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Digital Image Processing:

Assignment 2:

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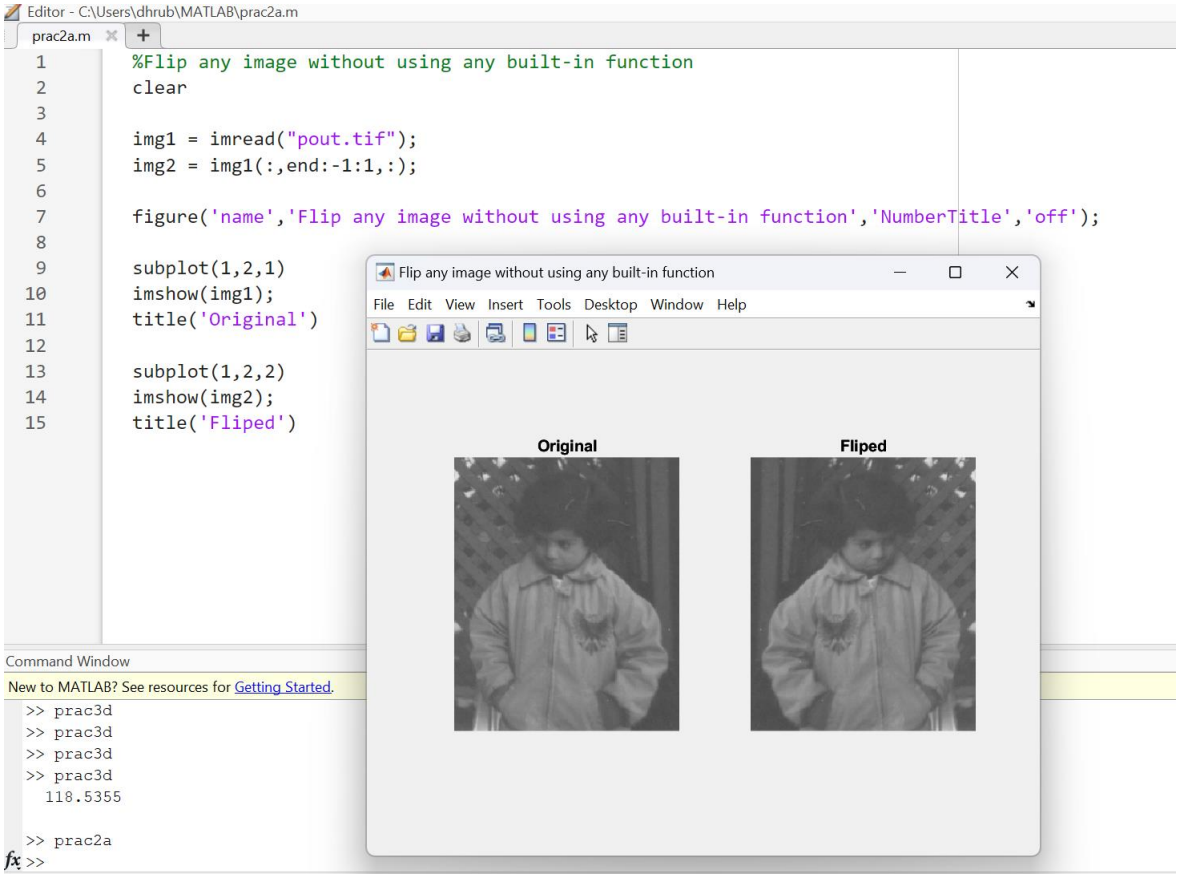
B.SC-(SEM-V)-COMP-O4
VB-2480 OF 2017-18

1. Flip any image without using any built-in function.

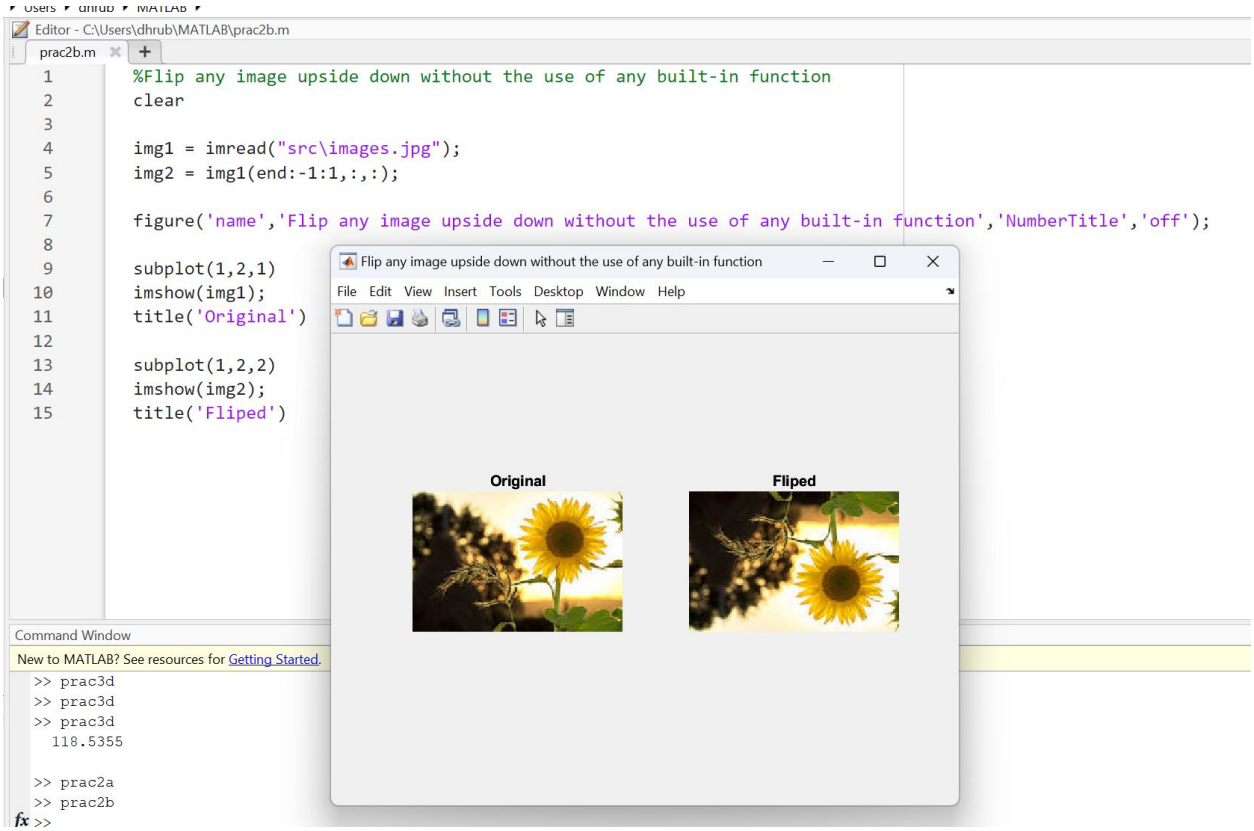
Code:

```
%Flip any image without using any built-in function
clear

img1 = imread("pout.tif");
img2 = img1(:,end:-1:1,:);

figure('name','Flip any image without using any built-in
function','NumberTitle','off');

subplot(1,2,1)
imshow(img1);
title('Original')

subplot(1,2,2)
imshow(img2);
title('Fliped')
```



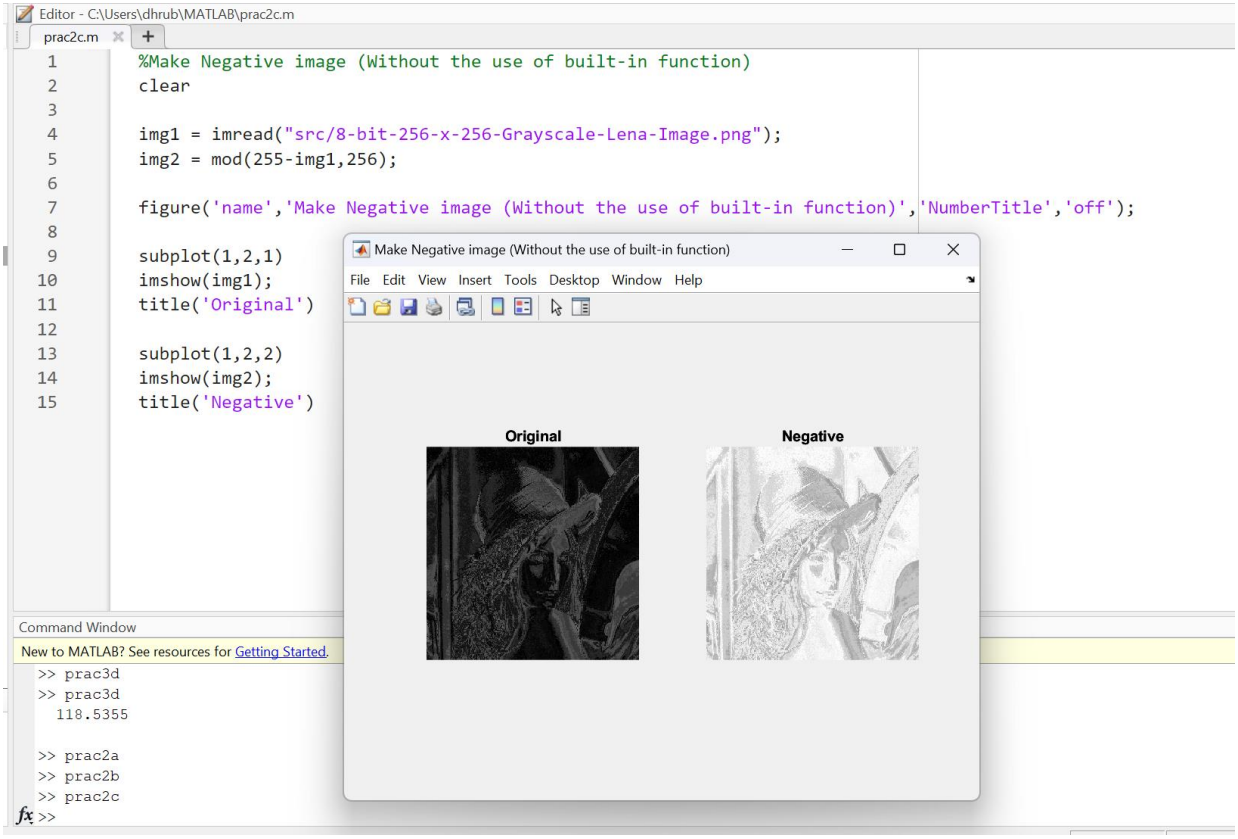
2. Flip any image upside down without the use of any built-in function

```
%Flip any image upside down without the use of any built-in
function
clear

img1 = imread("src\images.jpg");
img2 = img1(end:-1:1,:,:);
figure('name','Flip any image upside down without the use of
any built-in function','NumberTitle','off');
subplot(1,2,1)
imshow(img1);
title('Original')
subplot(1,2,2)
imshow(img2);
title('Fliped')
```



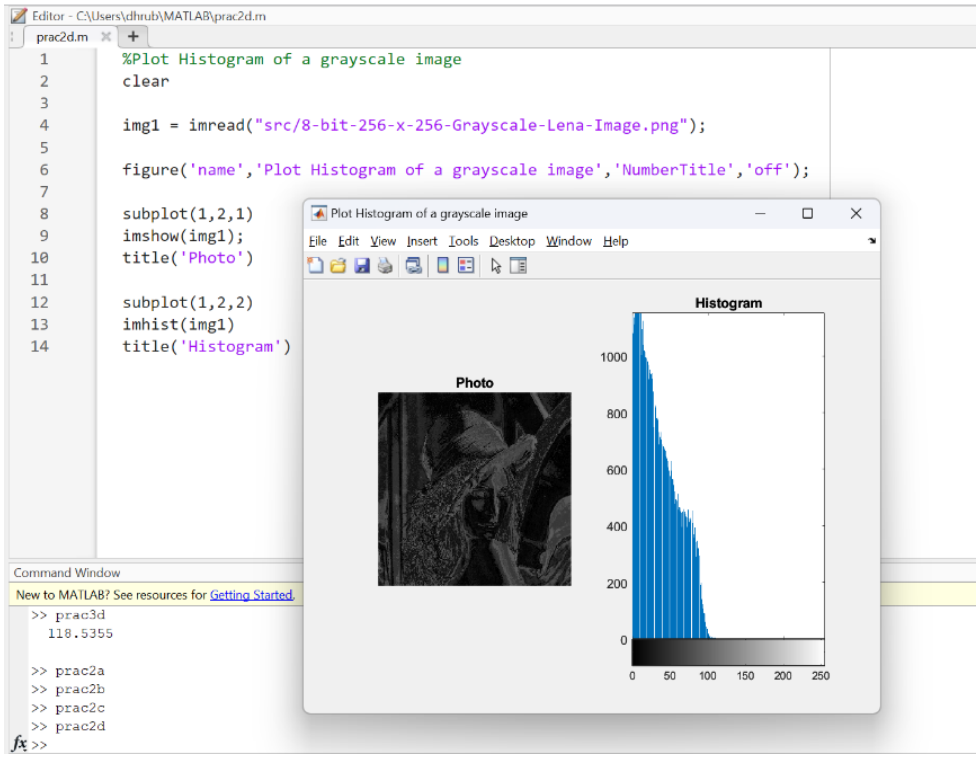
3. Make Negative image (Without the use of built-in function)

```
%Make Negative image (Without the use of built-in function)
clear

img1 = imread("src/8-bit-256-x-256-Grayscale-Lena-Image.png");
img2 = mod(255-img1,256);
figure('name','Make Negative image (Without the use of built-in function)','NumberTitle','off');
subplot(1,2,1)
imshow(img1);
title('Original')
subplot(1,2,2)
imshow(img2);
title('Negative')
```



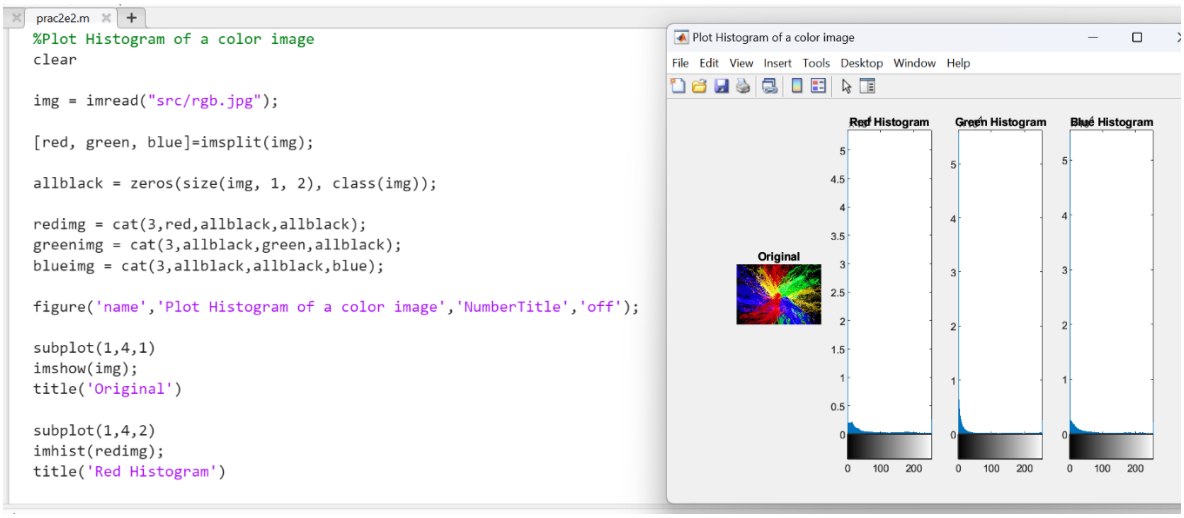
4. Plot Histogram of a grayscale image

```
%Plot Histogram of a grayscale image
clear

img1 = imread("src/8-bit-256-x-256-Grayscale-Lena-
Image.png");

figure('name','Plot Histogram of a grayscale
image','NumberTitle','off');

subplot(1,2,1)
imshow(img1);
title('Photo')

subplot(1,2,2)
imhist(img1)
title('Histogram')
```



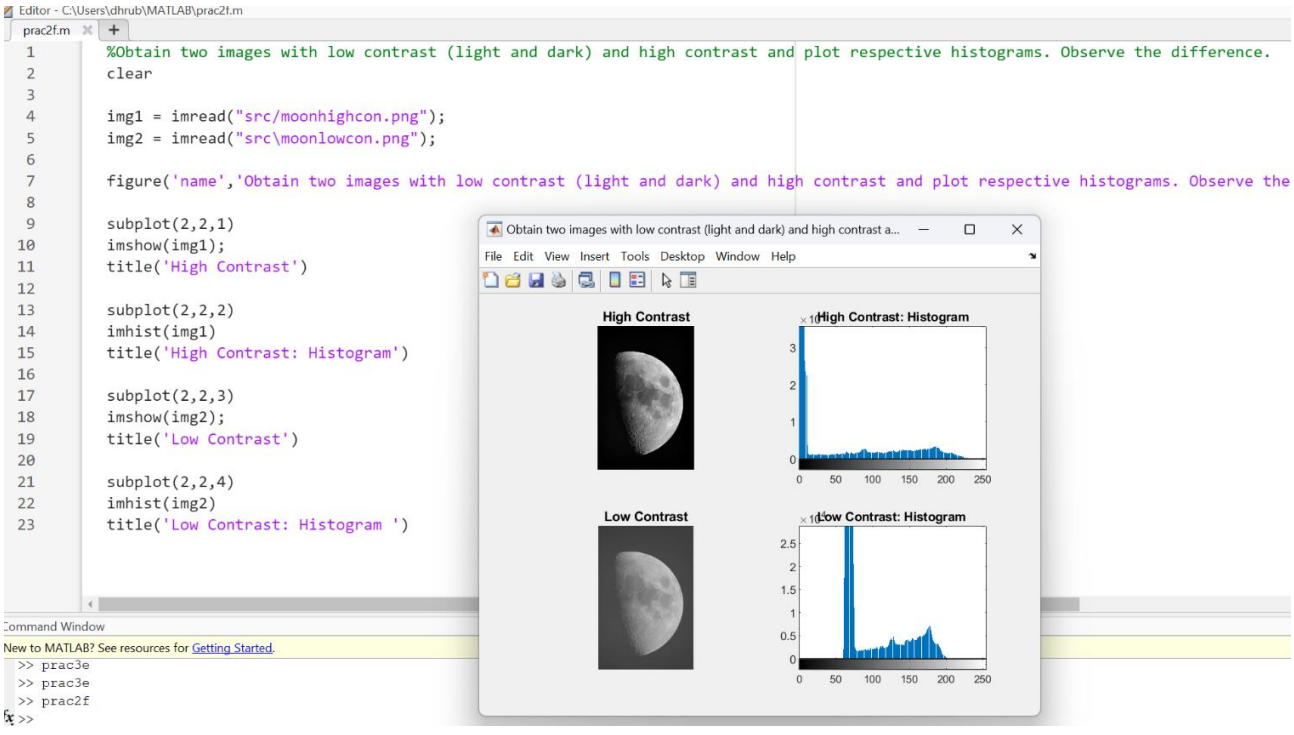
5. Plot Histogram of a color image

```
%Plot Histogram of a color image
clear
img = imread("src/rgb.jpg");
[red, green, blue]=imsplit(img);
allblack = zeros(size(img, 1, 2), class(img));
redimg = cat(3,red,allblack,allblack);
greenimg = cat(3,allblack,green,allblack);
blueimg = cat(3,allblack,allblack,blue);
figure('name','Plot Histogram of a color
image','NumberTitle','off');
subplot(1,4,1)
imshow(img);
title('Original')
subplot(1,4,2)
imhist(redimg);
title('Red Histogram')
subplot(1,4,3)
imhist(greenimg);
title('Green Histogram')
subplot(1,4,4)
imhist(blueimg);
title('Blue Histogram')
```



6. Obtain two images with low contrast (light and dark) and high contrast and plot respective histograms. Observe the difference.given color/gray-scale image into black & white image

```
%Obtain two images with low contrast (light and dark) and
high contrast and plot respective histograms. Observe the
difference.
clear
img1 = imread("src/moonhighcon.png");
img2 = imread("src\moonlowcon.png");
figure('name','Obtain two images with low contrast (light
and dark) and high contrast and plot respective histograms.
Observe the difference.','NumberTitle','off');
subplot(2,2,1)
imshow(img1);
title('High Contrast')
subplot(2,2,2)
imhist(img1)
title('High Contrast: Histogram')
subplot(2,2,3)
imshow(img2);
title('Low Contrast')
subplot(2,2,4)
imhist(img2)
title('Low Contrast: Histogram ')
```



7. Contrast stretching

```
%contrast stretching
clear
img1 = imread("src/grey.jpeg");
rmax = max(img1(:));
rmin = min(img1(:));
E = 20;
m = 170;
img2 = 1./(1+((m./double(img1)).^E));
figure('name','Contrast stretching','NumberTitle','off');
subplot(2,2,1)
imshow(img1);
title('Normal')
subplot(2,2,2)
imshow(img2)
title('After operation')
subplot(2,2,3)
imhist(img1);
title('Histogram: Normal')
subplot(2,2,4)
imhist(img2)
title('Histogram: After operation')
```