*Editor>>*

clc;

close all;

clear all;

im1=imread('lena.bmp');

subplot(3,3,7);

imshow(im1); %Display Image

title('RGB');

im1=im2double(im1); %Converting Integer into Double data type

Rp=im1(:,:,1); %Red Plane

Gp=im1(:,:,2); %Green Plane

Bp=im1(:,:,3); %Blue Plane

subplot(3,3,1);

imshow(Rp); %Display Red Plane

title('R Plane');

subplot(3,3,2);

imshow(Gp); %Display Green Plane

title('G plane');

subplot(3,3,3);

imshow(Bp); %Display Blue Plane

title('B plane');

%RGB to YIQ

Y=(0.299.\*Rp)+(0.587.\*Gp)+(0.144.\*Bp);

I=(0.596.\*Rp)-(0.274.\*Gp)-(0.322.\*Bp);

Q=(0.211.\*Rp)-(0.523.\*Gp)+(0.312.\*Bp);

subplot(3,3,4);

imshow(Y); %Display Intensity Plane

title('Y plane');

subplot(3,3,5);

imshow(I); %Display In-phase Plane

title('I plane');

subplot(3,3,6);

imshow(Q); %Display Quadrature Plane

title('Q plane');

YIQ=cat(3,Y,I,Q); %Concatenation of YIQ Plane

subplot(3,3,8);

imshow(YIQ); %Display YIQ Plane

title('RGB to YIQ');

%YIQ to RGB

Rc=(1.\*Y)+(0.956.\*I)+(0.621.\*Q);

Gc=(1.\*Y)-(0.272.\*I)-(0.647.\*Q);

Bc=(1.\*Y)-(1.106.\*I)+(1.703.\*Q);

RGB=cat(3,Rc,Gc,Bc); %Concatanation of RGB Plane

subplot(3,3,9);

imshow(RGB); %Reconstructed RGB Plane

title('YIQ to RGB');

%Subtraction of images to confirm matrix equality

im1=double(im1); %Converting Integer into Double data type

im2=double(YIQ);

E=imsubtract(im2,im1); %Subtraction of Two Images

E=uint8(E); %Converting Double into Integer data type

figure;

imshow(E);

title('Subtraction of YIQ and Reconstructed RGB');

*Output>>*



