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CLASS:- B.E - 4
ROLL NO:- 04
BATCH:- A

EXPERIMENT 6

SOURCE CODE:

```
close all;
clear all;
clc
GIm=imread('cameraman.tif');
numofpixels=size(GIm,1)*size(GIm,2);
figure,imshow(GIm);
title('Original Image');
figure,imhist(GIm);
title('Histogram of Original Image');
HIm=uint8(zeros(size(GIm,1),size(GIm,2)));
freq=zeros(256,1);
probf=zeros(256,1);
probc=zeros(256,1);
cum=zeros(256,1);
output=zeros(256,1);
n=1:256;
%freq counts the occurrence of each pixel value.
%The probability of each occurrence is calculated by probf.
for i=1:size(GIm,1)
    for j=1:size(GIm,2)
        value=GIm(i,j);
        freq(value+1)=freq(value+1)+1;
        probf(value+1)=freq(value+1)/numofpixels;
    end
end
figure,stem(n,probf);
title('Probability Distribution Function')
sum=0;
no_bins=255;
%The cumulative distribution probability is calculated.
for i=1:size(probf)
   sum=sum+freq(i);
   cum(i)=sum;
   probc(i)=cum(i)/numofpixels;
   output(i)=round(probc(i)*no_bins);
end
figure,stem(n,output);
title('Transfer Function');
for i=1:size(GIm,1)
    for j=1:size(GIm,2)
            HIm(i,j)=output(GIm(i,j)+1);
    end
end
figure,imshow(HIm);
title('Histogram equalization');
figure,imhist(HIm);
title('Histogram of equalised Image');
```

OUTPUT:

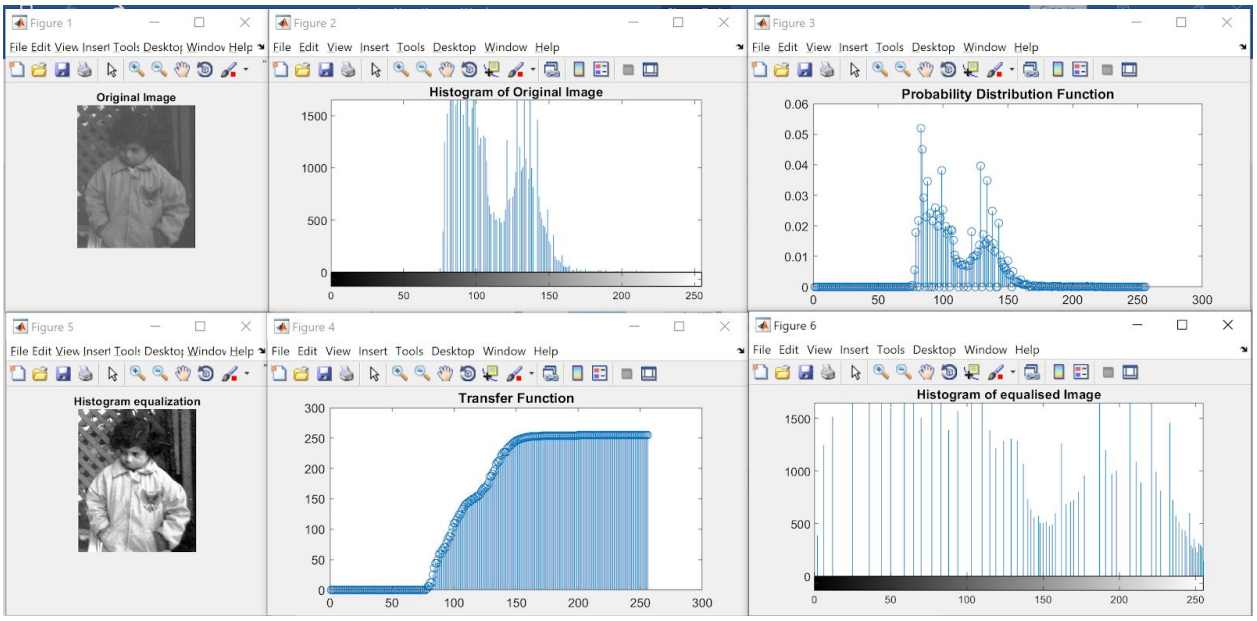
Figure 1
File Edit View Insert Tools Desktop Window Help
Original Image
Figure 2
File Edit View Insert Tools Desktop Window Help
Histogram of Original Image
1500
1000
500
0
0 50 100 150 200 250
Figure 3
File Edit View Insert Tools Desktop Window Help
Probability Distribution Function
0.06
0.05
0.04
0.03
0.02
0.01
0
0 50 100 150 200 250 300
Figure 5
File Edit View Insert Tools Desktop Window Help
Histogram equalization
Figure 4
File Edit View Insert Tools Desktop Window Help
Transfer Function
300
250
200
150
100
50
0
0 50 100 150 200 250 300
Figure 6
File Edit View Insert Tools Desktop Window Help
Histogram of equalised Image
1500
1000
500
0
0 50 100 150 200 250