



UTM
UNIVERSITI TEKNOLOGI MALAYSIA

Malaysia-Japan
International
Institute of Technology
(MJIT)

SMJE 4313
IMAGE PROCESSING

ASSIGNMENT 1
(Image Manipulation)

SEMESTER 2 MAY 2020

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SECTION: 01

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Task

Construct a single MATLAB script to organize and measure the given image on the following:



- RGB colour
- Black and white
- Greyscale Image
- Organize the display

Script:

```
% Basic Image Processing steps
% Muhammad Hafizuddin Bin Redzuan
% 27 June 2020

% Read original image
original = imread('pepper2.jpg');

%<-----RGB----->

%Split into RGB Channels
Red = original(:,:,1);
Green = original(:,:,2);
Blue = original(:,:,3);

%Get histValues for each channel
[yRed, x] = imhist(Red);
[yGreen, x] = imhist(Green);
[yBlue, x] = imhist(Blue);

%Plot them together in one plot
figure
subplot(2,1,1), imshow(original), title('RGB');
subplot(2,1,2), plot(x, yRed, 'Red', x, yGreen, 'Green', x, yBlue, 'Blue');
impixelinfo; %Pixel info of the RGB image
```

```

%<-----BW----->

% Convert image into black & White
bw = im2bw(original);
figure
subplot(2,1,1), imshow(bw), title('Black & White');
subplot(2,1,2), imhist(bw);
impixelinfo; %Pixel info of the Black and White image

%<-----Gray----->

% Convert image into Gray image
gray = rgb2gray(original);
figure
subplot(2,1,1), imshow(gray), title('Gray');
subplot(2,1,2), imhist(gray);
impixelinfo; %Pixel info of the Gray image

%<-----Organized----->

% Organize the display
figure

%Display RGB image and Plot Histogram
subplot(2,3,1), imshow(original), title('RGB');
subplot(2,3,4), plot(x, yRed, 'Red', x, yGreen, 'Green', x, yBlue, 'Blue');

%Display Black & White image and Plot Histogram
subplot(2,3,2), imshow(bw), title('B & W');
subplot(2,3,5), imhist(bw);

%Display Gray image and Plot Histogram
subplot(2,3,3), imshow(gray), title('Gray');
subplot(2,3,6), imhist(gray);
impixelinfo;

```

Output:

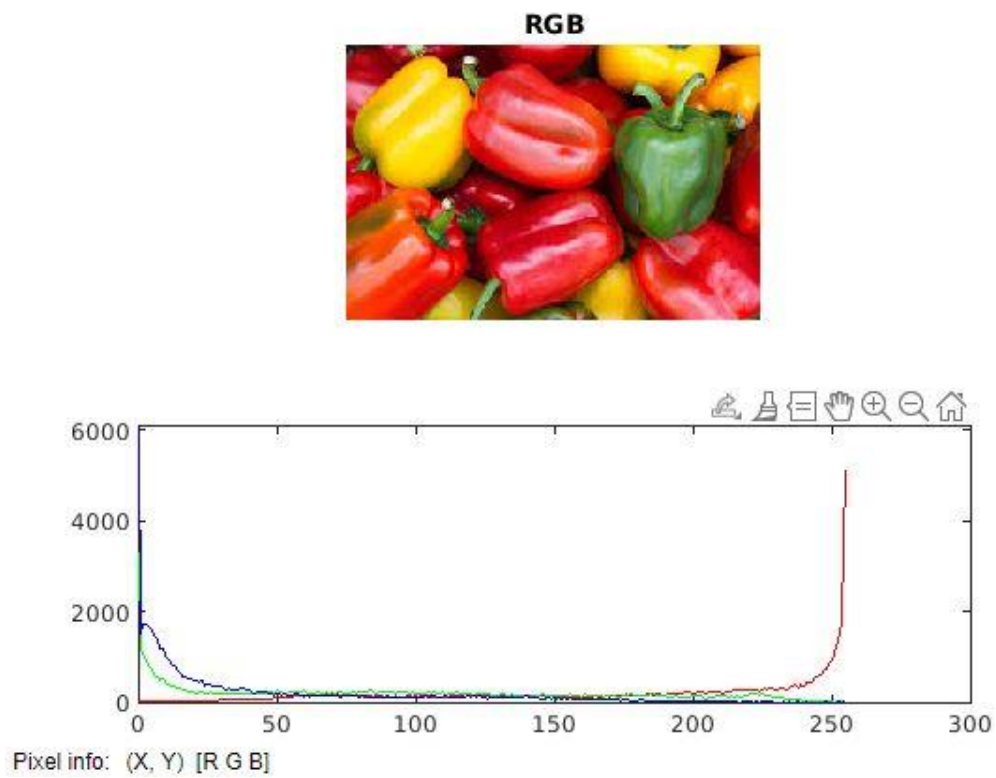


Figure 1: Display RGB Image with Histogram graph of pixel

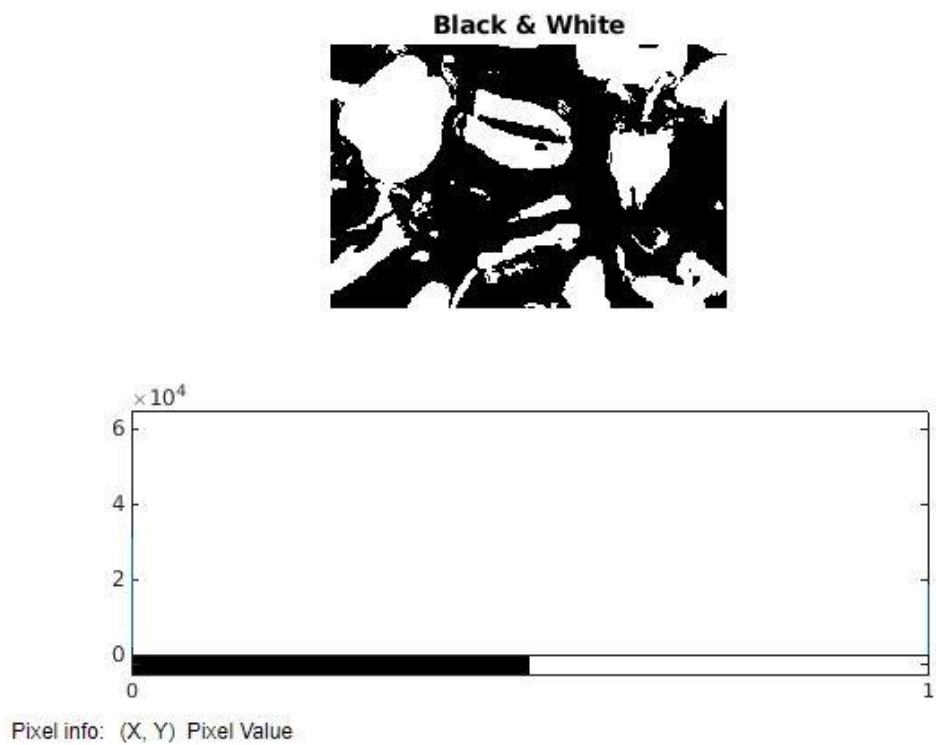


Figure 2: Display Black & White Image with Histogram graph of pixel

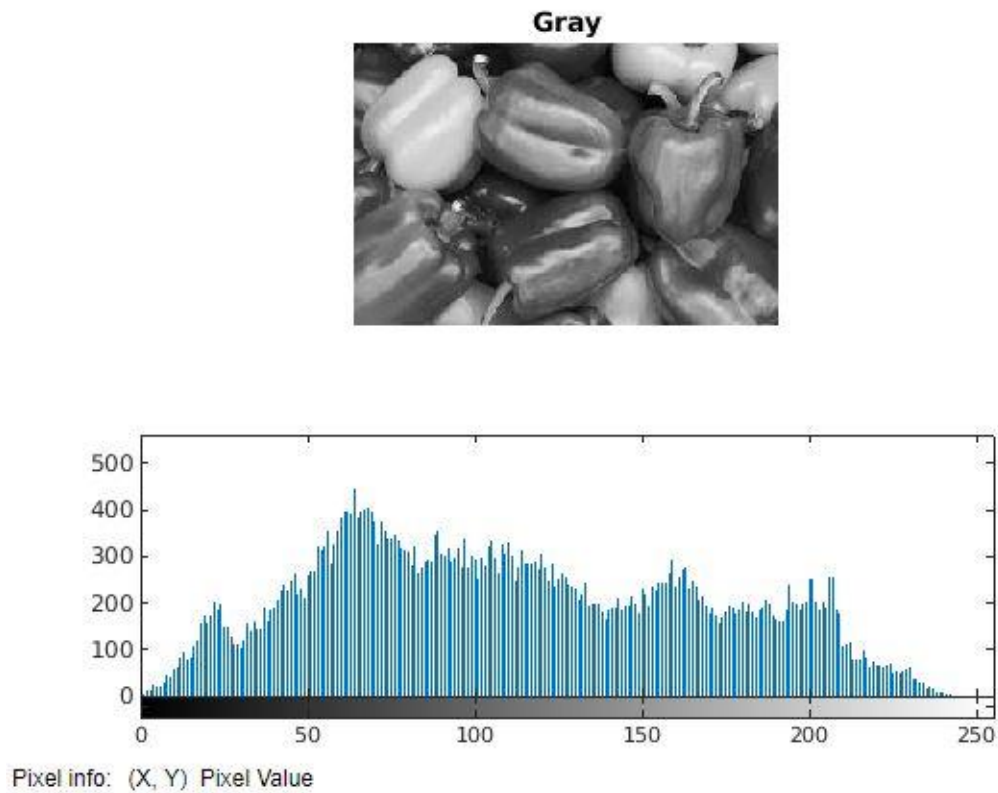


Figure 3: Display Gray Image with Histogram graph of pixel

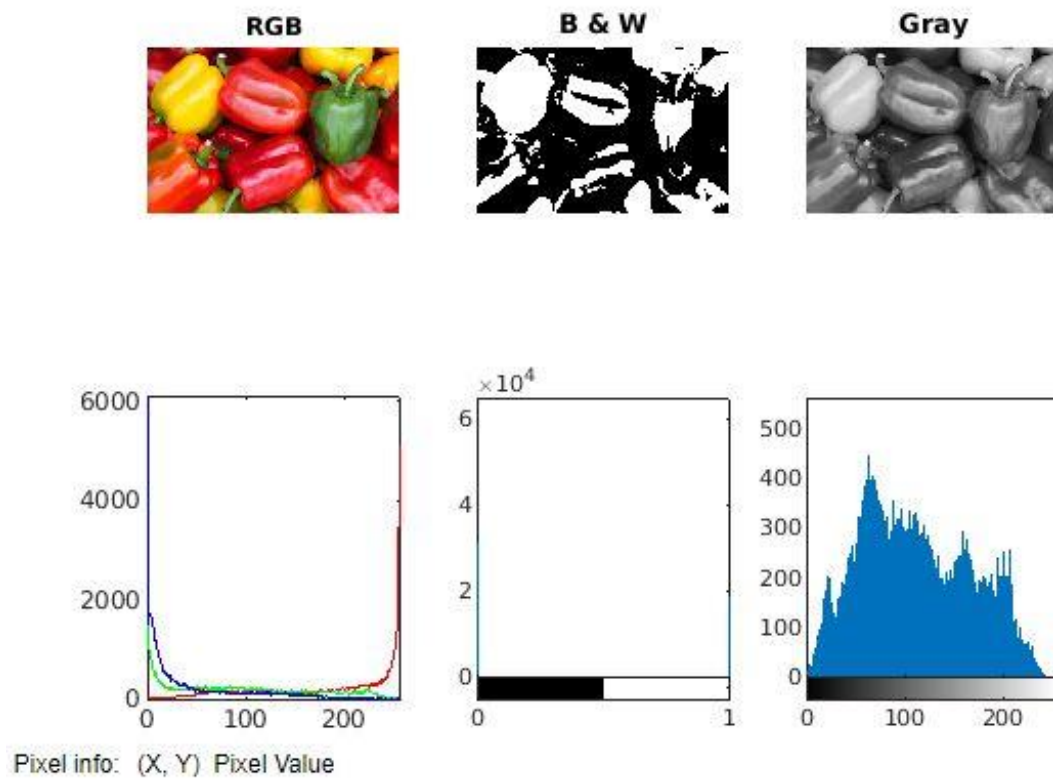


Figure 4: Organized the output