EE 5356- DIGITAL IMAGE PROCESSING

ASSIGNMENT 3B

BY

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SOLUTION;

MATLAB PROGRAM:

clc;

clear all;

close all;

org\_image=fopen('C:\Users\PAVAI ARCHIMEDES\Desktop\girl.png');

vumng\_im = fread(org\_image);% read the image

pis = 256\*256\*3;

for i = 1:256

for j = 1:256

R\_cp(i,j) = vumng\_im((i-1)\*256\*3+(j-1)\*3+1);

G\_cp(i,j) = vumng\_im((i-1)\*256\*3+(j-1)\*3+2);

B\_cp(i,j) = vumng\_im((i-1)\*256\*3+(j-1)\*3+3);

end

end

figure(1);

% display the red component of raw image

subplot(3,3,1);

image(uint8(R\_cp));

title('Red Component of the RAW image');

% display the green component of image

subplot(3,3,2);

image(uint8(G\_cp));

title('Green Component of the RAW image');

% displaying the blue component of raw image

subplot(3,3,3);

image(uint8(B\_cp));

title('Blue Component of the RAW image');

% manipulating y i q

Ytt = 0.299\*R\_cp+0.587\*G\_cp+0.114\*B\_cp;

kkk = 0.596\*R\_cp-0.274\*G\_cp-0.322\*B\_cp;

jjj = 0.211\*R\_cp-0.523\*G\_cp+0.312\*B\_cp;

subplot(3,3,4);

image(uint8(Ytt));

title('Y Component of the RAW image');

subplot(3,3,5);

image(uint8(kkk));

title('I Component of the RAW image');

subplot(3,3,6);

image(uint8(jjj));

title('Q Component of the RAW image');

R\_cl = Ytt+0.956\*kkk+0.621\*jjj

G\_cl = Ytt-0.272\*kkk-0.647\*jjj

B\_cl = Ytt-1.106\*kkk+1.703\*jjj

subplot(3,3,7);

image(uint8(R\_cl));

title('Red Reconstructed');

subplot(3,3,8);

image(uint8(G\_cl));

title('Green Reconstructed');

subplot(3,3,9);

image(uint8(B\_cl));

title('Blue Reconstructed');

original\_image(:,:,1) = R\_cp;

original\_image(:,:,2) = G\_cp;

original\_image(:,:,3) = B\_cp;

figure(2);

image(uint8(original\_image));

title('original image');

% flowers

clc;

clear all;

close all;

vumng = imread('C:\Users\PAVAI ARCHIMEDES\Desktop\flowers.bmp');

figure(1);

imshow(vumng);

title('original image');

vumng = double(vumng);

pis = 500\*362\*3;

R\_cp = vumng(:,:,1);

G\_cp = vumng(:,:,2);

B\_cp = vumng(:,:,3);

figure(2);

subplot(3,3,1);

image(uint8(R\_cp));

title('Red Component');

subplot(3,3,2);

image(uint8(G\_cp));

title('Green Component');

subplot(3,3,3);

image(uint8(B\_cp));

title('Blue Component');

Y = (G\_cp+(R\_cp+B\_cp)/2)/2;

Cg = (G\_cp-(R\_cp+B\_cp)/2)/2;

Co = (R\_cp-B\_cp)/2;

subplot(3,3,4);

image(uint8(Y));

title('Y Component');

subplot(3,3,5);

image(uint8(Cg));

title('Cg Component');

subplot(3,3,6);

image(uint8(Co));

title('Co Component');

R\_cl = Y+Co-Cg;

G\_cl = Y+Cg;

B\_cl = Y-Co-Cg;

subplot(3,3,7);

image(uint8(R\_cl));

title('Red Reconstructed');

subplot(3,3,8);

image(uint8(G\_cl));

title('Green\_Reconstructed');

subplot(3,3,9);

image(uint8(B\_cl));

title('Blue Reconstructed');

RESULTS:  








CONCLUSION:

* Here using the R G B color components Y( luminance) I( chrominance) Q components are obtained.
* Color space conversion and inverse color space conversion is also completed.