EXPERIMENT – 5

MCQ:

1. When an RGB image is displayed, the entire image is black. Then,

a) each pixel in the image have the same, but any nonzero value

b) all the three colour components have different values

c) elements in each colour components have same value

d) all the pixels have the same value of zero.

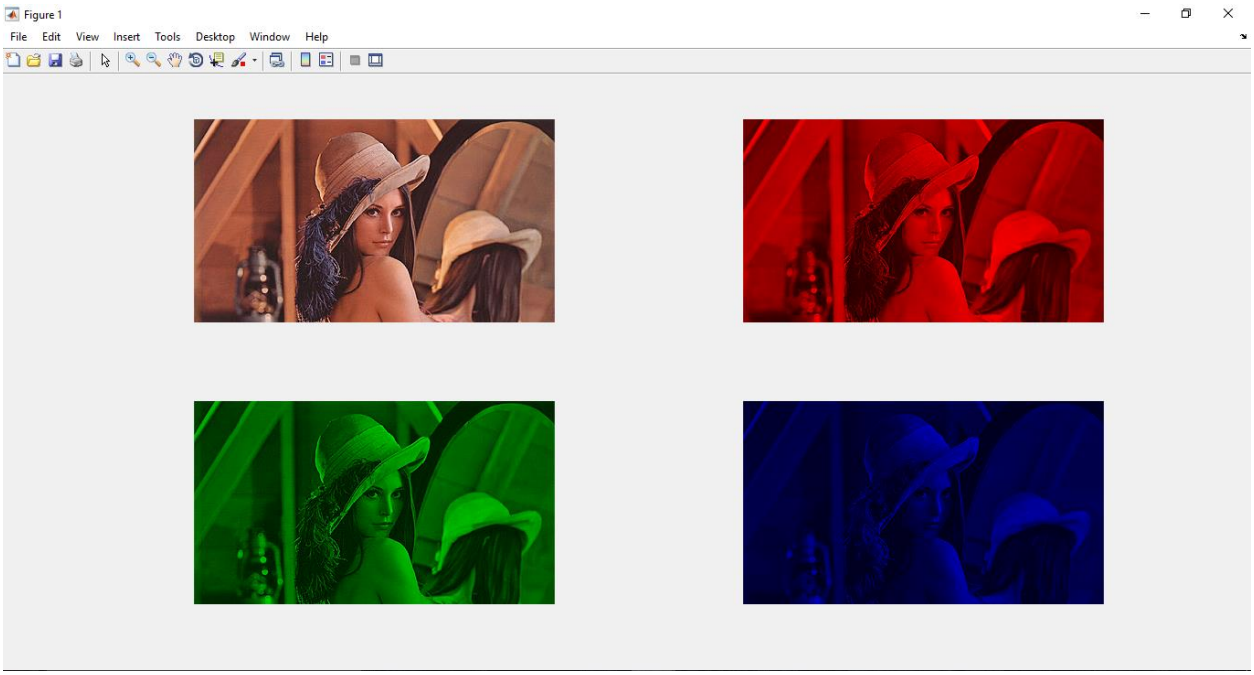
2. Suppose X, Y and Z are three matrices of size 256x256 and X and Y have the same elements. Assume that all the elements in Z has a value of 255 and Y is a zero matrix. If X,Y and Z corresponds to R,G and B components of an image A displayed,

a) The image A is Black
b) The image A is Blue
c) The image A is Yellow
d) The image A is Red

Answers: Q1 d) all the pixels have the same value of zero Q2 b) the image is blue

<u>Assignment – 1</u>

```
clc;
clear all;
close all;
RGB = imread('len_top.jpg');
red = RGB(:,:,1);
green = RGB(:,:,2);
blue = RGB(:,:,3);
a = zeros(size(RGB, 1), size(RGB, 2));
just_red = cat(3, red, a, a);
just_green = cat(3, a, green, a);
just_blue = cat(3, a, a, blue);
figure
subplot(221)
imshow(RGB)
subplot(222)
imshow(just_red)
subplot(223)
imshow(just_green)
subplot(224)
imshow(just_blue)
```



MCQ:

1. _____ is the main indicator of colour.
   a) Hue
   b) Saturation
   c) Value
   d) Intensity

2. If each element in the R,G and B component matrices are represented with 8-bit numbers, the total number of colours in the image is:

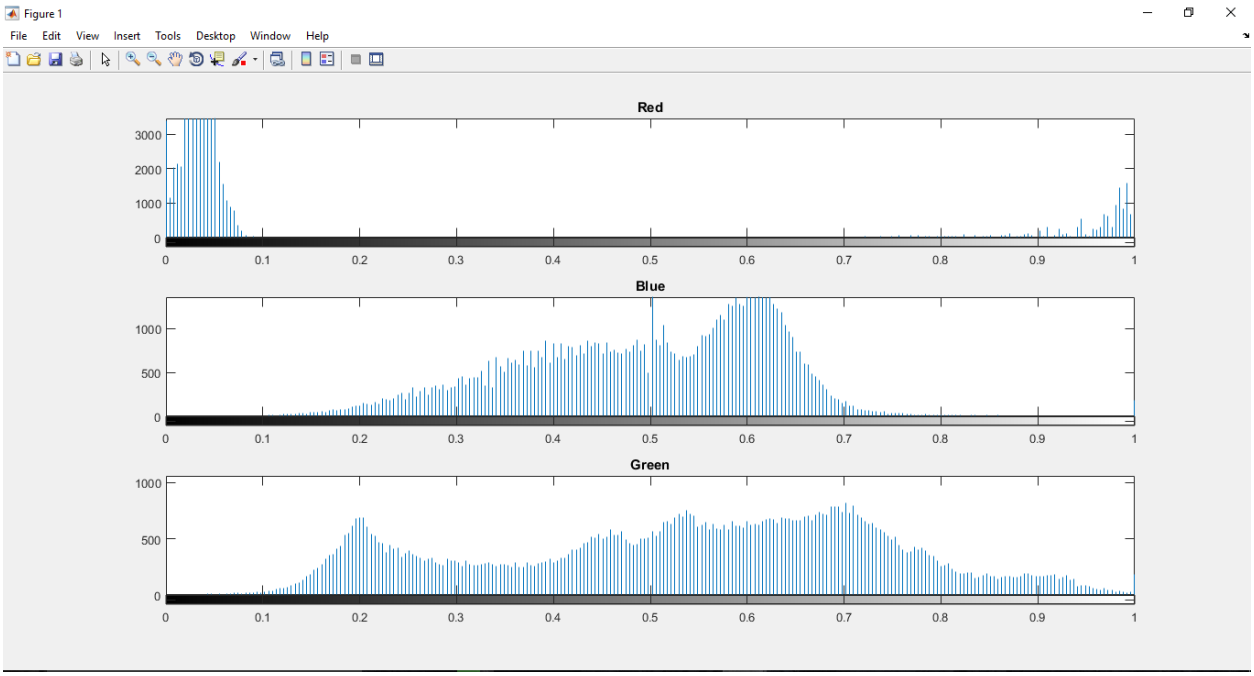
a) 28
b) 28+28+28
c) 28×28×28
d) 3×28

Answers: Q1 a) Hue, Q2) 2^8 * 2^8 * 2^8

Assignment – 2

```
clc;
clear all;
close all;
input = imread('len_top.jpg');
i=im2double(input);
s = rgb2hsv(input);
figure
subplot(311)
imhist(s(:,:,1)), title('Red')
subplot(312)
imhist(s(:,:,2)), title('Blue')
subplot(313)
```

```
imhist(s(:,:,3)), title('Green')
```



MCQ:

1. Full form of HSI format is

a) Hue Stain Intensity (b) High Saturation Intensity (c) Hue Saturation Intensity (d) High Saturation Index

2. HSV and HSI color format are same or not?
a) N0 b) YES

3. Which one of the following is not a color format?
a) YCbCr b) CMYK (c) YCbPr (d) CMYC

Answers: Q1 c) Hue Saturation Intensity, Q2 a) NO, Q3 d) CMYC

Assignment – 3

Q1

```
clc;
clear all;
close all;
input = imread('len_top.jpg');
s = rgb2hsv(input);
Inverted=1-s;
figure
imshow(s),title('Original HSV Image')
figure
imshow(Inverted),title('Inverted Image')
J = imadjust(s,[.2 .3 0; .6 .7 1],[]);
figure
subplot(311)
imhist(s(:,:,1)), title('Red')
subplot(312)
imhist(s(:,:,2)), title('Blue')
subplot(313)
imhist(s(:,:,3)), title('Green')
figure
imshow(J),title('Using Imadjust')
G = imgaussfilt(s);
figure
imshow(G),title('Gaussian Filter')
```

Figure 1

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Original HSV Image

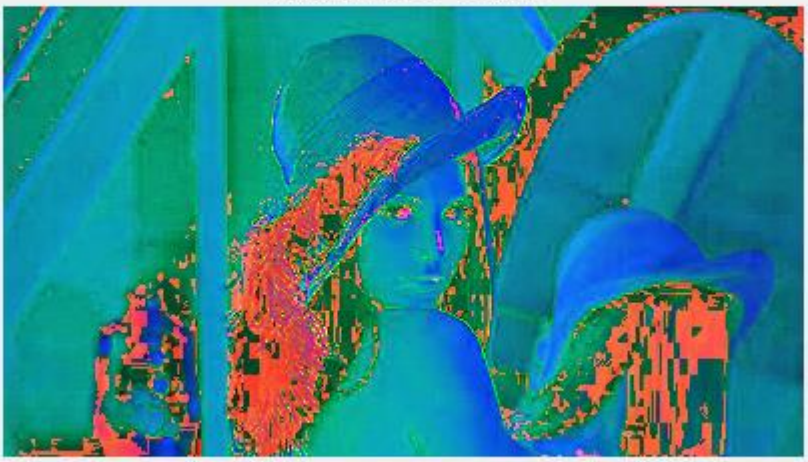

Figure 2

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Inverted Image

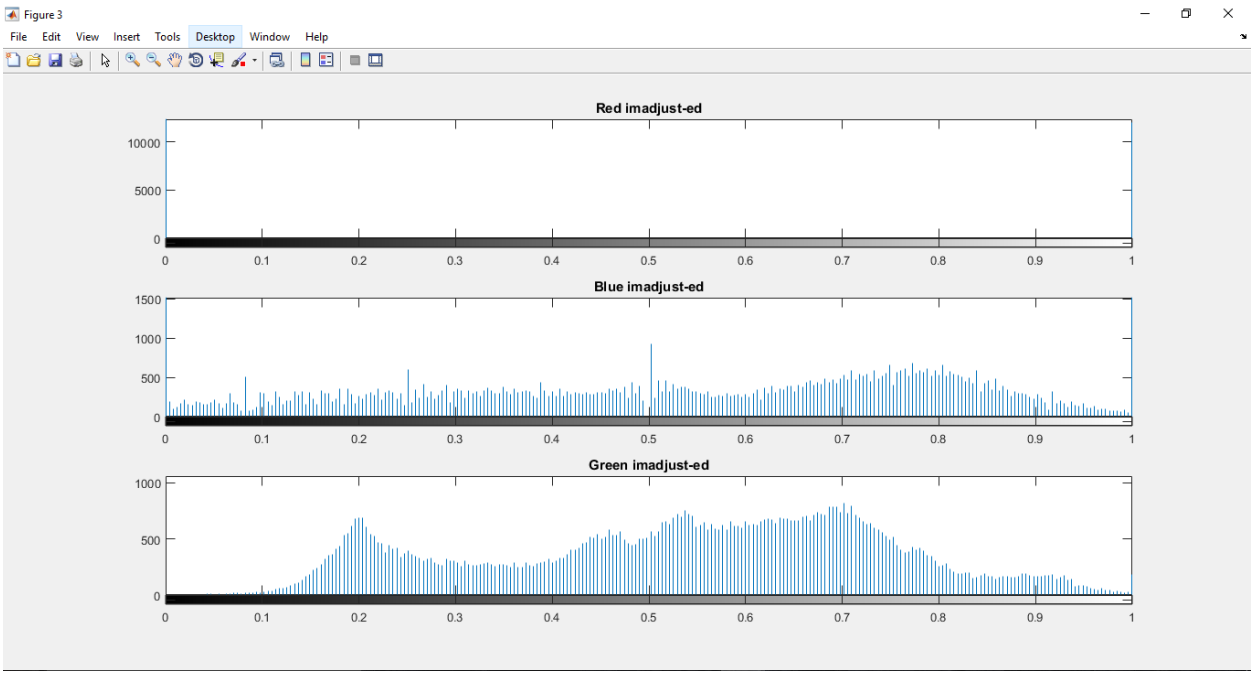
Figure 3
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Red imadjust-ed
10000
5000
0
0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1
Blue imadjust-ed
1500
1000
500
0
0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1
Green imadjust-ed
1000
500
0
0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1

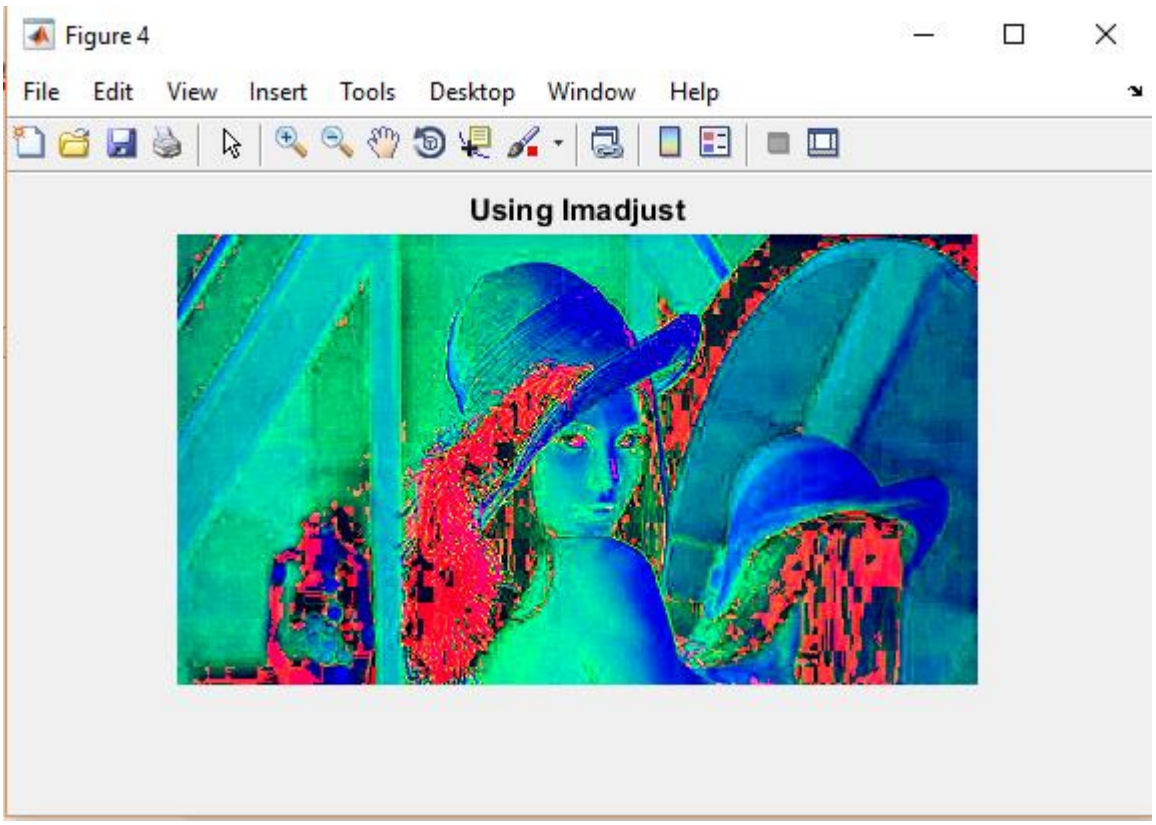
Figure 4
File Edit View Insert Tools Desktop Window Help
Using Imadjust

Figure 5

File Edit View Insert Tools Desktop Window Help

Gaussian Filter

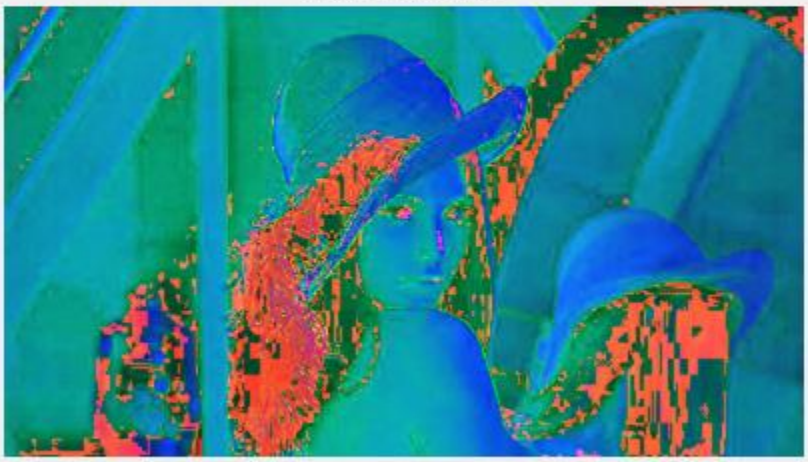

Figure 6

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Inverted RGB

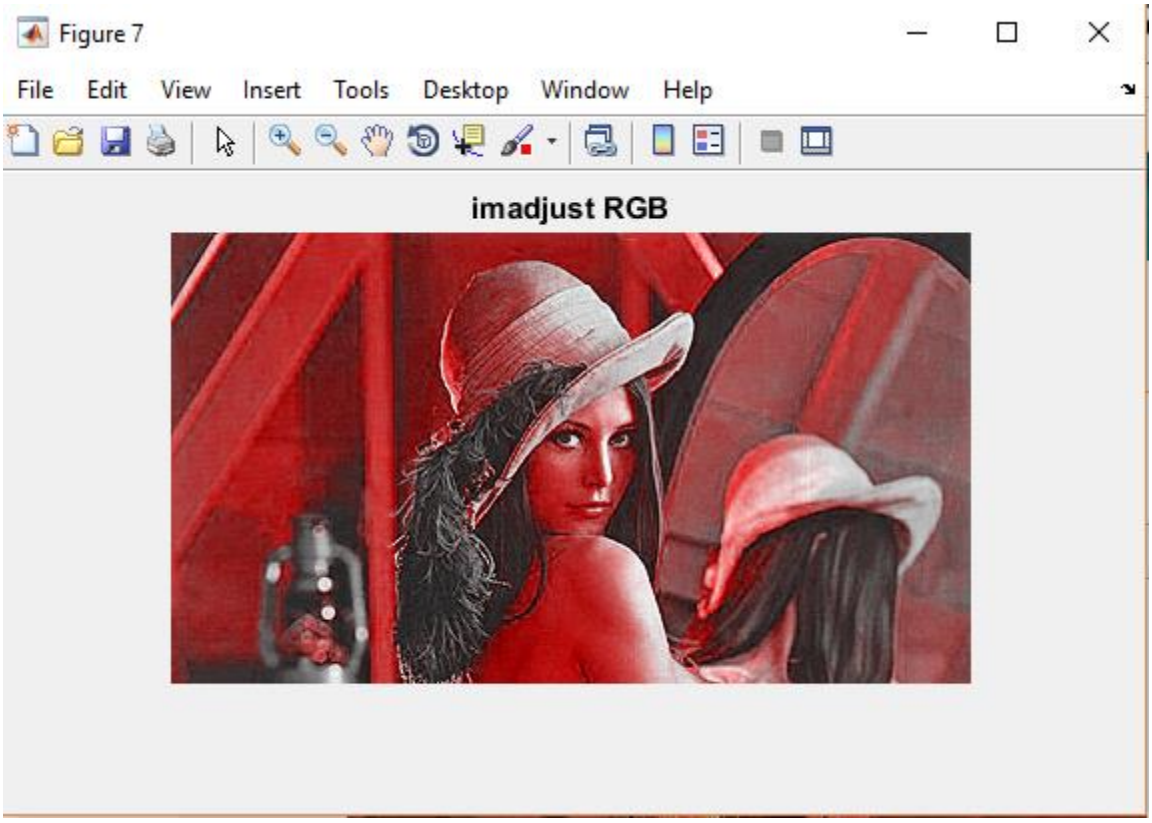
Figure 7
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imadjust RGB

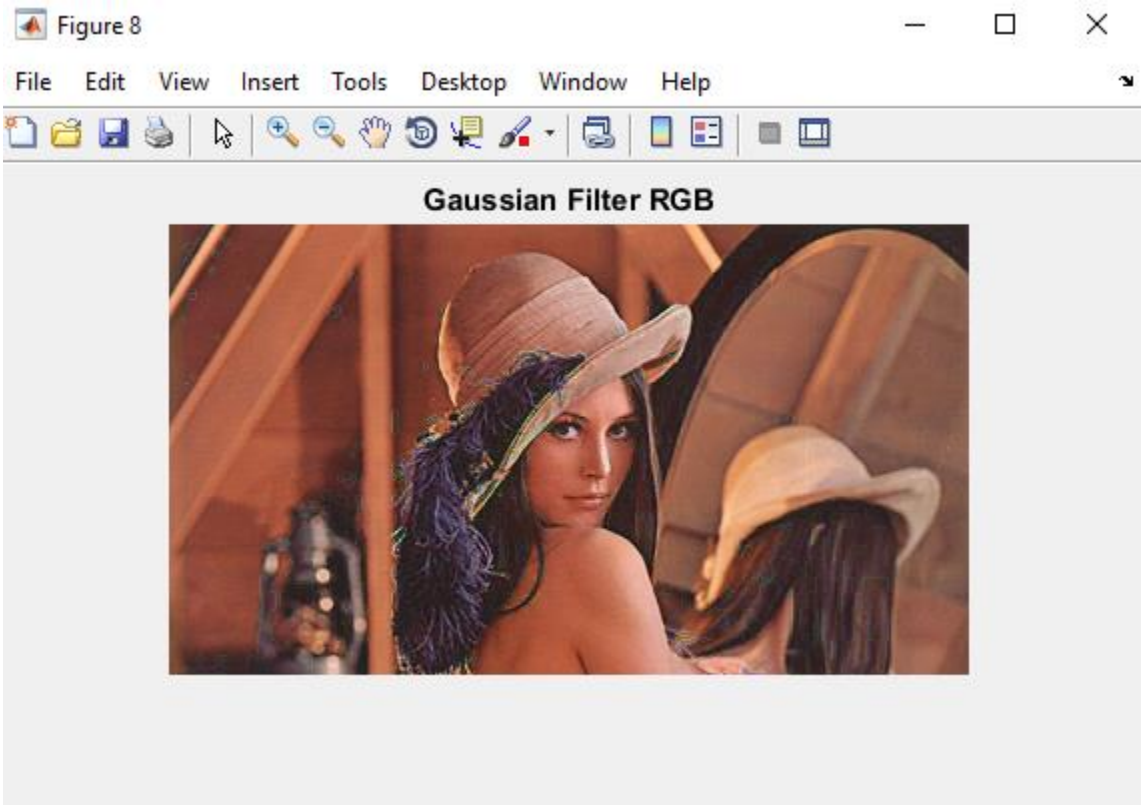
Figure 8
File Edit View Insert Tools Desktop Window Help
Gaussian Filter RGB