Histogram Equalization

Matlab Code:

a=imread('lena.jpg');

[m n]=size(a);

subplot(2,2,1)

imshow(a)

title('Original Image')

%to find total no of pixels for a particular gray level

for k=1:256

c=0;

for i=1:m

for j=1:n

b=a(i,j);

if(b==(k-1))

c=c+1;

end

end

end

d(k)=c

end

subplot(2,2,3)

bar(d)% histogram

title('Histogram')

s=sum(d);

%division of all count by sum

for i=1:256

e(i)=(d(i)/s);

end

% taking cdf

cdf(1)=e(1);

for i=2:1:255

cdf(i)=e(i)+cdf(i-1);

end

new=round(cdf\*255);

new=new+1; % to eliminate zero

%mapping of image

z=zeros(1,256);

for p=1:1:256

for q=1:1:256

temp=(a(p,q)+1);

b(p,q)=new(temp);

t=b(p,q);

z(t)=z(t)+1;

end

end

b=b-1;

subplot(2,2,2)

imshow(uint8(b))

title('Image after Histogram Equalization')

subplot(2,2,4)

bar(z)

title('Histogram Equalized')