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%date - 21/01/2026
%created by - Kaushik Kumar Umar
clc ;
clear all;
close all;
I=imread('cameraman.tif');
imshow(I);
title('Original Image');
[m,n]=size(I);
figure;
%bit plane slicing

%for 0th bit plane
for ii=1:m
    for jj=1:n
        Bitp0(ii,jj)=bitand(I(ii,jj),1);
    end
end

%for 1st bit plane
for ii=1:m
    for jj=1:n
        Bitp1(ii,jj)=bitand(I(ii,jj),2);
    end
end

%for 2nd bit plane
for ii=1:m
    for jj=1:n
        Bitp2(ii,jj)=bitand(I(ii,jj),4);
    end
end

%for 3rd bit plane
for ii=1:m
    for jj=1:n
        Bitp3(ii,jj)=bitand(I(ii,jj),8);
    end
end

%for 4th bit plane
for ii=1:m
    for jj=1:n
        Bitp4(ii,jj)=bitand(I(ii,jj),16);
    end
end

%for 5th bit plane
for ii=1:m
    for jj=1:n
        Bitp5(ii,jj)=bitand(I(ii,jj),32);
    end
end

%for 6th bit plane
for ii=1:m
    for jj=1:n
        Bitp6(ii,jj)=bitand(I(ii,jj),64);
    end
end

%for 7th bit plane
for ii=1:m
    for jj=1:n
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        Bitp7(ii,jj)=bitand(I(ii,jj),128);
    end
end

imshow(Bitp0);title('0th bit plane Image');
figure;imshow(Bitp1);title('1st bit plane Image');
figure;imshow(Bitp2);title('2nd bit plane Image');
figure;imshow(Bitp3);title('3rd bit plane Image');
figure;imshow(Bitp4);title('4th bit plane Image');
figure;imshow(Bitp5);title('5th bit plane Image');
figure;imshow(Bitp6);title('6th bit plane Image');
figure;imshow(Bitp7);title('7th bit plane Image');

%bit plane removal
%removing the 0th, 5th and 7th bit plane in 2 copies of the original image
for ii=1:m
    for jj=1:n
        bitpr0(ii,jj)=bitand(I(ii,jj),(255-(2^(0))));
        bitpr5(ii,jj)=bitand(I(ii,jj),(255-(2^(5))));
        bitpr7(ii,jj)=bitand(I(ii,jj),(255-(2^(7))));
    end
end

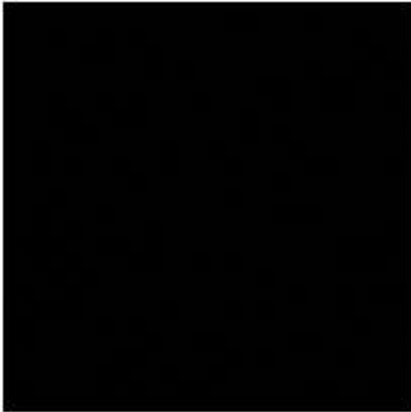
figure;imshow(bitpr0);title('0th bit plane removed Image');
figure;imshow(bitpr5);title('5th bit plane removed Image');
figure;imshow(bitpr7);title('7th bit plane removed Image');

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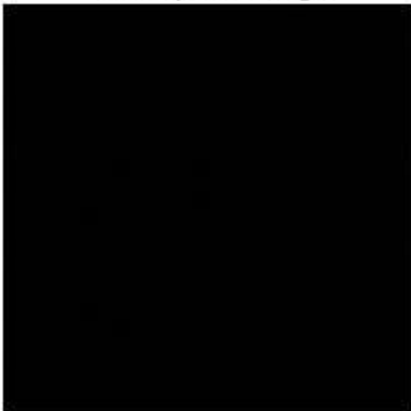
Original Image



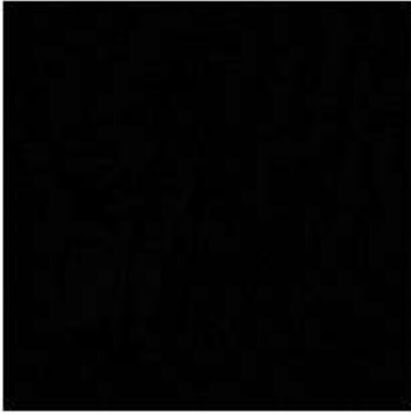
0th bit plane Image



1st bit plane Image



2nd bit plane Image



3rd bit plane Image



4th bit plane Image



5th bit plane Image



6th bit plane Image



7th bit plane Image



0th bit plane removed Image



5th bit plane removed Image



7th bit plane removed Image



