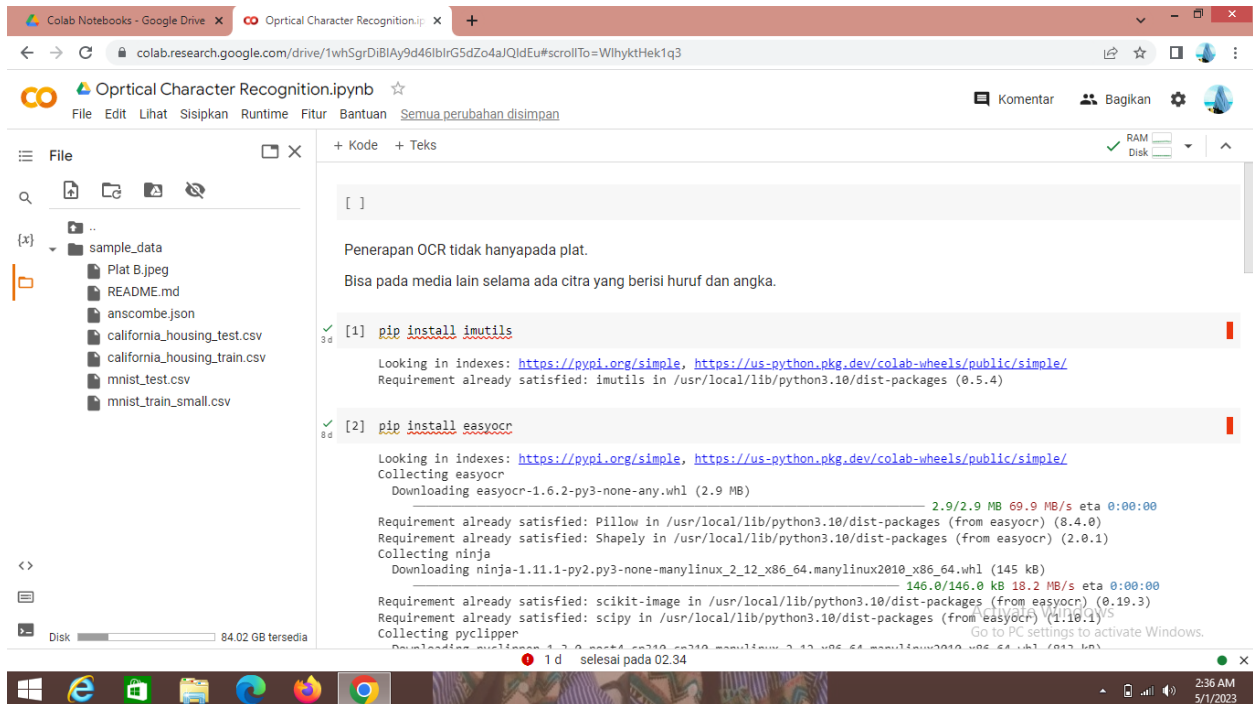


Nama : Nurmala

NIIM : 20.01.013.069

Kelas : Pemrograman Python\_C



Colab Notebooks - Google Drive x Optical Character Recognition.ipynb x +

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Optical Character Recognition.ipynb

File Edit Lihat Sisipkan Runtime Fitur Bantuan Semua perubahan disimpan

Komentar Bagikan

File

sample\_data

- Plat B.jpeg
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- mnist\_test.csv
- mnist\_train\_small.csv

Disk 84.02 GB tersedia

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[ ]

Penerapan OCR tidak hanyapada plat.

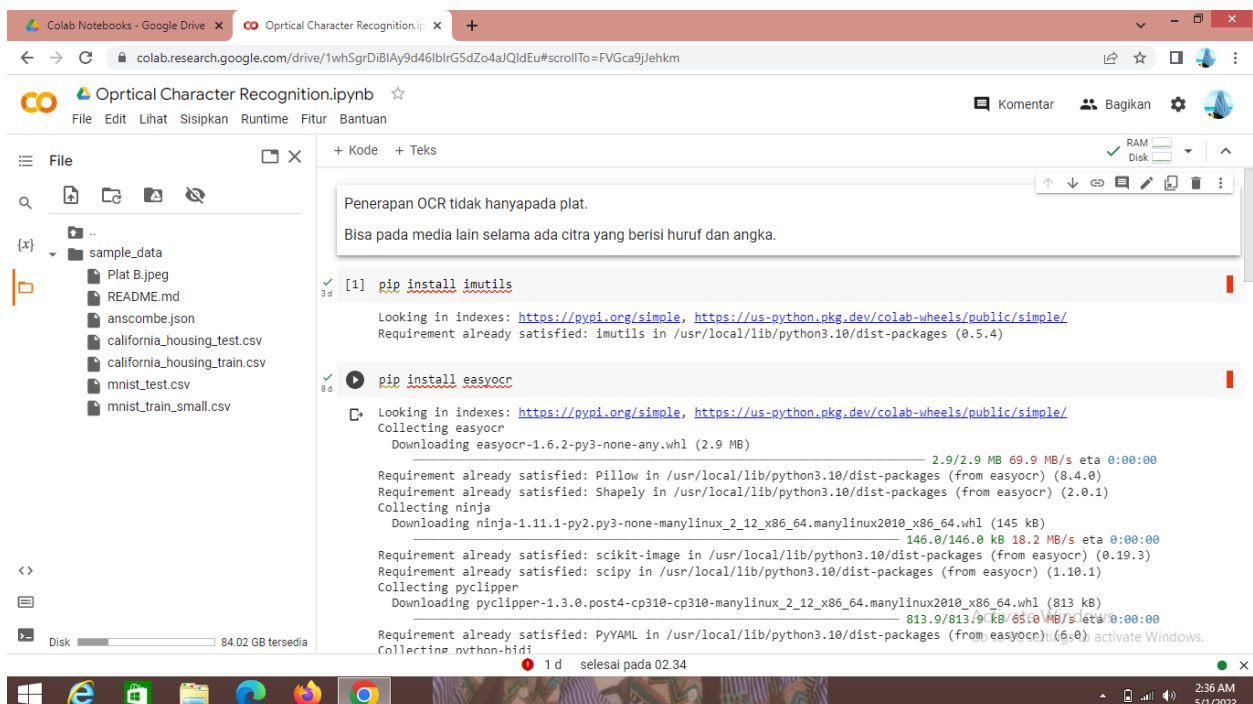
Bisa pada media lain selama ada citra yang berisi huruf dan angka.

[1] `pip install imutils`

Looking in indexes: <https://pypi.org/simple>, <https://us-python.pkg.dev/colab-wheels/public/simple/>  
Requirement already satisfied: imutils in /usr/local/lib/python3.10/dist-packages (0.5.4)

[2] `pip install easyocr`

Looking in indexes: <https://pypi.org/simple>, <https://us-python.pkg.dev/colab-wheels/public/simple/>  
Collecting easyocr  
Downloading easyocr-1.6.2-py3-none-any.whl (2.9 MB)  
2.9/2.9 MB 69.9 MB/s eta 0:00:00  
Requirement already satisfied: Pillow in /usr/local/lib/python3.10/dist-packages (from easyocr) (8.4.0)  
Requirement already satisfied: Shapely in /usr/local/lib/python3.10/dist-packages (from easyocr) (2.0.1)  
Collecting ninja  
Downloading ninja-1.11.1-py2.py3-none-manylinux\_2\_12\_x86\_64.manylinux2010\_x86\_64.whl (145 kB)  
146.0/146.0 kB 18.2 MB/s eta 0:00:00  
Requirement already satisfied: scikit-image in /usr/local/lib/python3.10/dist-packages (from easyocr) (0.19.3)  
Requirement already satisfied: scipy in /usr/local/lib/python3.10/dist-packages (from easyocr) (1.10.1)  
Collecting pyclicker  
Go to PC settings to activate Windows.  
Downloading pyclicker-1.3.0.post4-cp310-cp310-manylinux\_2\_12\_x86\_64.manylinux2010\_x86\_64.whl (813 kB)  
813.9/813.9 kB 65.0 MB/s eta 0:00:00  
Collecting nvthon-hidi  
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2.9/2.9 MB 69.9 MB/s eta 0:00:00  
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Requirement already satisfied: Shapely in /usr/local/lib/python3.10/dist-packages (from easyocr) (2.0.1)  
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Optical Character Recognition.ipynb

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RAM Disk

```
[2] Requirement already satisfied: numpy in /usr/local/lib/python3.10/dist-packages (from easyocr) (1.22.4)
Requirement already satisfied: requests in /usr/local/lib/python3.10/dist-packages (from torchvision>0.5->easyocr) (2.27.1)
Requirement already satisfied: triton==2.0.0 in /usr/local/lib/python3.10/dist-packages (from torch->easyocr) (2.0.0)
Requirement already satisfied: filelock in /usr/local/lib/python3.10/dist-packages (from torch->easyocr) (3.12.0)
Requirement already satisfied: networkx in /usr/local/lib/python3.10/dist-packages (from torch->easyocr) (3.1)
Requirement already satisfied: Jinja2 in /usr/local/lib/python3.10/dist-packages (from torch->easyocr) (3.1.2)
Requirement already satisfied: sympy in /usr/local/lib/python3.10/dist-packages (from torch->easyocr) (1.11.1)
Requirement already satisfied: typing-extensions in /usr/local/lib/python3.10/dist-packages (from torch->easyocr) (4.5.0)
Requirement already satisfied: cmake in /usr/local/lib/python3.10/dist-packages (from triton==2.0.0->torch->easyocr) (3.25.1)
Requirement already satisfied: lit in /usr/local/lib/python3.10/dist-packages (from triton==2.0.0->torch->easyocr) (16.0.2)
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) (2.25.0)
Requirement already satisfied: tifffile>2019.7.26 in /usr/local/lib/python3.10/dist-packages (from scikit-image->easyocr) (2019.12.17)
Requirement already satisfied: PyWavelets>1.1.1 in /usr/local/lib/python3.10/dist-packages (from scikit-image->easyocr) (1.4.1)
Requirement already satisfied: packaging>20.0 in /usr/local/lib/python3.10/dist-packages (from scikit-image->easyocr) (23.1)
Requirement already satisfied: MarkupSafe>2.0 in /usr/local/lib/python3.10/dist-packages (from Jinja2->torch->easyocr) (2.1.2)
Requirement already satisfied: certifi>2017.4.17 in /usr/local/lib/python3.10/dist-packages (from requests->torchvision>0.13.0) (2023.7.22)
Requirement already satisfied: idna<4,>=2.5 in /usr/local/lib/python3.10/dist-packages (from requests->torchvision>0.13.0) (3.4)
Requirement already satisfied: charset-normalizer==2.0.0 in /usr/local/lib/python3.10/dist-packages (from requests->torchvision>0.13.0) (2.0.0)
Requirement already satisfied: urllib3<1.27,>=1.21.1 in /usr/local/lib/python3.10/dist-packages (from requests->torchvision>0.13.0) (1.26.13)
Requirement already satisfied: mpmath>0.19 in /usr/local/lib/python3.10/dist-packages (from sympy->torch->easyocr) (1.3.0)
Installing collected packages: pyclicker, ninja, python-bidi, opencv-python-headless, easyocr
Attempting uninstall: opencv-python-headless
Found existing installation: opencv-python-headless 4.7.0.72
Uninstalling opencv-python-headless-4.7.0.72:
Successfully uninstalled opencv-python-headless-4.7.0.72
Successfully installed easyocr-1.6.2 ninja-1.11.1 opencv-python-headless-4.5.4.60 pyclicker-1.3.0.post4 python-bidi-0.4.2
```

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Optical Character Recognition.ipynb

File Edit Lihat Sisipkan Runtime Fitur Bantuan [Semua perubahan disimpan](#)

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- mnist\_train\_small.csv

RAM Disk

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

[15] """
FIND CONTOURS MENDETEKSI PERUBAHAN WARNA GAMBAR DAN MENANDAINYA SEBAGAI KONTUR.
GAMBAR ATAU ANGKA YANG TERTULIS PADA CITRA AKAN DIDEKTEKSI SEBAGAIKONTUR.
"""

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

[14] """
APPROXPOLYDP MEMUNGKINKAN PERKIRAAN POLIGON (GAMBAR BANYAK SUDUT),
JADI JIKA GAMBAR BERISI POLIGON, FUNGSI INI AKAN CUKUP AKURAT MENDETEKSIINYA.
"""

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

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2:36 AM 5/1/2023

Colab Notebooks - Google Drive

Optical Character Recognition.ipynb

+

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Optical Character Recognition.ipynb

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Komentar Bagikan

File

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sample\_data

Plat B.jpeg

README.md

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california\_housing\_train.csv

mnist\_test.csv

mnist\_train\_small.csv

+ Kode + Teks

```
"""
FIND CUNTURS MENDETEKSI PERUBAHAN WARNA GAMBAR DAN MERANGKAPNYA SEBAGAI KONTUR.
[15] GAMBAR ATAU ANGKA YANG TERTULIS PADA CITRA AKAN DIDETEKSI SEBAGAIKONTUR.
"""

keypoints = cv2.findContours( edged.copy(), cv2.RETR_TREE, cv2.CHAIN_APPROX_SIMPLE)
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"""

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

[10] # CROPPING GAMBAR
(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]
```

RAM  
Disk

Disk 84.02 GB tersedia

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Activate Windows  
Go to PC settings to activate Windows.

2:36 AM  
5/1/2023