

DIP ASSIGNMENT № 1

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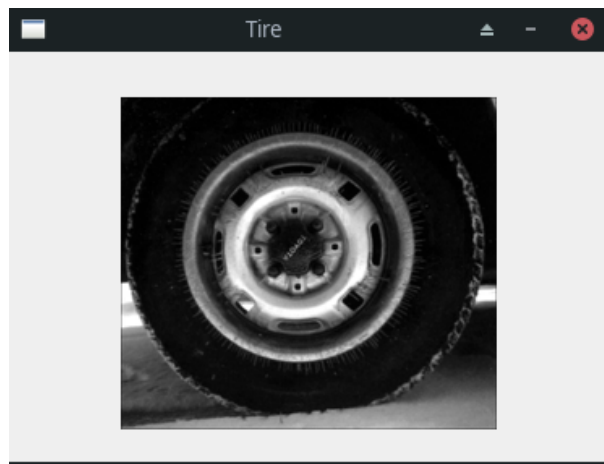
September 11, 2022

Problem 1

Read and display image.

```
1 import cv2 as cv
2
3 path = r"../images/tire.tif"
4 img = cv.imread(path)
5 cv.imshow('Tire', img)
6 cv.waitKey(0)
```

Output



Problem 2

Read a gray-scale image of 256x256, add 20 with every intensity value. Write it to another image file and show it.

```
1 import cv2 as cv
2
3 p = r'../images/cameraman.tif'
4 img = cv.imread(p)
```

```

5 oldimg = cv.imread(p)
6 height = img.shape[0]
7 width = img.shape[1]
8 for i in range(0, height):
9     for j in range(0, width):
10         img[i, j] = (img[i, j] + 20) % 256
11
12 cv.imshow("newCameraman", img)
13 cv.imshow("oldCameraman", oldimg)
14 cv.waitKey(0)

```

Output



Problem 3

Resize given image.

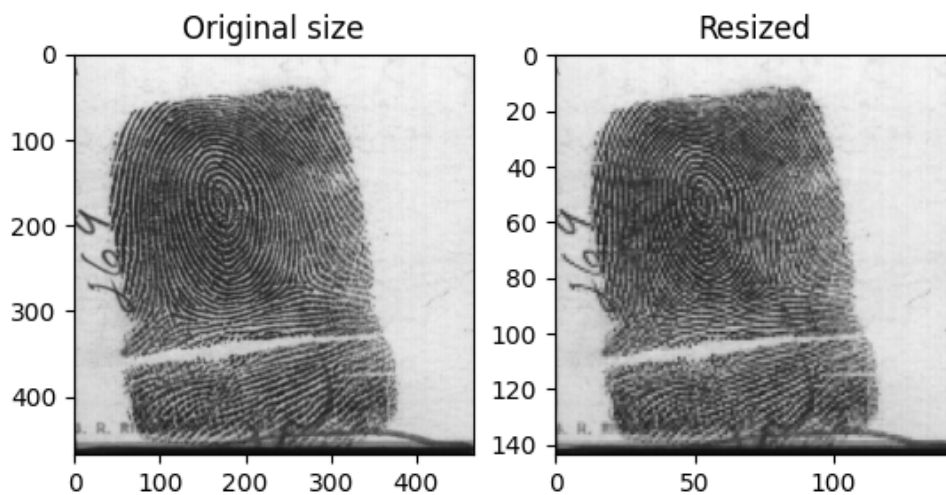
```

1 import cv2 as cv
2 import matplotlib.pyplot as plt
3
4 p = r'../images/fingerprint2.pgm'
5 img = cv.imread(p)
6 plt.subplot(1, 2, 1)
7 plt.title('Original size')
8 plt.imshow(img)
9 re_img = cv.resize(img, (144, 144))
10 plt.subplot(1, 2, 2)
11 plt.title('Resized')
12 plt.imshow(re_img)

```

```
13 plt.show()
```

Output



Problem 4

Show RGB color components separately of an image (in color).

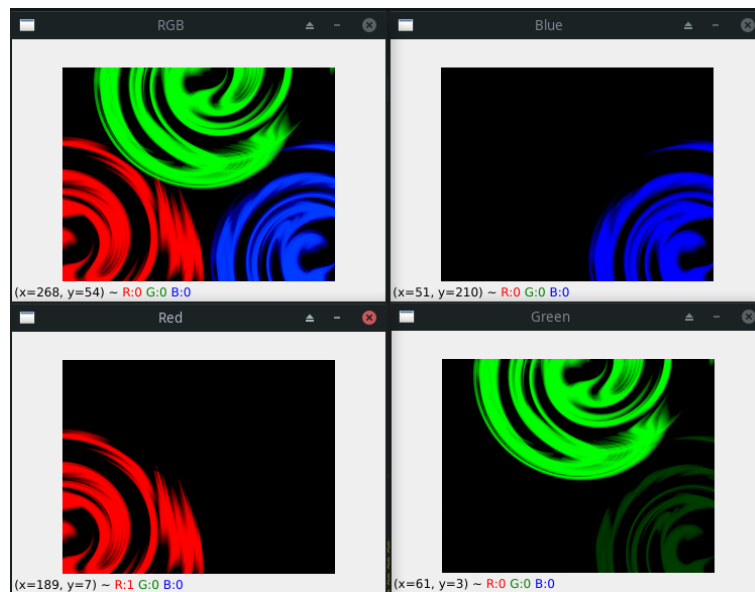
```
1 import cv2 as cv
2
3 img = cv.imread("../images/rgb2.jpg")
4 blue = img.copy()
5 blue[:, :, 1] = 0
6 blue[:, :, 2] = 0
7 green = img.copy()
8 green[:, :, 0] = 0
9 green[:, :, 2] = 0
10 red = img.copy()
11 red[:, :, 0] = 0
12 red[:, :, 1] = 0
13 cv.imshow("RGB", img)
```

```

14 cv.imshow("Blue", blue)
15 cv.imshow("Green", green)
16 cv.imshow("Red", red)
17 cv.waitKey(0)
18 cv.destroyAllWindows()

```

Output



Problem 5

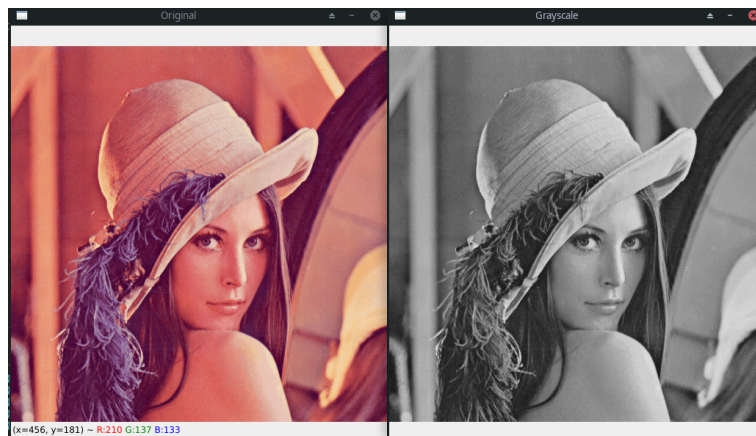
Convert given color image into gray-scale image.

```

1 import cv2 as cv
2
3 p = r'../images/lenna.bmp'
4 img = cv.imread(p)
5 cv.imshow('original', img)
6 gray_img = cv.cvtColor(img, cv.COLOR_BGR2GRAY)
7 cv.imshow('gray schale', gray_img)
8 cv.waitKey(0)

```

Output



Problem 6

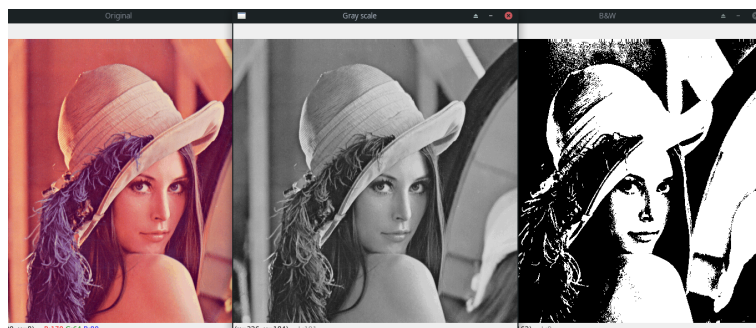
Convert given color/gray-scale image into black white image.

```

1 import cv2 as cv
2
3 p = r'../images/lenna.bmp'
4 img = cv.imread(p)
5 cv.imshow("Original", img)
6 gimg = cv.cvtColor(img, cv.COLOR_BGR2GRAY)
7 cv.imshow("Gray scale", gimg)
8 (thresh, bandw) = cv.threshold(gimg, 127, 255, cv.THRESH_BINARY)
9 cv.imshow("B&W", bandw)
10 cv.waitKey(0)

```

Output



Problem 7

Write given 2-D data in image file.

```
1 import cv2 as cv
2
3 p = r'../images/cameraman.tif'
4 img = cv.imread(p)
5 cv.imwrite('CamMan.jpg',img)
```

Output

