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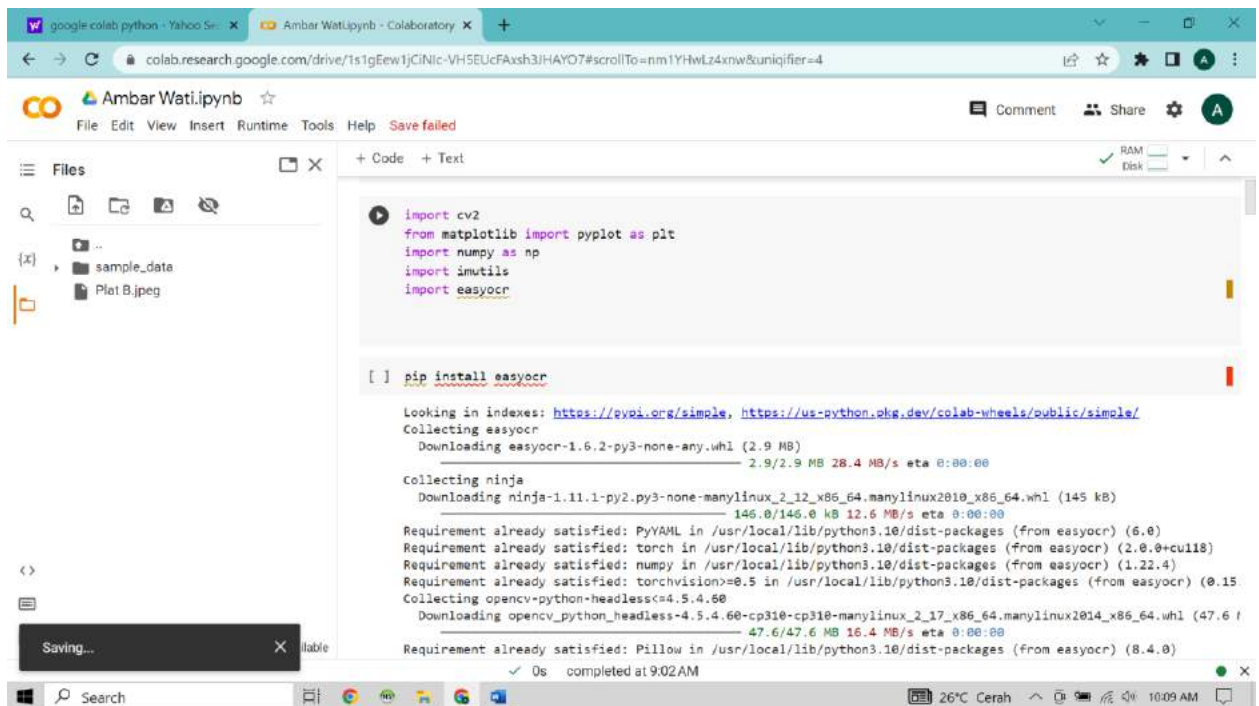
Kelas : C

Mata Kuliah : Pemrograman Python

Task 9

Optical Character Recognition

1. Pip install imutils
2. Pip install easyocr
3. langkah ke-3

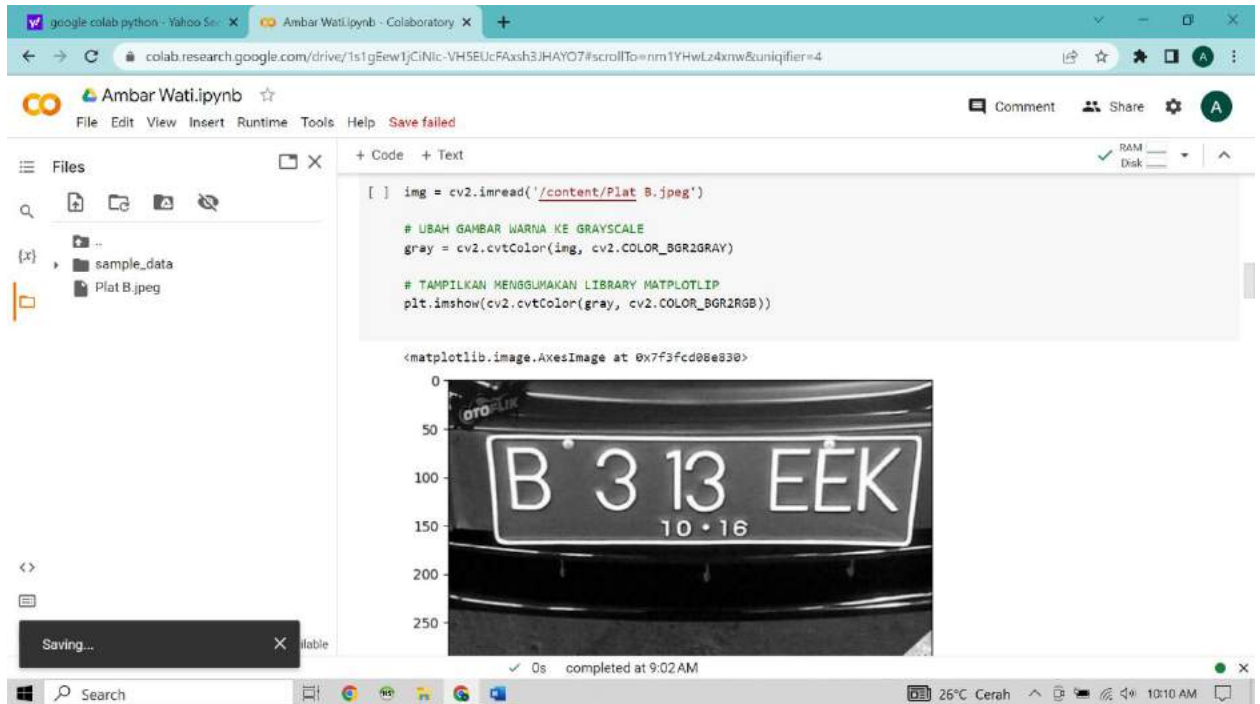


The screenshot shows a Google Colab notebook titled "Ambar Wati.ipynb". The left sidebar displays the file explorer with a folder named "sample_data" containing a file "Plat B.jpeg". The main area shows a code cell with the following imports:

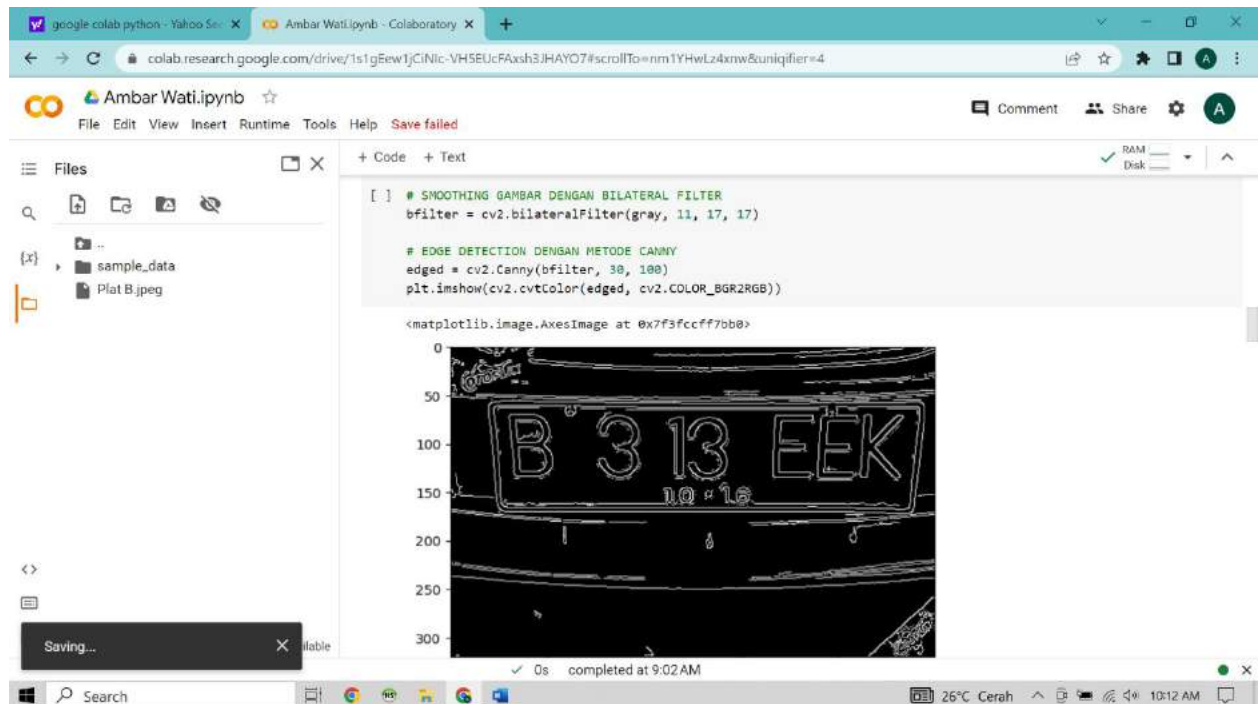
```
import cv2
from matplotlib import pyplot as plt
import numpy as np
import imutils
import easyocr
```

Below the code cell, the output of the command `pip install easyocr` is shown. It details the collection and downloading of various wheels, including `easyocr-1.6.2-py3-none-any.whl`, `ninja-1.11.1-py2.py3-none-manylinux_2_12_x86_64.manylinux2010_x86_64.whl`, and `opencv-python-headless-4.5.4.60-cp310-cp310-manylinux_2_17_x86_64.manylinux2014_x86_64.whl`. The output also lists several requirements already satisfied, such as `PyYAML`, `torch`, `numpy`, `torchvision`, and `Pillow`. The installation process is completed at 9:02 AM.

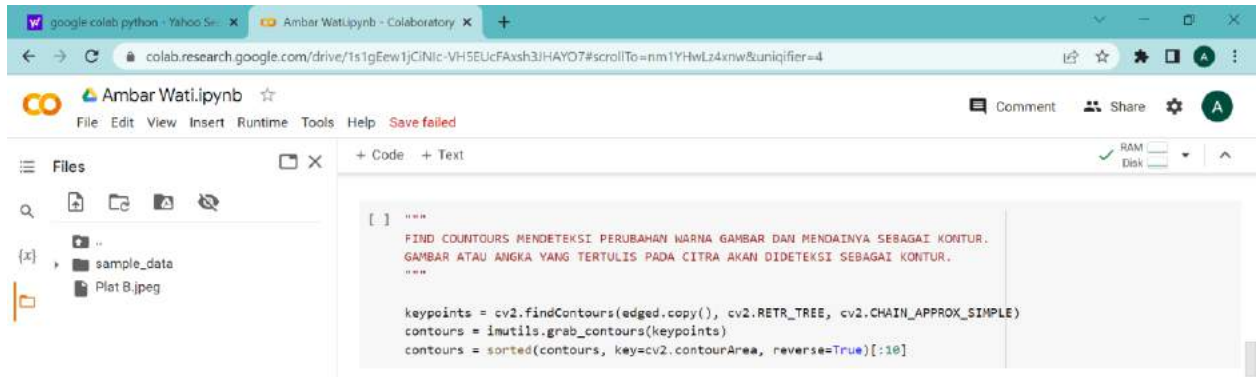
4. Ubah gambar warna ke grayscale dan tampilkan menggunakan library matplotlib



5. Smoothing gambar dengan bilateral filter dan edge detection dengan metode canny



6. Find countours mendeteksi perubahan warna gambar dan mendainya sebagai kontur. Gambar atau angka yang tertulis pada citra akan dideteksi sebagai kontur.

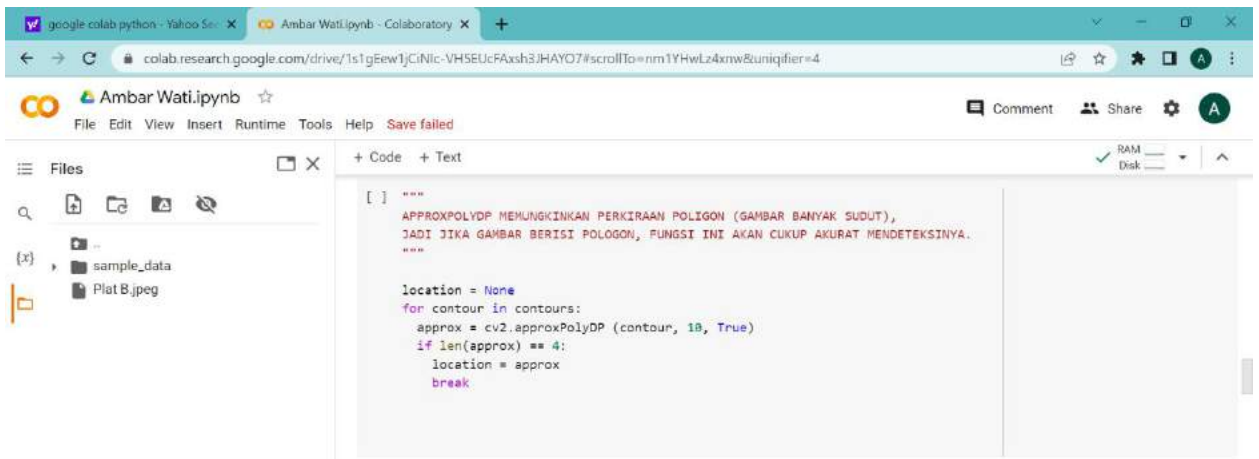


The screenshot shows a Google Colab notebook titled 'Ambar Wati.ipynb'. The left sidebar shows a file explorer with 'sample_data' and 'Plat B.jpeg'. The main code cell contains the following Python code:

```
[ ] """
FIND COUNTOURS MENDETEKSI PERUBAHAN WARNA GAMBAR DAN MENDAINYA SEBAGAI KONTUR.
GAMBAR ATAU ANGKA YANG TERTULIS PADA CITRA AKAN DIDETEKSI SEBAGAI KONTUR.
"""

keypoints = cv2.findContours(edged.copy(), cv2.RETR_TREE, cv2.CHAIN_APPROX_SIMPLE)
contours = imutils.grab_contours(keypoints)
contours = sorted(contours, key=cv2.contourArea, reverse=True)[:10]
```

7. Apprxpolydp memungkinkan perkiraan poligon (gambar banyak sudut), Jadi jika gambar berisi pologon, fungsi ini akan cukup akurat Mendeteksinya.




The screenshot shows a Google Colab notebook titled 'Ambar Wati.ipynb'. The left sidebar shows a file explorer with 'sample_data' and 'Plat B.jpeg'. The main code cell contains the following Python code:

```
[ ] """
APPROXPOLYDP MEMUNGKINKAN PERKIRAAN POLIGON (GAMBAR BANYAK SUDUT),
JADI JIKA GAMBAR BERISI POLOGON, FUNGSI INI AKAN CUKUP AKURAT MENDETEKSI NYA.
"""

location = None
for contour in contours:
    approx = cv2.approxPolyDP (contour, 10, True)
    if len(approx) == 4:
        location = approx
        break
```

8. Location



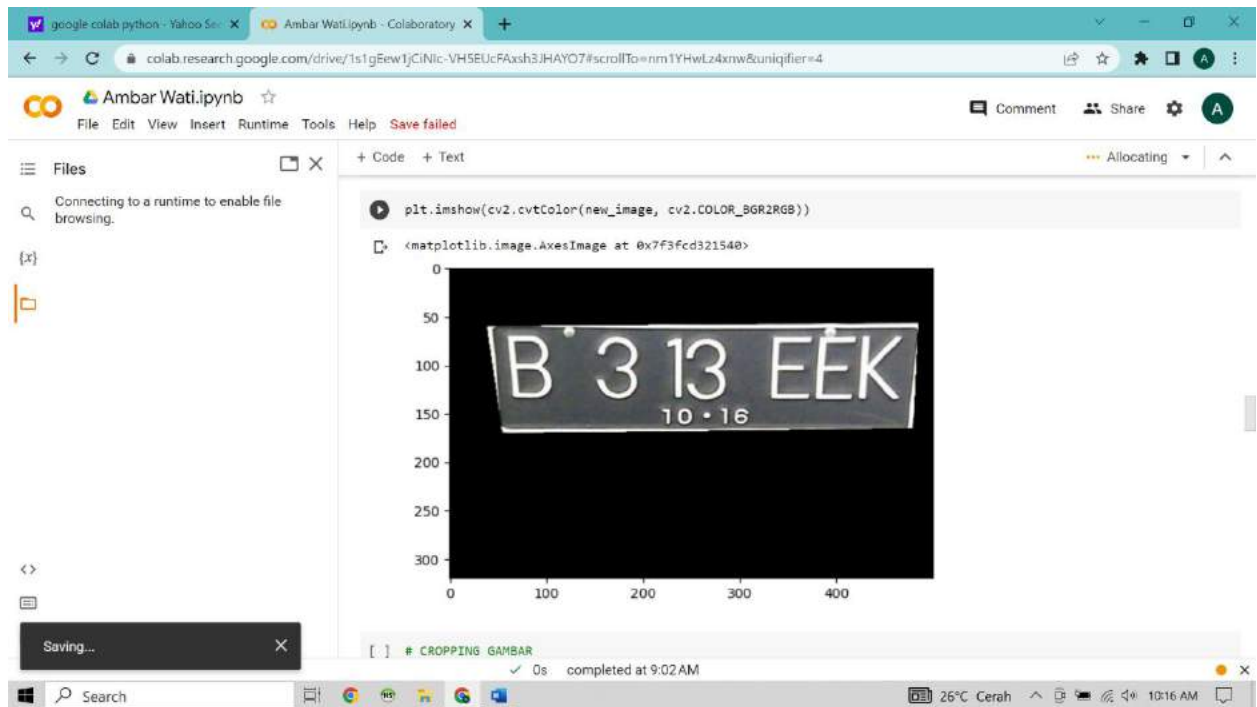
The screenshot shows a Google Colab notebook titled 'Ambar Wati.ipynb'. The left sidebar shows a file explorer with 'sample_data' and 'Plat B.jpeg'. The main code cell shows the output of the 'location' variable:

```
[11] location
array([[ 39,  61],
       [484,  57],
       [479, 165],
       [ 55, 170]], dtype=int32)
```

9. Drawcounturs berfungsi melapisi kontur pada gambar RGB asli.



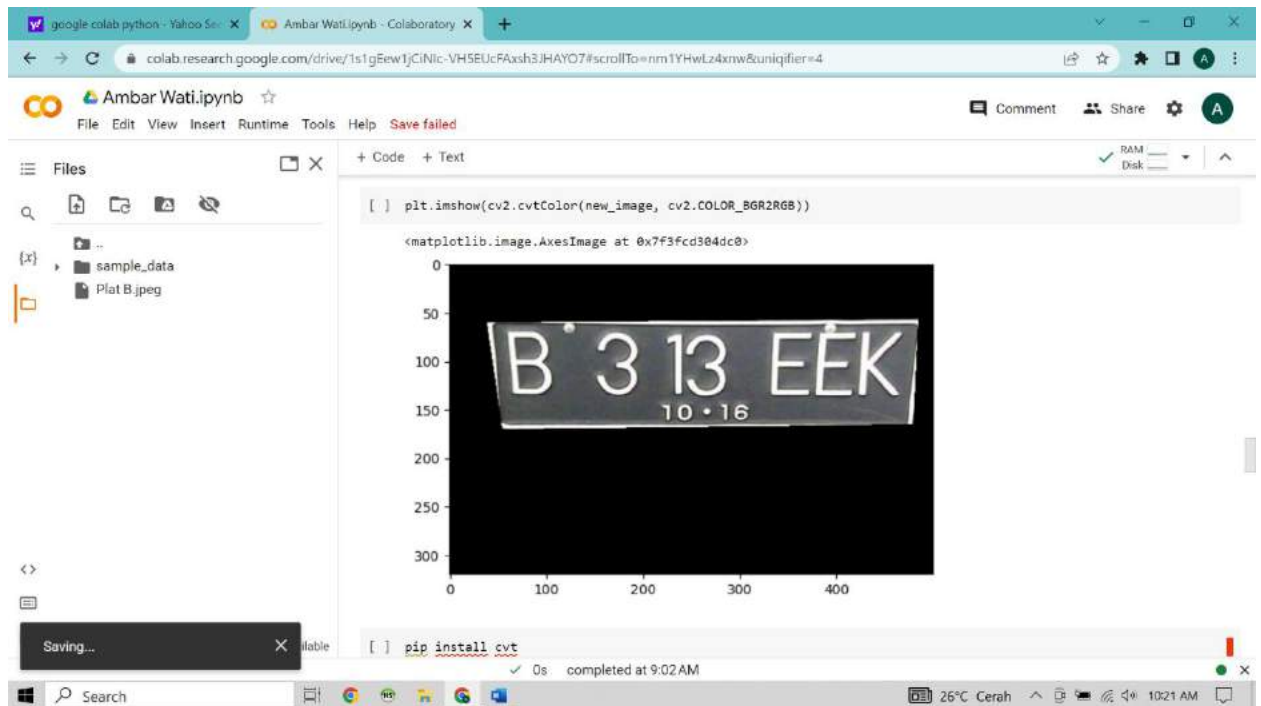
10. plt.imshow



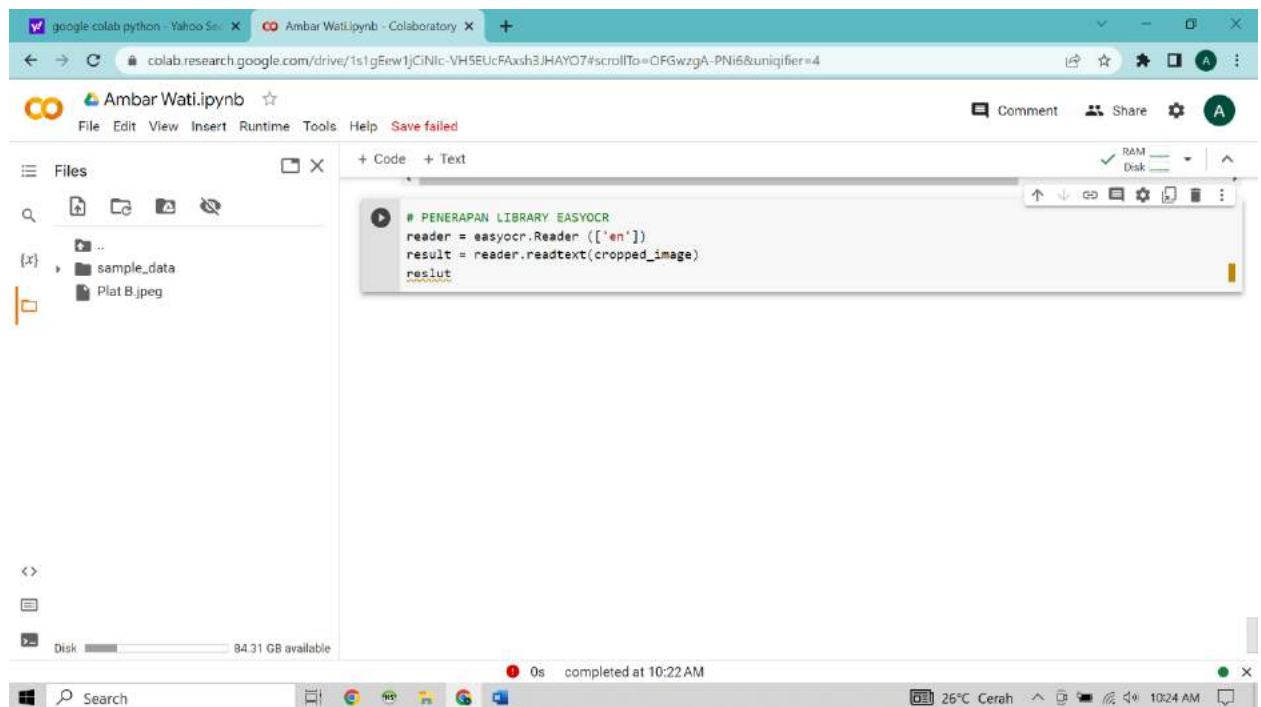
11. Cropping gambar



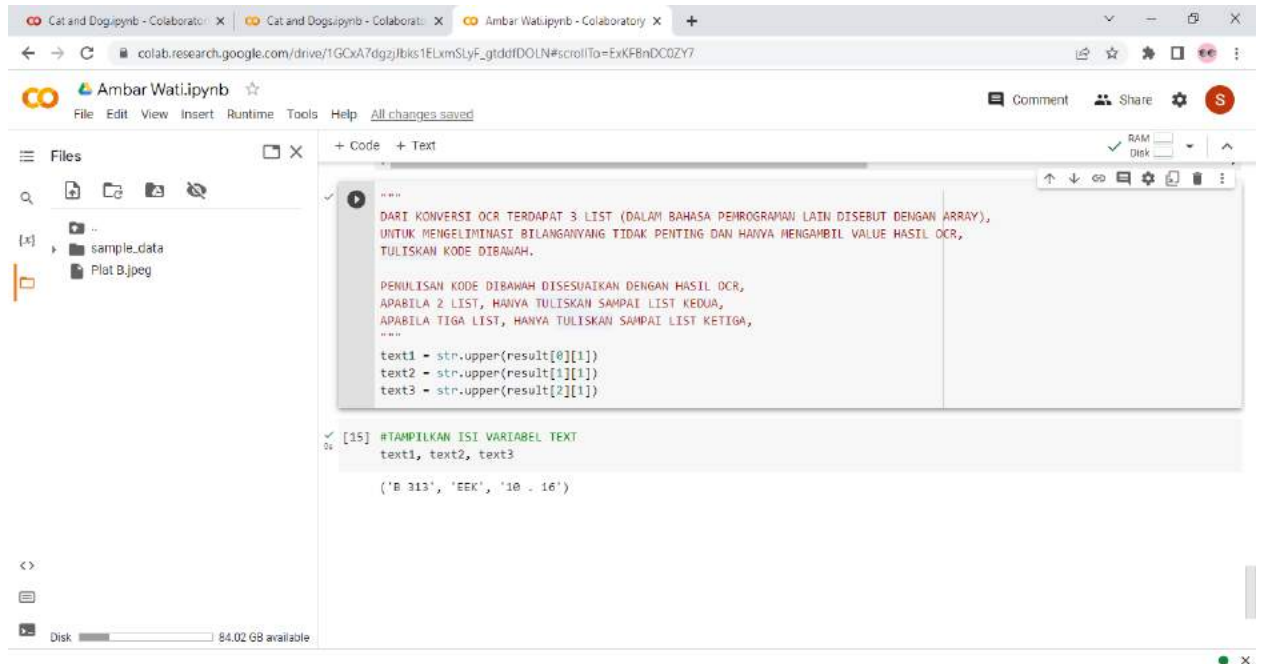
12. plt.imshow



13. Penerapan Library Easyocr



14. Dari konversi OCR terdapat 3 list (dalam bahasa pemrograman lain disebut dengan Array), untuk mengeliminasi bilangan yang tidak penting dan hanya mengambil value hasil OCR.



The screenshot shows a Google Colaboratory notebook interface. The left sidebar displays a file explorer with a folder named 'sample_data' containing a file 'Plat B.jpeg'. The main area contains a code cell with the following text:

```
"""
DARI KONVERSI OCR TERDAPAT 3 LIST (DALAM BAHASA PEMROGRAMAN LAIN DISEBUT DENGAN ARRAY),
UNTUK MENGEKSTRAKSI NILAI YANG TIDAK PENTING DAN HANYA MENGAMBIL NILAI HASIL OCR,
TULISKAN KODE DI BAWAH.

PENULISAN KODE DI BAWAH DISESUAIKAN DENGAN HASIL OCR,
APABILA 2 LIST, HANYA TULISKAN SAMPAI LIST KEDUA,
APABILA TIGA LIST, HANYA TULISKAN SAMPAI LIST KETIGA,
"""

text1 = str.upper(result[0][1])
text2 = str.upper(result[1][1])
text3 = str.upper(result[2][1])

[15]: #TAMPILKAN ISI VARIABEL TEXT
text1, text2, text3

('B 313', 'EEK', '10 - 16')
```

The output of the code cell shows the values of the variables text1, text2, and text3 as a tuple: ('B 313', 'EEK', '10 - 16').