

Caesar Noor .S.A

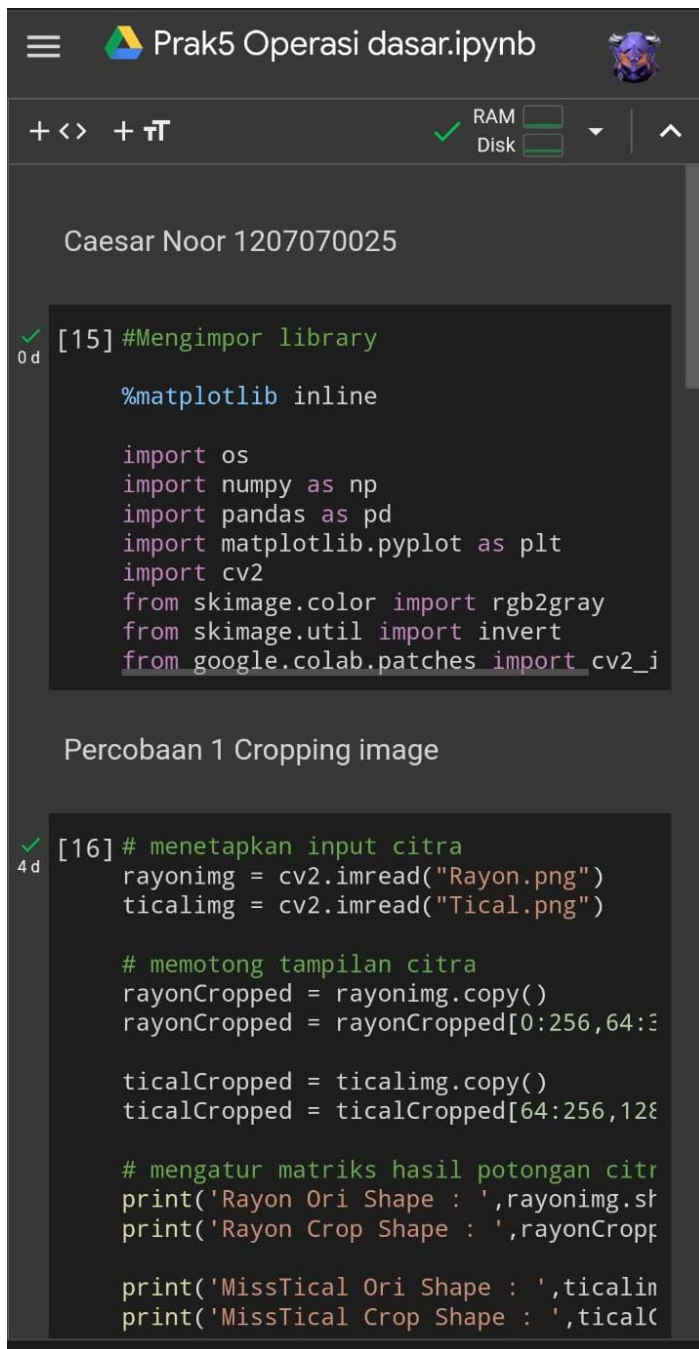
1207070025

Praktikum 5

PCD

Hasil Screenshot :

Operasi Dasar



```
[15] #Mengimpor library
%matplotlib inline

import os
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
import cv2
from skimage.color import rgb2gray
from skimage.util import invert
from google.colab.patches import cv2_i

Percobaan 1 Cropping image

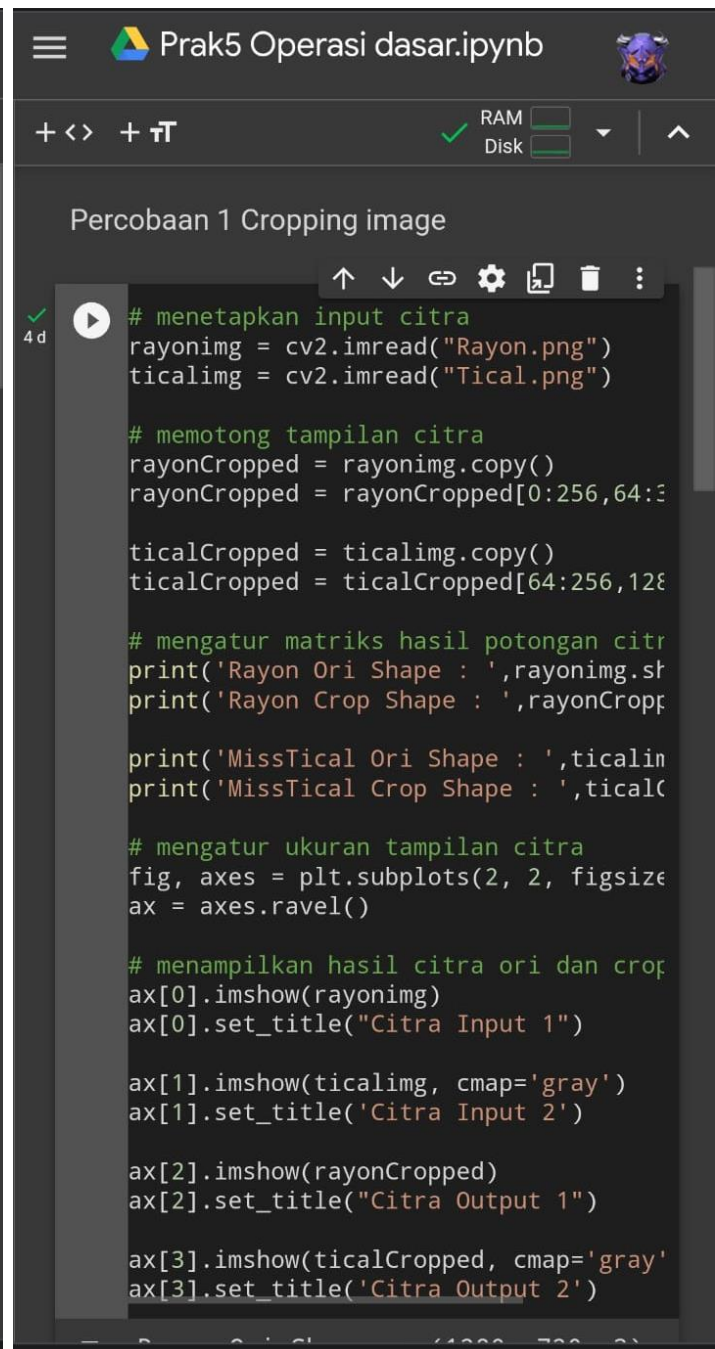
[16] # menetapkan input citra
rayonimg = cv2.imread("Rayon.png")
ticalimg = cv2.imread("Tical.png")

# memotong tampilan citra
rayonCropped = rayonimg.copy()
rayonCropped = rayonCropped[0:256,64:3

ticalCropped = ticalimg.copy()
ticalCropped = ticalCropped[64:256,128

# mengatur matriks hasil potongan citr
print('Rayon Ori Shape : ',rayonimg.sh
print('Rayon Crop Shape : ',rayonCrop

print('MissTical Ori Shape : ',ticalin
print('MissTical Crop Shape : ',ticalC
```



```
Percobaan 1 Cropping image

# menetapkan input citra
rayonimg = cv2.imread("Rayon.png")
ticalimg = cv2.imread("Tical.png")

# memotong tampilan citra
rayonCropped = rayonimg.copy()
rayonCropped = rayonCropped[0:256,64:3

ticalCropped = ticalimg.copy()
ticalCropped = ticalCropped[64:256,128

# mengatur matriks hasil potongan citr
print('Rayon Ori Shape : ',rayonimg.sh
print('Rayon Crop Shape : ',rayonCrop

print('MissTical Ori Shape : ',ticalin
print('MissTical Crop Shape : ',ticalC

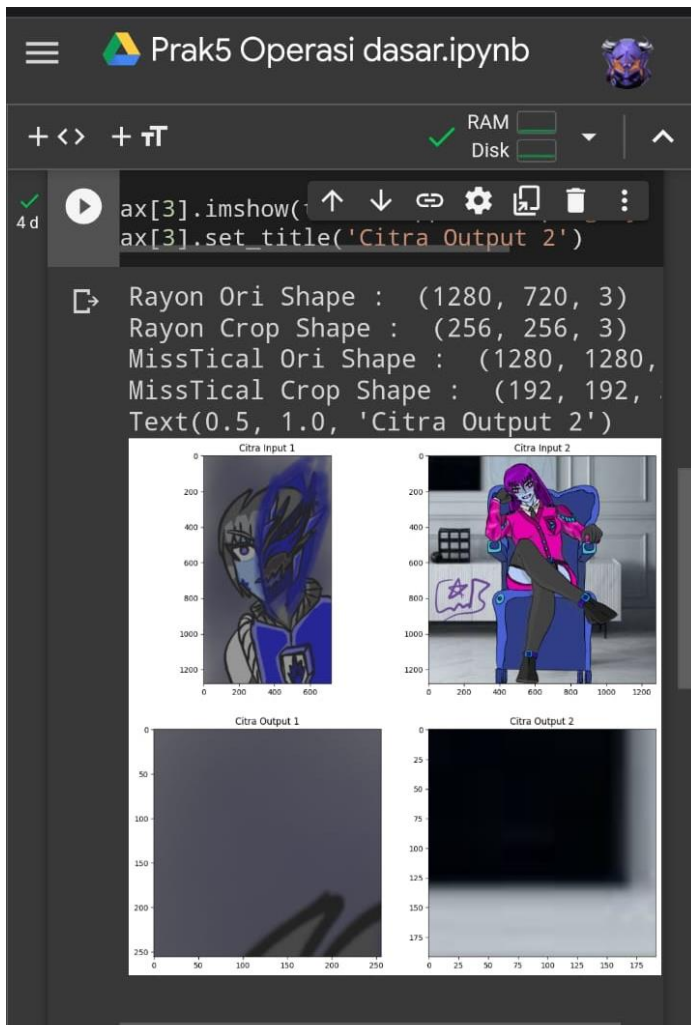
# mengatur ukuran tampilan citra
fig, axes = plt.subplots(2, 2, figsize
ax = axes.ravel()

# menampilkan hasil citra ori dan crop
ax[0].imshow(rayonimg)
ax[0].set_title("Citra Input 1")

ax[1].imshow(ticalimg, cmap='gray')
ax[1].set_title('Citra Input 2')

ax[2].imshow(rayonCropped)
ax[2].set_title("Citra Output 1")

ax[3].imshow(ticalCropped, cmap='gray'
ax[3].set_title('Citra Output 2')
```

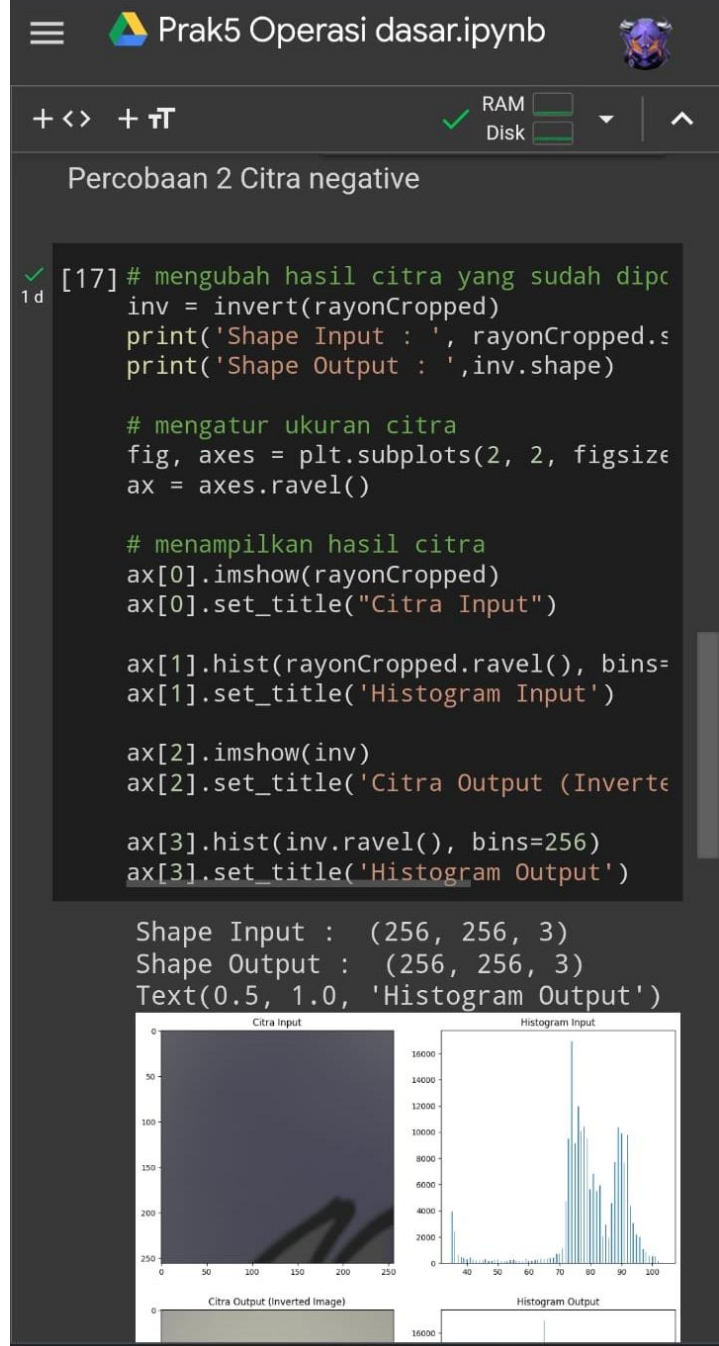


### Percobaan 2 Citra negative

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```
[17] # mengubah hasil citra yang sudah dipc
inv = invert(rayonCropped)
print('Shape Input : ', rayonCropped.s
print('Shape Output : ', inv.shape)

# mengatur ukuran citra
```

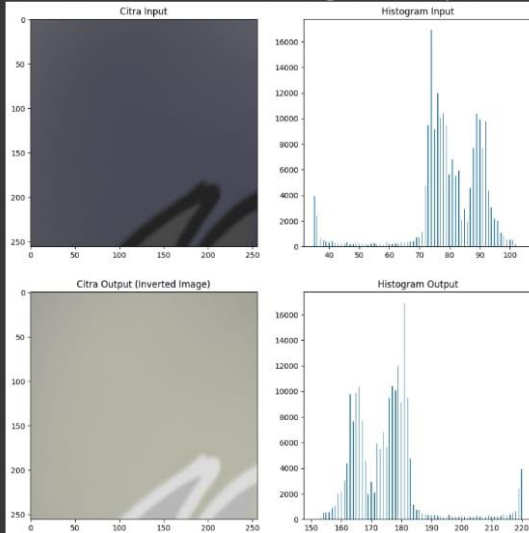




+ <> + T

✓ RAM  
Disk

✓ [17] Shape Input : (256, 256, 3)  
Shape Output : (256, 256, 3)  
Text(0.5, 1.0, 'Histogram Output')



! [23] copyTical = ticalCropped.copy().astype  
0 d

```
m1,n1= copyTical.shape
output1 = np.empty([m1, n1])

for baris in range(0, m1-1):
    for kolom in range(0, n1-1):
        a1 = baris
        b1 = kolom
        output1[a1, b1] = copyTical[b1, a1]

fig, axes = plt.subplots(2, 2, figsize=(10, 10))
ax = axes.ravel()

ax[0].imshow(ticalCropped, cmap='gray')
ax[0].set_title("Citra Input")
```



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✓ RAM  
Disk

! [23] copyTical = ticalCropped.copy().astype  
0 d

```
m1,n1= copyTical.shape
output1 = np.empty([m1, n1])

for baris in range(0, m1-1):
    for kolom in range(0, n1-1):
        a1 = baris
        b1 = kolom
        output1[a1, b1] = copyTical[b1, a1]

fig, axes = plt.subplots(2, 2, figsize=(10, 10))
ax = axes.ravel()

ax[0].imshow(ticalCropped, cmap='gray')
ax[0].set_title("Citra Input")

ax[1].hist(ticalCropped.ravel(), bins=256)
ax[1].set_title('Histogram Input')

ax[2].imshow(output1, cmap='gray')
ax[2].set_title('Citra Output (Brighter)')

ax[3].hist(output1.ravel(), bins=256)
ax[3].set_title('Histogram Input')
```

```
-----
-----
-----
ValueError
Traceback (most recent call last)
<ipython-input-23-e349c719b7f2> in
<cell line: 3>()
      1 copyTical =
      2 ticalCropped.copy().astype(float)
----> 3 m1,n1= copyTical.shape
      4 output1 = np.empty([m1,
```





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RAM

Disk



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```
[23] output1[a1, b1] = copyTical[b1
```

```
fig, axes = plt.subplots(2, 2, figsize=
ax = axes.ravel()
```

```
ax[0].imshow(ticalCropped, cmap='gray'
ax[0].set_title("Citra Input")
```

```
ax[1].hist(ticqlCropped.ravel(), bins=
ax[1].set_title('Histogram Input')
```

```
ax[2].imshow(output1, cmap='gray')
ax[2].set_title('Citra Output (Brighter
```

```
ax[3].hist(output1.ravel(), bins=256)
ax[3].set_title('Histogram Input')
```

-----  
-----  
-----  
**ValueError**

Traceback (most recent call last)  
[<ipython-input-23-e349c719b7f2>](#) in  
<cell line: 3>()

```
1 copyTical =
ticalCropped.copy().astype(float)
2
----> 3 m1,n1= copyTical.shape
4 output1 = np.empty([m1,
n1])
5
```

**ValueError:** too many values to  
unpack (expected 2)

SEARCH STACK OVERFLOW

# Brightness & Contrass

☰

Prak5 Brightness dan kontra...

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✓ RAM

✓ Disk

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Caesar Noor 1207070025

✓ [1]

# impor library  
import numpy as np  
import imageio  
import matplotlib.pyplot as plt

0d ✓ [3]

# membaca gambar  
img = imageio.imread("Vs.png")  
  
<ipython-input-3-04cae21b4f8b>:2: D  
img = imageio.imread("Vs.png")

✓ [5]

# menampilkan resolusi dan type gambar  
img\_height = img.shape[0]  
img\_width = img.shape[1]  
img\_channel = img.shape[2]  
img\_type = img.dtype

Brightness Grayscale

✓ [10]

# Parameter ditambahkan dengan nilai t  
def brighter(nilai):  
 for y in range(0, img\_height):  
 for x in range(0, img\_width):  
 red = img[y][x][0]  
 green = img[y][x][1]  
 blue = img[y][x][2]  
 gray = (int(red) + int(gre  
 gray += nilai  
 if gray > 255:  
 gray = 255  
 if gray < 0:  
 gray = 0  
 img\_brightness[y][x] = (gr

Berhasil disimpan!

☰

Prak5 Brightness dan kontra...

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✓ RAM

✓ Disk

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Brightness Grayscale

✓ [10]

# Parameter ditambahkan dengan nilai t  
def brighter(nilai):  
 for y in range(0, img\_height):  
 for x in range(0, img\_width):  
 red = img[y][x][0]  
 green = img[y][x][1]  
 blue = img[y][x][2]  
 gray = (int(red) + int(gre  
 gray += nilai  
 if gray > 255:  
 gray = 255  
 if gray < 0:  
 gray = 0  
 img\_brightness[y][x] = (gr

0d ! [14]

# Menambahkan brightness dengan 100 da  
brighter(-100)  
plt.imshow(img\_brightness)  
plt.title("Brightness -100")  
plt.show()  
  
brighter(100)  
plt.imshow(img\_brightness)  
plt.title("Brightness 100")  
plt.show()

-----  
-----  
-----  
ValueError  
Traceback (most recent call last)  
<ipython-input-14-5d3c8513981b> in  
<cell line: 2>()  
 1 # Menambahkan brightness  
 dengan 100 dan (-100)

```
Prak5 Brightness dan kontra...

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[14] -----
-----
-----
ValueError
Traceback (most recent call last)
<ipython-input-14-5d3c8513981b> in
<cell line: 2>()
    1 # Menambahkan brightness
    dengan 100 dan (-100)
----> 2 brighter(-100)
      3 plt.imshow(img_brightness)
      4 plt.title("Brightness
-100")
      5 plt.show()

<ipython-input-10-56de682eeb5c> in
brighter(nilai)
     12             if gray < 0:
     13                 gray = 0
----> 14
img_brightness[y][x] = (gray, gray,
gray)

ValueError: could not broadcast
input array from shape (3,) into
shape (4,)
```

SEARCH STACK OVERFLOW

```
[24] # brightness rgb
img_rgbbrightness = np.zeros(img.shape)
```

```
[25] akan nilai brightness dengan parameter
ighter(nilai):
    in range(0, img_height):
```

```
Prak5 Brightness dan kontra...

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[24] # brightness rgb
img_rgbbrightness = np.zeros(img.shape)
```

```
[25] akan nilai brightness dengan parameter
ighter(nilai):
    in range(0, img_height):
    or x in range(0, img_width):
        red = img[y][x][0]
        red += nilai
        if red > 255:
            red = 255
        if red < 0:
            red = 0
        green = img[y][x][1]
        green += nilai
        if green > 255:
            green = 255
        if green < 0:
            green = 0
        blue = img[y][x][2]
        blue += nilai
        if blue > 255:
            blue = 255
        if blue < 0:
            blue = 0
        img_rgbbrightness[y][x] = (red, gre
```

```
[27] # menampilkan hasil gambar btightness
rgbbrighter(-100)
plt.imshow(img_rgbbrightness)
plt.title("Brightness -100")
plt.show()

rgbbrighter(100)
plt.imshow(img_rgbbrightness)
plt.title("Brightness 100")
plt.show()
```



```
Prak5 Brightness dan kontra...

[27] # menampilkan hasil gambar btightness
      rgbbrighter(-100)
      plt.imshow(img_rgbbrightness)
      plt.title("Brightness -100")
      plt.show()

      rgbbrighter(100)
      plt.imshow(img_rgbbrightness)
      plt.title("Brightness 100")
      plt.show()

-----
-----
-----
ValueError
Traceback (most recent call last)
<ipython-input-27-2ebe822f1c9d> in
<cell line: 2>()
      1 # menampilkan hasil gambar
      btightness rgb dengan nilai (-100)
      dan 100
----> 2 rgbbrighter(-100)
      3
      plt.imshow(img_rgbbrightness)
      4 plt.title("Brightness
      -100")
      5 plt.show()

<ipython-input-25-9e2d26c918b2> in
rgbbrighter(nilai)
      21         if blue < 0:
      22             blue = 0
----> 23
img_rgbbrightness[y][x] = (red,
green, blue)

ValueError: could not broadcast
```

```
Prak5 Brightness dan kontra...

-100")
[27] 5 plt.show()

<ipython-input-25-9e2d26c918b2> in
rgbbrighter(nilai)
      21         if blue < 0:
      22             blue = 0
----> 23
img_rgbbrightness[y][x] = (red,
green, blue)

ValueError: could not broadcast
input array from shape (3,) into
shape (4,)

SEARCH STACK OVERFLOW

Contrass

[22] # variable gambar kontras
      img_contrass = np.zeros(img.shape, dtype=

[19] # menambah nilai kontras dengan nilai
      def contrass(nilai):
          for y in range(0, img_height):
              for x in range(0, img_width):
                  red = img[y][x][0]
                  green = img[y][x][1]
                  blue = img[y][x][2]
                  gray = (int(red) + int(green) + int(blue)) // 3
                  gray *= nilai
                  if gray > 255:
                      gray = 255
                  img_contrass[y][x] = (gray, gray, gray)
```

```
Prak5 Brightness dan kontra...

[19] # menambah nilai kontras dengan nilai
def contrass(nilai):
    for y in range(0, img_height):
        for x in range(0, img_width):
            red = img[y][x][0]
            green = img[y][x][1]
            blue = img[y][x][2]
            gray = (int(red) + int(green) + int(blue)) // 3
            gray *= nilai
            if gray > 255:
                gray = 255
            img_contrass[y][x] = (gray, gray, gray)

[23] # menampilkan hasil gambar kontras
contrass(2)
plt.imshow(img_contrass)
plt.title("Contrass 2")
plt.show()

contrass(3)
plt.imshow(img_contrass)
plt.title("Contrass 3")
plt.show()

-----
-----
-----
ValueError
Traceback (most recent call last)
<ipython-input-23-610c8fa67dbd> in
<cell line: 2>()
      1 # menampilkan hasil gambar
kontras
----> 2 contrass(2)
      3 plt.imshow(img_contrass)
      4 plt.title("Contrass 2")
      5 plt.show()
```

```
Prak5 Brightness dan kontra...

[23] -----
-----
ValueError
Traceback (most recent call last)
<ipython-input-23-610c8fa67dbd> in
<cell line: 2>()
      1 # menampilkan hasil gambar
kontras
----> 2 contrass(2)
      3 plt.imshow(img_contrass)
      4 plt.title("Contrass 2")
      5 plt.show()

<ipython-input-19-3a2ed530fe25> in
contrass(nilai)
      10
      11         if gray > 255:
      12             gray = 255
----> 12             img_contrass[y]
[x] = (gray, gray, gray)

ValueError: could not broadcast
input array from shape (3,) into
shape (4,)

SEARCH STACK OVERFLOW

Contrass Autolevel

[29] # Variable img_contrass
img_autocontrass = np.zeros(img.shape,

[31] # menambah nilai contrass gambar dengan
def autocontrass():
```



Prak5 Brightness dan kontra...

Contrass Autolevel

```
[29] # Variable img contrass
img_autocontrass = np.zeros(img.shape,

[31] # menambah nilai contrass gambar dengan
def autocontrass():
    xmax = 300
    xmin = 0
    d = 0
    # Mendapatkan nilai d, dimana nilai
    # untuk mendapatkan tingkat kontras
    for y in range(0, img_height):
        for x in range(0, img_width):
            red = img[y][x][0]
            green = img[y][x][1]
            blue = img[y][x][2]
            gray = (int(red) + int(green) + int(blue)) / 3
            if gray < xmax:
                xmax = gray
            if gray > xmin:
                xmin = gray
    d = xmax - xmin
    for y in range(0, img_height):
        for x in range(0, img_width):
            red = img[y][x][0]
            green = img[y][x][1]
            blue = img[y][x][2]
            gray = (int(red) + int(green) + int(blue)) / 3
            gray = int(float(255/d) * (gray - xmin))
            img_autocontrass[y][x] = (gray, gray, gray)

# menampilkan hasil contrass otomatis
plt.imshow(img_autocontrass)
plt.title("Contrass Autolevel")
```

Prak5 Brightness dan kontra...

```
# menampilkan hasil contrass otomatis
autocontrass()
plt.imshow(img_autocontrass)
plt.title("Contrass Autolevel")
plt.show()

-----
-----
ValueError
Traceback (most recent call last)
<ipython-input-33-8d943a46f2fa> in
<cell line: 2>()
      1 # menampilkan hasil
      2 contrass otomatis
----> 3 autocontrass()
      4
      5 plt.imshow(img_autocontrass)
      6 plt.title("Contrass
      7 Autolevel")
      8 plt.show()

<ipython-input-31-cd5894c1d3a3> in
autocontrass()
      24             gray =
      25             (int(red) + int(green) + int(blue))
      26             / 3
      27             gray =
      28             int(float(255/d) * (gray - xmin))
----> 29             img_autocontrass[y][x] = (gray,
      30             gray, gray)

ValueError: could not broadcast
input array from shape (3,) into
shape (4,)
```