

## CO543 – Image Processing Lab02

### 1. Image thresholding



Figure 01

A) Is original image and B) is output for `imgThresh(I1_car, 120)` function

### 2. Image arithmetic operations

Input Images:



Output Image for above inputs:





C)



D)

- A) This is output for simply adding two original images
- B) This is output for simply subtracting two original images
- C) This is output for `cv2.add()` two original images
- D) This is output for `cv2.subtract()` two original images

### 3. Write simple programs to demonstrate

#### a. Log transformation



A)



B)

- A) Input image
- B) Output image for `logTransform(I1_car)` function

b. Power transformation



A)

B)

A) Input image

B) Output image for `powerTrans(I1_car, 0.2)` function

c. Gray level slicing



A)

B)

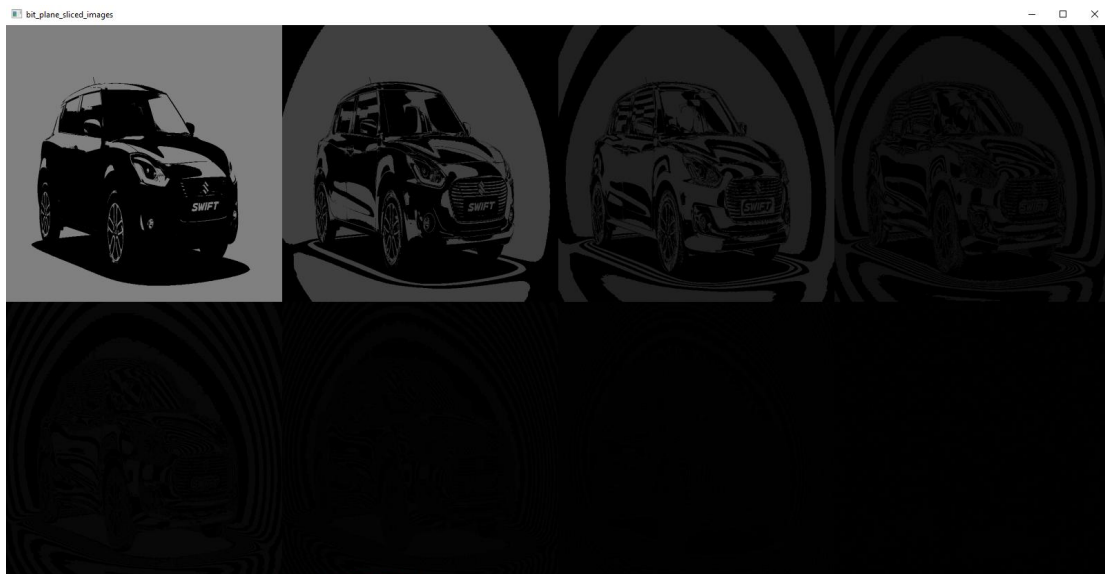
A) Input image

B) Output image for `graylevelSlice(I1_car, 10, 100)` function

#### d. Bit plane slicing



A)



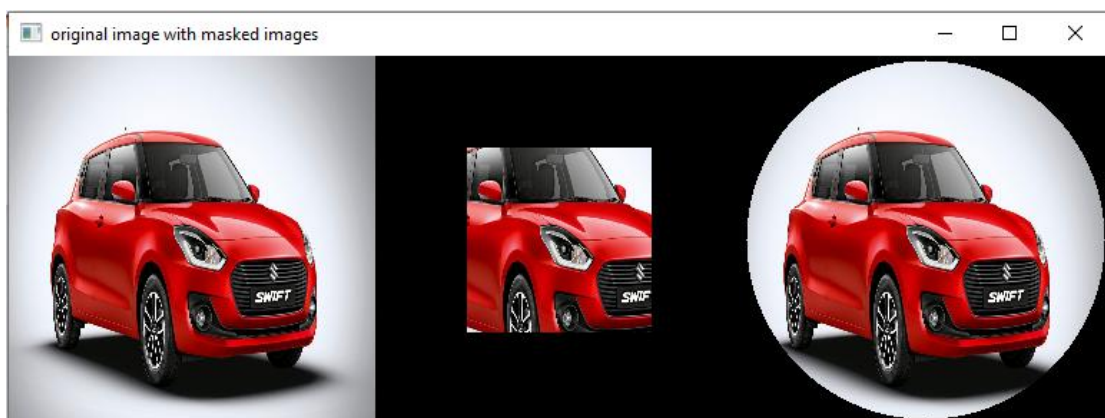
B)

A) Input image

B) Output image, all 8 images starting from bit 8 plane(MSB) to bit 1 plane(LSB)

Function: `bitPlaneSlice(I1_car)`

#### 4. Masking



A)

In above A) , the left corner image is original input image and other two images are masked output images

## 5. Brightness



A)



B)

A) Input image

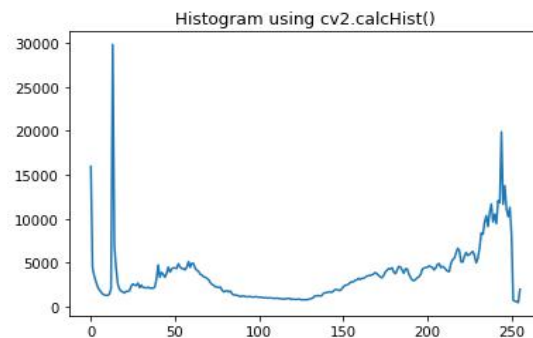
B) Output image for `addbrightness(l1_car, 100)`

## 6. Histogram

### Histogram Calculation in OpenCV



A)



B)

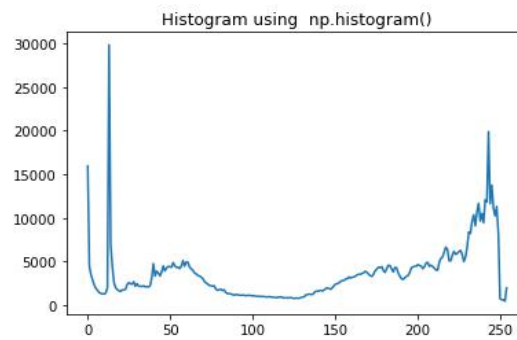
A) Input image

B) Histogram of image A) using `calcHist(l1_car, "Histogram using cv2.calcHist()")` function using `cv2.calcHist()`

## Histogram Calculation in Numpy



A)



B)

A) input image

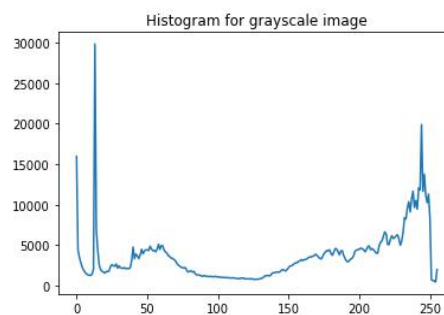
B) Histogram of A) using np.histogram()

Function: `npHist(I1_car, "Histogram using np.histogram()")`

a. Show a histogram plot for a grayscale image



A)



B)

A) input image

B) Histogram of A) using own histogram function

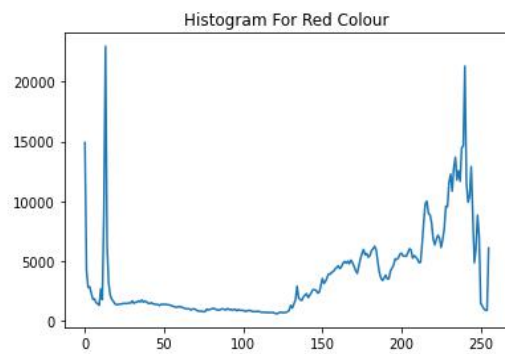
Function: `grayHist(I1_car, "Histogram for grayscale image")`



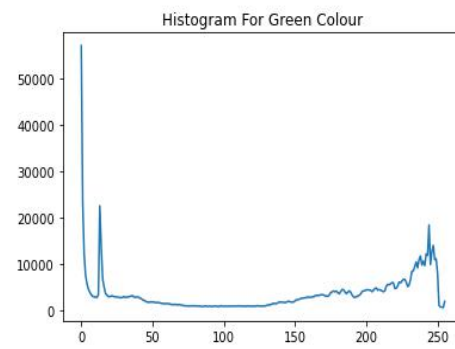
b. Show three histograms for a given RGB image



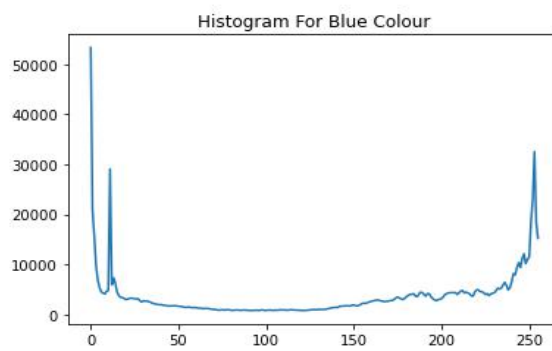
A)



B)



C)



D)

- A) Input image
- B) Histogram for Red colour component
- C) Histogram for Green colour component
- D) Histogram for Blue colour component

Function: `RGBhist(I2_color)`