AIM:

Write and execute the MATLAB Code to learn the different

contrast images, histogram of grey level images, and

histogram equalization of grey level images.

Refer the Lenna.tif color image and perform the following:

(i) Convert the given image to grey level image and visualize

the obtained image.

(ii) Obtained four different contrast images from the

obtained image in (i). Use the addition and subtraction

operation with the values 50 and 100.

(iii) Plot the result obtained in (i) and (ii) (Single plot consists

of 5 images).

(iv) Generate the histograms of the obtained images in (ii).

(v) Plot the result obtained in (ii) and (iv) (Single plot

consists of 4 images and 4 histograms).

(vi) Generate the histogram-equalized images for the images

obtained in (ii) and the corresponding equalized

histograms.

(vii) Plot the result obtained in (vi) (Single plot consists of 4

images and 4 histograms).

(viii) Plot the images obtained in (ii) and (vi) (Single plot

consists of 8 images).

(ix) Plot the histograms obtained in (iv) and (vi) (Single plot

consists of 8 histograms).

I=imread('C:\Users\jadha\Desktop\dipimage\Lenna.tif');

r=rgb2gray(I);

[m,n]=size(r);

r1 = input('Enter r1 : ');

r2 = input('Enter r2 : ');

s1 = input('Enter s1 : ');

s2 = input('Enter s2 : ');

d = 255 - r;

% contrast strecting

a = s1/r1;

b = (s2-s1)/(r2-r1);

c = (255-s2)/(255-r2);

for i=1:m

for j=1:n

if r(i,j)< r1

s(i,j)=a\*r(i,j);

elseif r(i,j)< r2

s(i,j)=b\*(r(i,j)-r1)+s1;

else

s(i,j)=c\*(r(i,j)-r2)+s2;

end

end

end

%I=imread('Cameraman.tif');

%I=rgb2gray(I);

%I=imread('C:\Users\jadha\Desktop\dipimage\Lenna.tif');

%I=imread('Cameraman.tif');

%I=rgb2gray(I);

I=double(r);

I\_str = 0;

[row,col] = size(I);

T1 = 100; % The lower threshold value

T2 = 150; % The upper threshold value

grid on;

for i=1:row

for j=1:col

if((I(i,j)>T1) && (I(i,j)<T2))

I\_str(i,j) = 255;

else

I\_str(i,j)= I(i,j);

end

end

end

dd=[];

hold on;

dd(1:100)=0:99;

dd(101:149)=255;

dd(150:255)=150:255;

axis tight;

plot(dd);

hold on;

xlabel('Intensity in input image');ylabel('Intensity in output image');

title('Grey (Intensity level) slicing Transformation function');

figure

montage({uint8(I), uint8(I\_str)}, 'Size', [1 2]);

title('Original Image Intensity sliced Image');

figure

A=double(r);

B=bitget(A,1);

subplot(2,4,1);imshow((B));title('Bit plane 1');

B=bitget(A,2);

subplot(2,4,2);imshow(B);title('Bit plane 2');

B=bitget(A,3);

subplot(2,4,3);imshow(B);title('Bit plane 3');

B=bitget(A,4);

subplot(2,4,4);imshow(B);title('Bit plane 4');

B=bitget(A,5);

subplot(2,4,5);imshow(B);title('Bit plane 5');

B=bitget(A,6);

subplot(2,4,6);imshow(B);title('Bit plane 6');

B=bitget(A,7);

subplot(2,4,7);imshow(B);title('Bit plane 7');

B=bitget(A,8);

subplot(2,4,8);imshow(B);title('Bit plane 8');

figure;imshow(uint8(r));title('Original image');

figure;imshow(uint8(d));title('digital negative');

figure;imshow(uint8(s));title('contrast strecting1');