

```

!pip install easyocr
!pip install imutils

Requirement already satisfied: opencv-python-headless in /usr/local/lib/python3.10/dist-packages (from easyocr) (4.9.0.80)
Requirement already satisfied: scipy in /usr/local/lib/python3.10/dist-packages (from easyocr) (1.11.4)
Requirement already satisfied: numpy in /usr/local/lib/python3.10/dist-packages (from easyocr) (1.25.2)
Requirement already satisfied: Pillow in /usr/local/lib/python3.10/dist-packages (from easyocr) (9.4.0)
Requirement already satisfied: scikit-image in /usr/local/lib/python3.10/dist-packages (from easyocr) (0.19.3)
Collecting python-bidi (from easyocr)
  Downloading python_bidi-0.4.2-py2.py3-none-any.whl (30 kB)
Requirement already satisfied: PyYAML in /usr/local/lib/python3.10/dist-packages (from easyocr) (6.0.1)
Requirement already satisfied: Shapely in /usr/local/lib/python3.10/dist-packages (from easyocr) (2.0.4)
Collecting pycclipper (from easyocr)
  Downloading pycclipper-1.3.0.post5-cp310-cp310-manylinux_2_12_x86_64.manylinux2010_x86_64.whl (908 kB)
    908.3/908.3 kB 35.5 MB/s eta 0:00:00
Collecting ninja (from easyocr)
  Downloading ninja-1.11.1.1-py2.py3-none-manylinux1_x86_64.manylinux_2_5_x86_64.whl (307 kB)
    307.2/307.2 kB 25.7 MB/s eta 0:00:00
Requirement already satisfied: filelock in /usr/local/lib/python3.10/dist-packages (from torch->easyocr) (3.14.0)
Requirement already satisfied: typing-extensions>=4.8.0 in /usr/local/lib/python3.10/dist-packages (from torch->easyocr) (4.11.0)
Requirement already satisfied: sympy in /usr/local/lib/python3.10/dist-packages (from torch->easyocr) (1.12)
Requirement already satisfied: networkx in /usr/local/lib/python3.10/dist-packages (from torch->easyocr) (3.3)
Requirement already satisfied: Jinja2 in /usr/local/lib/python3.10/dist-packages (from torch->easyocr) (3.1.4)
Requirement already satisfied: fsspec in /usr/local/lib/python3.10/dist-packages (from torch->easyocr) (2023.6.0)
Collecting nvidia-cuda-nvrtc-cu12==12.1.105 (from torch->easyocr)
  Using cached nvidia_cuda_nvrtc_cu12-12.1.105-py3-none-manylinux1_x86_64.whl (23.7 MB)
Collecting nvidia-cuda-runtime-cu12==12.1.105 (from torch->easyocr)
  Using cached nvidia_cuda_runtime_cu12-12.1.105-py3-none-manylinux1_x86_64.whl (823 kB)
Collecting nvidia-cuda-cupti-cu12==12.1.105 (from torch->easyocr)
  Using cached nvidia_cuda_cupti_cu12-12.1.105-py3-none-manylinux1_x86_64.whl (14.1 MB)
Collecting nvidia-cudnn-cu12==8.9.2.26 (from torch->easyocr)
  Using cached nvidia_cudnn_cu12-8.9.2.26-py3-none-manylinux1_x86_64.whl (731.7 MB)
Collecting nvidia-cublas-cu12==12.1.3.1 (from torch->easyocr)
  Using cached nvidia_cublas_cu12-12.1.3.1-py3-none-manylinux1_x86_64.whl (410.6 MB)
Collecting nvidia-cufft-cu12==11.0.2.54 (from torch->easyocr)
  Using cached nvidia_cufft_cu12-11.0.2.54-py3-none-manylinux1_x86_64.whl (121.6 MB)
Collecting nvidia-curand-cu12==10.3.2.106 (from torch->easyocr)
  Using cached nvidia_curand_cu12-10.3.2.106-py3-none-manylinux1_x86_64.whl (56.5 MB)
Collecting nvidia-cusolver-cu12==11.4.5.107 (from torch->easyocr)
  Using cached nvidia_cusolver_cu12-11.4.5.107-py3-none-manylinux1_x86_64.whl (124.2 MB)
Collecting nvidia-cusparse-cu12==12.1.0.106 (from torch->easyocr)
  Using cached nvidia_cusparse_cu12-12.1.0.106-py3-none-manylinux1_x86_64.whl (196.0 MB)
Collecting nvidia-nccl-cu12==2.20.5 (from torch->easyocr)
  Using cached nvidia_nccl_cu12-2.20.5-py3-none-manylinux2014_x86_64.whl (176.2 MB)
Collecting nvidia-nvtx-cu12==12.1.105 (from torch->easyocr)
  Using cached nvidia_nvtx_cu12-12.1.105-py3-none-manylinux1_x86_64.whl (99 kB)
Requirement already satisfied: triton==2.3.0 in /usr/local/lib/python3.10/dist-packages (from torch->easyocr) (2.3.0)
Collecting nvidia-nvjitlink-cu12 (from nvidia-cusolver-cu12==11.4.5.107->torch->easyocr)
  Downloading nvidia_nvjitlink_cu12-12.5.40-py3-none-manylinux2014_x86_64.whl (21.3 MB)
    21.3/21.3 MB 57.4 MB/s eta 0:00:00
Requirement already satisfied: six in /usr/local/lib/python3.10/dist-packages (from python-bidi->easyocr) (1.16.0)
Requirement already satisfied: imageio>=2.4.1 in /usr/local/lib/python3.10/dist-packages (from scikit-image->easyocr) (2.31.6)
Requirement already satisfied: tifffile>=2019.7.26 in /usr/local/lib/python3.10/dist-packages (from scikit-image->easyocr) (2024.1.0)
Requirement already satisfied: PyWavelets>=1.1.1 in /usr/local/lib/python3.10/dist-packages (from scikit-image->easyocr) (1.6.0)
Requirement already satisfied: packaging>=20.0 in /usr/local/lib/python3.10/dist-packages (from scikit-image->easyocr) (24.0)
Requirement already satisfied: MarkupSafe>=2.0 in /usr/local/lib/python3.10/dist-packages (from Jinja2->torch->easyocr) (2.1.5)
Requirement already satisfied: mpmath>=0.19 in /usr/local/lib/python3.10/dist-packages (from sympy->torch->easyocr) (1.3.0)
Installing collected packages: pycclipper, ninja, python-bidi, nvidia-nvtx-cu12, nvidia-nvjitlink-cu12, nvidia-nccl-cu12, nvidia-c
Successfully installed easyocr-1.7.1 ninja-1.11.1.1 nvidia-cublas-cu12-12.1.3.1 nvidia-cuda-cupti-cu12-12.1.105 nvidia-cuda-nvrtc
Requirement already satisfied: imutils in /usr/local/lib/python3.10/dist-packages (0.5.4)

```

```

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

```

```

from google.colab import files
uploaded = files.upload()

```

Choose Files image2.jpg

- image2.jpg(image/jpeg) - 30023 bytes, last modified: 5/31/2024 - 100% done

Saving image2.jpg to image2.jpg

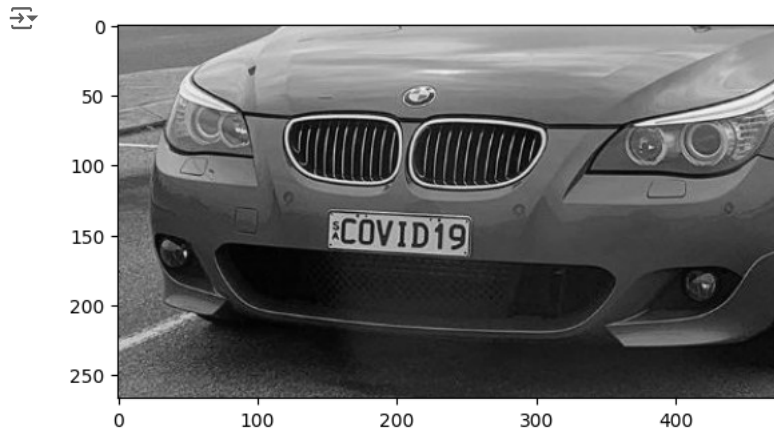
```

filename = list(uploaded.keys())[0]

img = cv2.imread(filename)
if img is None:
    print("Error: Image not found or unable to load.")
else:
    gray = cv2.cvtColor(img, cv2.COLOR_BGR2GRAY)
    plt.imshow(cv2.cvtColor(gray, cv2.COLOR_BGR2RGB))
    plt.axis('on') # Hide axes

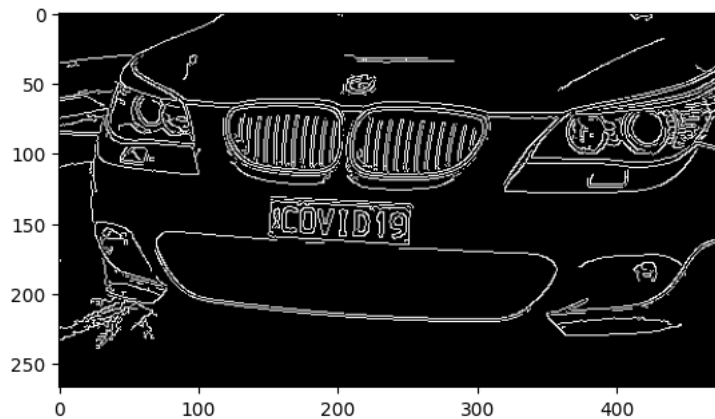
```

```
plt.show()
```



```
bfilter = cv2.bilateralFilter(gray, 11, 17, 17)
edged = cv2.Canny(bfilter, 30, 200)
plt.imshow(cv2.cvtColor(edged, cv2.COLOR_BGR2RGB))
```

```
<matplotlib.image.AxesImage at 0x78a3eff5d0c0>
```



```
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]
```

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

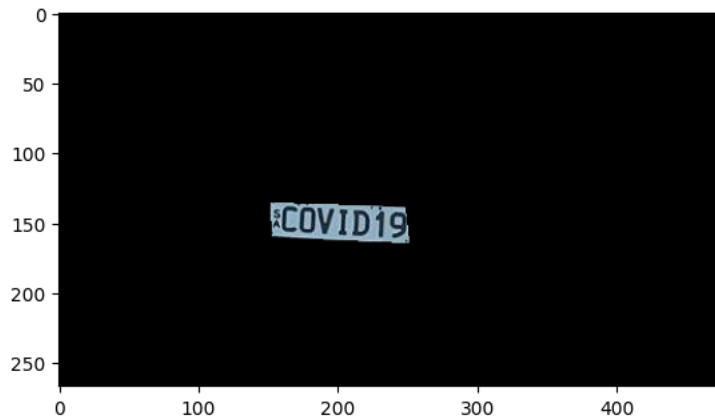
```
location
```

```
array([[152, 136]],
      [[248, 139]],
      [[251, 164]],
      [[153, 160]]], dtype=int32)
```

```
mask = np.zeros(gray.shape, np.uint8)
new_image = cv2.drawContours(mask, [location], 0, 255, -1)
new_image = cv2.bitwise_and(img, img, mask=mask)
```

```
plt.imshow(cv2.cvtColor(new_image, cv2.COLOR_BGR2RGB))
```

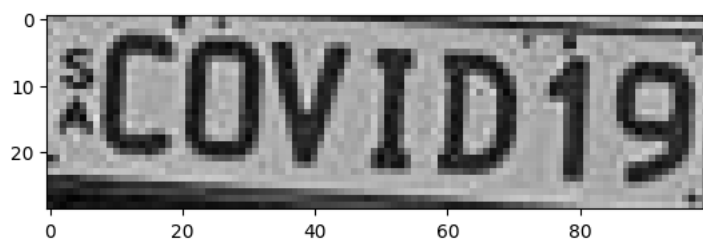
 <matplotlib.image.AxesImage at 0x78a3eff0e560>




```
(x,y) = np.where(mask==255)
(x1, y1) = (np.min(x), np.min(y))
(x2, y2) = (np.max(x), np.max(y))
cropped_image = gray[x1:x2+1, y1:y2+1]
```

```
plt.imshow(cv2.cvtColor(cropped_image, cv2.COLOR_BGR2RGB))
```

 <matplotlib.image.AxesImage at 0x78a3effe3640>



```
reader = easyocr.Reader(['en'])
result = reader.readtext(cropped_image)
result
```

 WARNING:easyocr.easyocr:Neither CUDA nor MPS are available - defaulting to CPU. Note: This module is much faster with a GPU.  
[[[[0, 0], [100, 0], [100, 29], [0, 29]], 'ICOVIDT9', 0.5275640804797114]]

```
text = result[0][-2]
font = cv2.FONT_HERSHEY_SIMPLEX
res = cv2.putText(img, text=text, org=(approx[0][0][0], approx[1][0][1]+60), fontFace=font, fontScale=1, color=(0,255,0), thickness=2, li
res = cv2.rectangle(img, tuple(approx[0][0]), tuple(approx[2][0]), (0,255,0),3)
plt.imshow(cv2.cvtColor(res, cv2.COLOR_BGR2RGB))
```

 <matplotlib.image.AxesImage at 0x78a3fd2c3370>

