EE5355\_DISCRETE TRANSFORMS AND APPLICATIONS

ASSIGNMENT 2D MIRRORING

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PROGRAM:

clc;

close all;

clear all;

I=imread('C:\Users\PAVAI ARCHIMEDES\Desktop\lena512.bmp');

figure (1);

subplot(2,3,1);

imshow(I);

title('Original Lena Image');

H=diag([1,-1,1,-1,1,-1,1,-1]);

end2=377;

for i=1:8:512

end1=377;

for j=1:8:512

I\_dct\_88=dct2(I(i:i+7,j:j+7));

if(i>128 && j>128 &&i<=384 && j<=384)

I\_dct=I\_dct\_88\*H;

I\_H(i:i+7,end1:end1+7)=(idct2(I\_dct));

I\_dct\_88=H\*I\_dct\_88;

I\_H\_V(end2:end2+7,j:j+7)=(idct2(I\_dct\_88));

I\_dct\_88\_90=I\_dct\_88'\*H;

I\_H\_90(j:j+7,end2:end2+7)=(idct2(I\_dct\_88\_90));

I\_dct\_88\_270=H\*I\_dct\_88';

I\_H\_270(end1:end1+7,i:i+7)=(idct2(I\_dct\_88\_270));

I\_dct\_88\_180=H\*I\_dct\_88\*H;

I\_H\_180(end2:end2+7,end1:end1+7)=(idct2(I\_dct\_88\_180));

end1=end1-8;

else

I\_H(i:i+7,j:j+7)=idct2(I\_dct\_88);

I\_H\_V(i:i+7,j:j+7)=idct2(I\_dct\_88);

I\_H\_90(i:i+7,j:j+7)=idct2(I\_dct\_88);

I\_H\_270(i:i+7,j:j+7)=idct2(I\_dct\_88);

I\_H\_180(i:i+7,j:j+7)=idct2(I\_dct\_88);

end

end

if(i>128 &&i<384)

end2=end2-8;

end

end

subplot(2,3,2);imshow(I\_H,[0 255]);title('Horizontal Mirror');

subplot(2,3,3);imshow(I\_H\_V,[0 255]);title('Vertical Mirror');

subplot(2,3,4);imshow(I\_H\_90,[0 255]);title('90 Rotation');

subplot(2,3,5);imshow(I\_H\_270,[0 255]);title('270 Rotation');

subplot(2,3,6);imshow(I\_H\_180,[0 255]);title('180 Rotation');

figure (2); subplot(2,3,1);imshow(I);title('Original Lena Image');

H=diag([1,-1,1,-1,1,-1,1,-1,1,-1,1,-1,1,-1,1,-1]);

end2=369;

for i=1:16:512

end1=369;

for j=1:16:512

I\_dct\_1616=dct2(I(i:i+15,j:j+15));

if(i>128 && j>128 &&i<=384 && j<=384)

I\_dct\_1616\_H=I\_dct\_1616\*H;

I\_H\_M\_16(i:i+15,end1:end1+15)=(idct2(I\_dct\_1616\_H));

I\_dct\_1616\_V=H\*I\_dct\_1616;

I\_H\_V\_16(end2:end2+15,j:j+15)=(idct2(I\_dct\_1616\_V));

I\_dct\_1616\_90=I\_dct\_1616'\*H;

I\_H\_90\_16(j:j+15,end2:end2+15)=(idct2(I\_dct\_1616\_90));

I\_dct\_1616\_270=H\*I\_dct\_1616';

I\_H\_270\_16(end1:end1+15,i:i+15)=(idct2(I\_dct\_1616\_270));

I\_dct\_1616\_180=H\*I\_dct\_1616\*H;

I\_H\_180\_16(end2:end2+15,end1:end1+15)=(idct2(I\_dct\_1616\_180));

end1=end1-16;

else

I\_H\_M\_16(i:i+15,j:j+15)=idct2(I\_dct\_1616);

I\_H\_V\_16(i:i+15,j:j+15)=idct2(I\_dct\_1616);

I\_H\_90\_16(i:i+15,j:j+15)=idct2(I\_dct\_1616);

I\_H\_270\_16(i:i+15,j:j+15)=idct2(I\_dct\_1616);

I\_H\_180\_16(i:i+15,j:j+15)=idct2(I\_dct\_1616);

end

end

if(i>128 &&i<384)

end2=end2-16;

end

end

subplot(2,3,2);imshow(I\_H\_M\_16,[0 255]);title('Horizontal Mirror');

subplot(2,3,3);imshow(I\_H\_V\_16,[0 255]);title('Vertical Mirror');

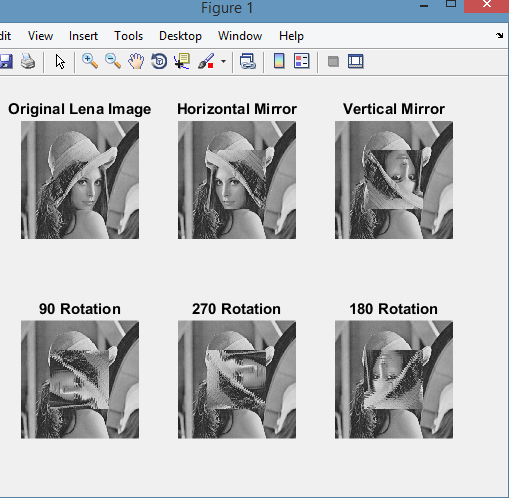
subplot(2,3,4);imshow(I\_H\_90\_16,[0 255]);title('90 Rotation');

subplot(2,3,5);imshow(I\_H\_270\_16,[0 255]);title('270 Rotation');

subplot(2,3,6);imshow(I\_H\_180\_16,[0 255]);title('180 Rotation');

OUTPUT:

FOR (8x8):



FOR(16X16):

