022a

Output:



Result:

The MATLAB Program for Computing the DWT of an image and displaying the LL, LH, HL and HH images has successfully verified.

Program:

```
clc;
clear all;
close all;
a=zeros(256);
[m,n]=size(a);
for i=120:145
 for j=120:145
 a(i,j)=225;
 end;
end;
b= imrotate(a, 45 ,'bilinear' , 'crop');
a1= log(1+ abs (fftshift (fft2(a))));
b1= log(1+abs (fftshift (fft2(b))));
subplot(2,2,1);
imshow(a);
title('Original Image');
subplot(2,2,2);
imshow(b);
title('Image rotated by 45 degree');
subplot(2,2,3);
imshow(mat2gray(a1));
title('Originl Image Spectrum');
subplot(2,2,4);
imshow(mat2gray(b1));
title('Spectrum of Rotated Image');
```

Date: Exp.No:01	DFT Analysis of Images	Page.No:

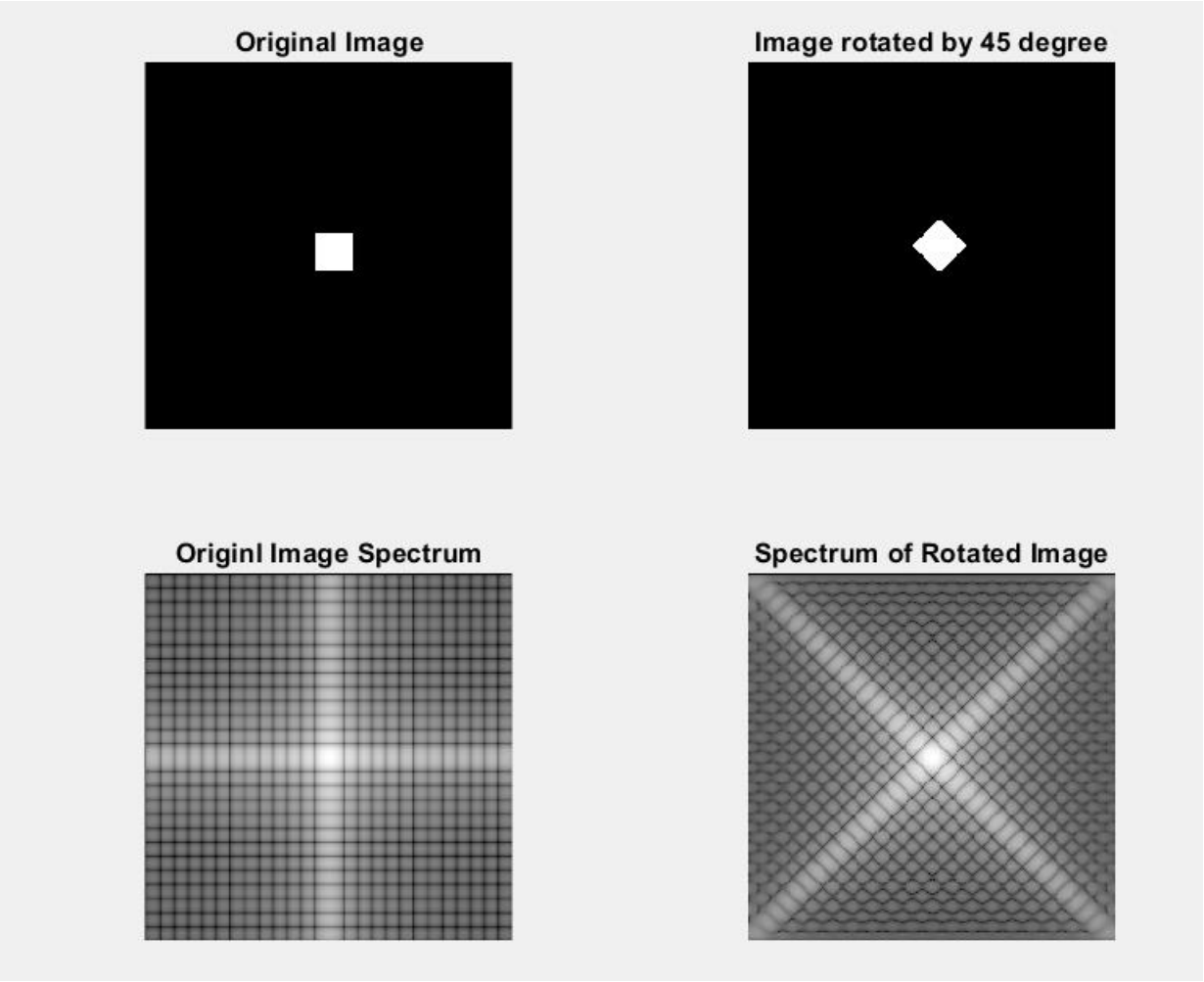
Aim:

To write MATLAB program to DFT analysis of images.

Apparatus Required:

MATLAB R2022a

Output:



Result:

The MATLAB Program for DFT analysis of images has successfully verified.

Program:

```
clc;
clear all;
close all;
count=0;
f=imread('plane.jpg');
t=mean2(f);
done=false;
while done
 count=count+1;
 g=f>t;
 tnext=0.5*(mean(f(g)));
 mean(f(~g));
 done=abs(t-tnext)<0.5;
 t=tnext;
end;
count=2;
t=125.3860
g=im2bw(f,t/225);
subplot(2,2,1);
imshow(f);
subplot(2,2,2);
imhist(f);
subplot(2,2,3);
imshow(g);
```

Date: Exp.No:02	Basic Thresholding Functions	Page.No:

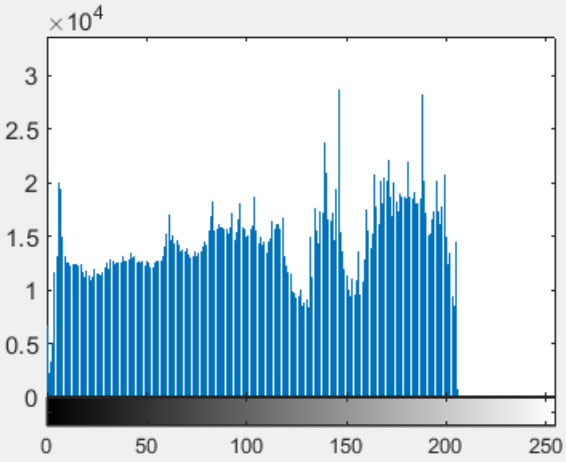
Aim:

To write MATLAB program to basic thresholding function using local thresholding.

Apparatus Required:

MATLAB R2022a

Output:



Result:

The MATLAB Program for basic thresholding function using local thresholding has successfully verified.