PCVK IN GOOGLE COLAB

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PROGRAM STUDI D-IV TEKNIK INFORMATIKA
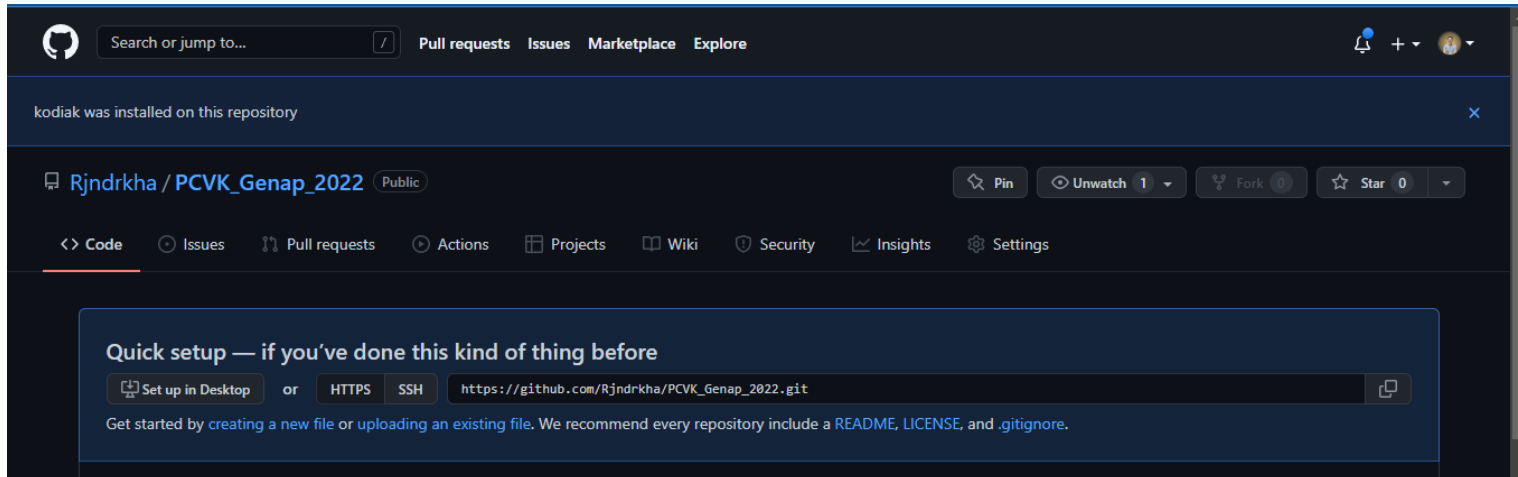
JURUSAN TEKNOLOGI INFORMASI
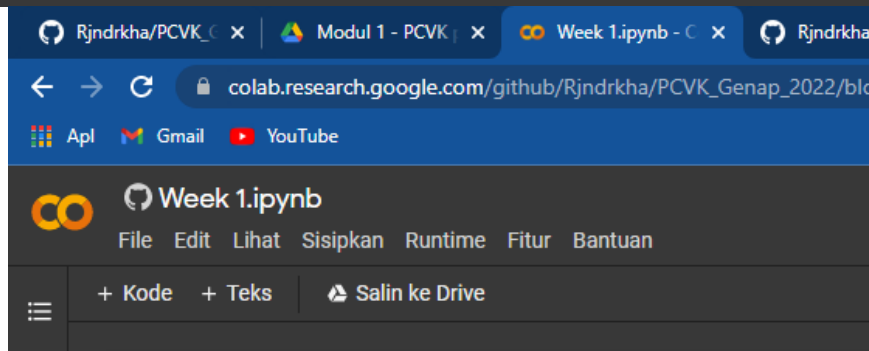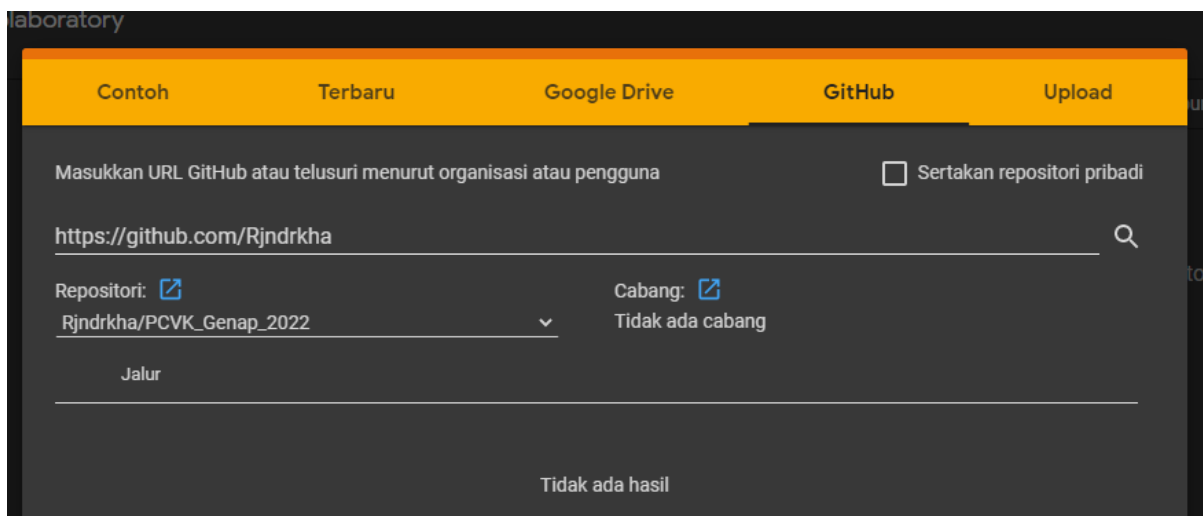
POLITEKNIK NEGERI MALANG

Practicum

1. Make Repository in Github

2. Connect Collab to Github

https://github.com/Rjndrkha/PCVK_Genap_2022.git

3. **Importing Library to Google Collab**


```python
import numpy as np
import pandas as pd
import cv2 as cv
from google.colab.patches import cv2_imshow #for image display
from skimage import io
from skimage import transform
from PIL import Image
import matplotlib.pylab as plt
#membuat list untuk menympan url dari beberapa image
urls = ["https://iiif.lib.ncsu.edu/iiif/0052574/full/800,/0/default.jpg",
        "https://iiif.lib.ncsu.edu/iiif/0016007/full/800,/0/default.jpg",
        "https://placekitten.com/800/777"]

#baca untuk tampilkan image
#loop pada tiap url image,beberapa image dapat disimpan pada list
for url in urls:
    image = io.imread(url)          #read image
    image = cv.resize(image, (0,0),fx=0.5, fy=0.5) #resze image to half size
    image_2 = cv.cvtColor(image,cv.COLOR_BGR2RGB) #convert coor to RGB
    final_frame = cv.hconcat((image,image_2)) #concatenate image
    cv2_imshow(final_frame) #show image
    print('\n')
```
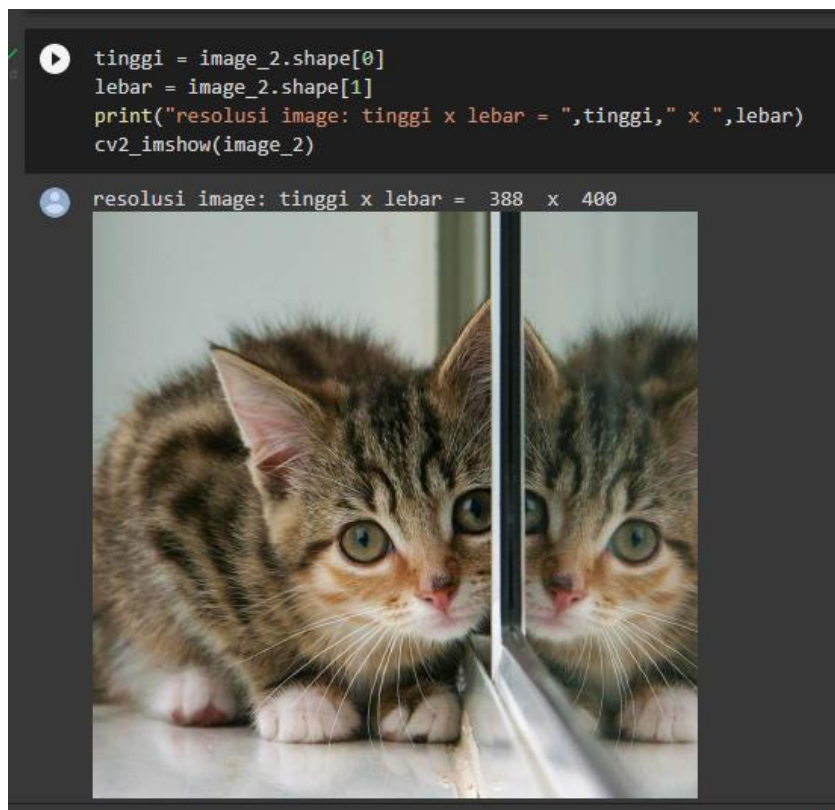
OUTPUT

4. Showing Image Resolution


```
tinggi = image_2.shape[0]
lebar = image_2.shape[1]
print("resolusi image: tinggi x lebar = ",tinggi," x ",lebar)
cv2_imshow(image_2)
```

```
resolusi image: tinggi x lebar =  388  x  400
```

5. Image With White diagonal Line


```
image_2= cv.cvtColor(image, cv.COLOR_BGR2RGB)
image_4 = cv.cvtColor(image, cv.COLOR_BGR2RGB)

# membuat garis HORIZOMTAL ditengah image
for y in range (lebar):
  image_4[ int((tinggi)/2),y] = [1,1,1]

final_frame = cv.hconcat((image_2, image_4))
cv2_imshow(final_frame)
```

6. Image With Vertical Line


```
image_4 = cv.cvtColor(image, cv.COLOR_BGR2RGB)

# membuat garis vertikal ditengah image
for y in range (tinggi):
  image_4[y, int((lebar)/2)] = [255,255,255]

final_frame = cv.hconcat((image_2, image_4))
cv2_imshow(final_frame)
```
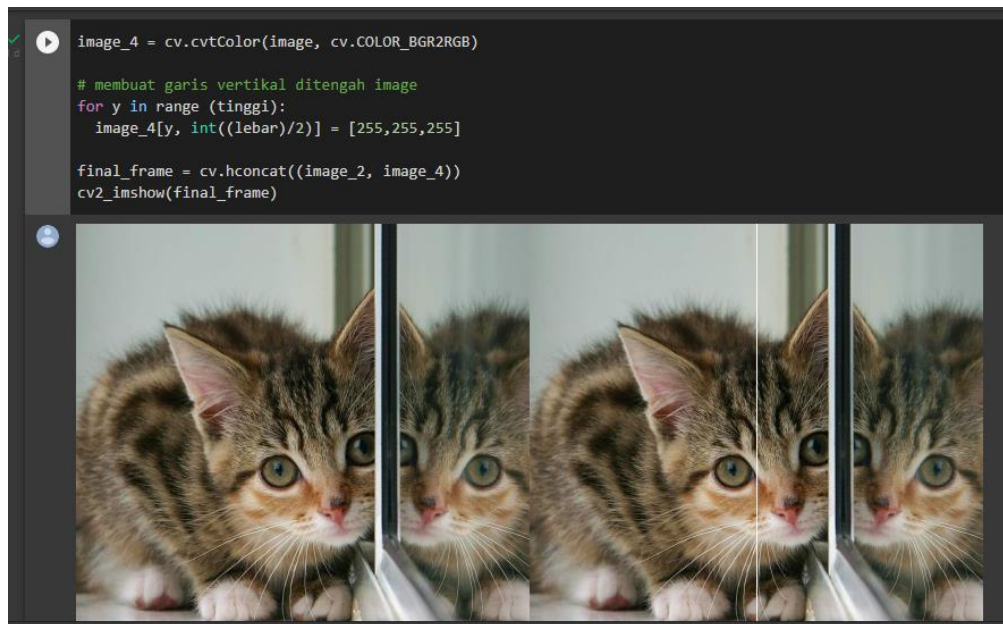

7. Image With Cross Diagonal Line


```
image_5 = cv.cvtColor(image, cv.COLOR_BGR2RGB)

# membuat garis menyilang diagonal ditengah image
thickness = 1
color = (255,255,255)

image_5 = cv.line(image_5, (0,0), (lebar, tinggi), color, thickness)
image_5 = cv.line(image_5, (lebar, 0), (0,tinggi), color, thickness)

final_frame = cv.hconcat((image_2, image_5))
cv2_imshow(final_frame)
```
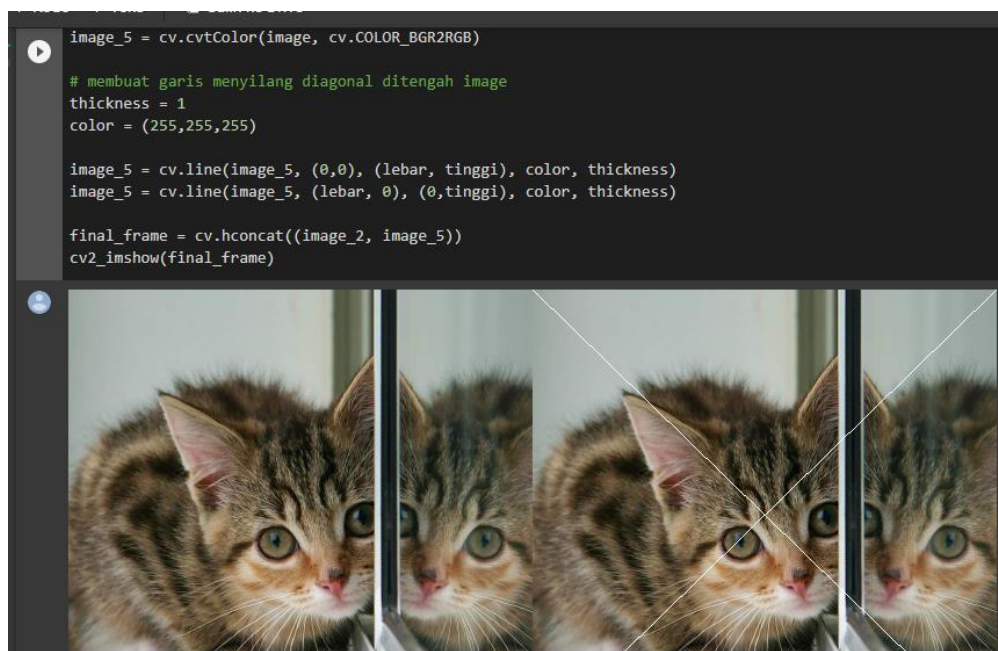
QUESTION

1. Explain why in this practicum module the execution of Python code is done using Google Colab?
2. Explain the use of each library in the eighth step practicum? Do all these libraries have to be used in this practical session?
3. In the 8th step of the experiment there is a snippet of program code as follows:

```
image = cv.resize(image, (0,0), fx=0.5, fy=0.5)
```

What is the use of the program code ? and what is the effect if it is not done?
4. Take a look at the following program code snippet:

```
#membuat garis horizontal ditengah image
for y in range (lebar):
    image_3[int((tinggi)/2),y] = [255,255,255]
```

What is the use of the code [255,255,255] ? Explain!
5. Explain the relationship between pixels and high or low image resolution!

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1. Because google colab supports to write and execute python . With Colab, we can harness the full power of popular Python libraries to analyze and visualize data. Colab allows anybody to write and execute arbitrary python code through the browser.

2. The library is very necessary in this practicum because we use images from google and then they will be displayed in a collab. To be able to load all images we need looping because the images are in one array, then the image will be read, resized to be the same size. for the image_2 will be converted to RGB then in the end the image will be printed

3. The code is used to set the size of the image if the line is removed the image will still be displayed but in a large size so it is very untidy. the function (fx,fy) is the same as height and length so to set the image size.

4. That's RGB color of the horizontal line in the middle. **RGB(255,255,255) means white**

5. **A higher** resolution means there are more pixels per inch (PPI), yielding more pixel information and creating sharp, high-quality images.

   Lower resolution images have fewer pixels, and if some of those pixels are too large (usually when the image is stretched), they can look blurry or cracked.