

LAPORAN IMAGE STITCHING DENGAN PYTHON



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TAHUN AJARAN 2023

A. INSTALL PACKAGES YANG AKAN DIGUNAKAN

1. Menginstall Imutils

Untuk menginstall library tersebut gunakan perintah

`pip3 install imutils`

```
zahra@zahra-VirtualBox:~$ sudo su
[sudo] password for zahra:
root@zahra-VirtualBox:~# pip3 install imutils
Collecting imutils
  Downloading imutils-0.5.4.tar.gz (17 kB)
    Preparing metadata (setup.py) ... done
Building wheels for collected packages: imutils
  Building wheel for imutils (setup.py) ... done
  Created wheel for imutils: filename=imutils-0.5.4-py3-none-any.whl size=25858 sha256=986ebc4f45e4b78e7484c766f86f32ce418ea09a987281fb9a3653bbe6d87ba
  Stored in directory: /root/.cache/pip/wheels/85/cf/3a/e265e975a1e7c7e54eb3692d6aa4e2e7d6a3945d29da46f2d7
Successfully built imutils
Installing collected packages: imutils
Successfully installed imutils-0.5.4
WARNING: Running pip as the 'root' user can result in broken permissions and conflicting behaviour with the system package manager. It is recommended to use a virtual environment instead: https://pip.pypa.io/warnings/venv
```

2. Menginstall opencv

`Pip3 install opencv-python`

```
root@zahra-VirtualBox:~# pip3 install opencv-python
Collecting opencv-python
  Downloading opencv_python-4.8.1.78-cp37-abi3-manylinux_2_17_x86_64_manylinux2014_x86_64.whl (61.7 MB)
    61.7/61.7 MB 0.4 MB/s eta 0:00:00
Collecting numpy>=1.17.3
  Downloading numpy-1.26.2-cp310-cp310-manylinux_2_17_x86_64_manylinux2014_x86_64.whl (18.2 MB)
    18.2/18.2 MB 4.4 MB/s eta 0:00:00
Installing collected packages: numpy, opencv-python
Successfully installed numpy-1.26.2 opencv-python-4.8.1.78
WARNING: Running pip as the 'root' user can result in broken permissions and conflicting behaviour with the system package manager. It is recommended to use a virtual environment instead: https://pip.pypa.io/warnings/venv
```

3. Menginstall matplotlib

`Pip3 install matplotlib`

```
root@zahra-VirtualBox:~# pip3 install matplotlib
Collecting matplotlib
  Downloading matplotlib-3.8.1-cp310-cp310-manylinux_2_17_x86_64_manylinux2014_x86_64.whl (11.6 MB)
    11.6/11.6 MB 0.4 MB/s eta 0:00:00
Collecting fonttools>=4.22.0
  Downloading fonttools-4.44.3-cp310-cp310-manylinux_2_17_x86_64_manylinux2014_x86_64.whl (4.5 MB)
    4.5/4.5 MB 0.4 MB/s eta 0:00:00
Requirement already satisfied: numpy<2.0, >=1.21 in /usr/local/lib/python3.10/dist-packages (from matplotlib) (1.26.2)
Requirement already satisfied: pyparsing>=2.3.1 in /usr/lib/python3/dist-packages (from matplotlib) (2.4.7)
Collecting python-dateutil>=2.7
  Downloading python_dateutil-2.8.2-py2.py3-none-any.whl (247 kB)
    247.7/247.7 kB 0.4 MB/s eta 0:00:00
Collecting kiwisolver>=1.3.1
  Downloading kiwisolver-1.4.5-cp310-cp310-manylinux_2_12_x86_64_manylinux2010_x86_64.whl (1.6 MB)
    1.6/1.6 MB 0.4 MB/s eta 0:00:00
Collecting cycler>=0.10
  Downloading cycler-0.12.1-py3-none-any.whl (8.3 kB)
Collecting contourpy>=1.0.1
  Downloading contourpy-1.2.0-cp310-cp310-manylinux_2_17_x86_64_manylinux2014_x86_64.whl (310 kB)
    310.7/310.7 kB 0.4 MB/s eta 0:00:00
Requirement already satisfied: packaging>=20.0 in /usr/lib/python3/dist-packages (from matplotlib) (21.3)
Requirement already satisfied: pillow>=8 in /usr/lib/python3/dist-packages (from matplotlib) (9.0.1)
Requirement already satisfied: six>=1.5 in /usr/lib/python3/dist-packages (from python-dateutil>=2.7->matplotlib) (1.16.0)
Installing collected packages: python-dateutil, kiwisolver, fonttools, cycler, contourpy, matplotlib
Successfully installed contourpy-1.2.0 cycler-0.12.1 fonttools-4.44.3 kiwisolver-1.4.5 matplotlib-3.8.1 python-dateutil-2.8.2
WARNING: Running pip as the 'root' user can result in broken permissions and conflicting behaviour with the system package manager. It is recommended to use a virtual environment instead: https://pip.pypa.io/warnings/venv
```

B. EKSEKUSI IMAGES STITCHING

1. Masuk ke dalam direktori yang berisi kodingan image stitching dan didalamnya terdapat direktori image yang akan digabungkan

```
zahra@zahra-VirtualBox:~/Downloads/image-stitching-opencv Tugas Besar$ ls -l
total 2476
-rw-r--r-- 1 zahra zahra 646072 Jul  9  2019 belitung.png
drwxr-xr-x 3 zahra zahra 4096 Nov 13 10:22 images
-rw-r--r-- 1 zahra zahra 1552 Dec 14  2018 image_stitching_simple.py
-rw-r--r-- 1 zahra zahra 648538 Nov 16 14:07 output.png
-rw-rw-r-- 1 zahra zahra 166 May 20  2019 'perintah terminal'
-rw-r--r-- 1 root root 648538 Nov 16 13:54 pp.png
-rw-r--r-- 1 root root 571183 Nov 16 14:12 Stitched_screenshot_16.11.2023.png
zahra@zahra-VirtualBox:~/Downloads/image-stitching-opencv Tugas Besar$
```

image_stitching_simple.py merupakan program yang akan digunakan untuk mengeksekusi image stitching.

Direktori images yang akan digabungkan:



2. `image_stitching_simple.py` berisi kodingan sebagai berikut.

```
File Machine View Input Devices Help
zahra@zahra-VirtualBox: ~/Downloads/image-stitching-opencv Tugas Besar

File Edit View Search Terminal Help
GNU nano 6.2 image_stitching_simple.py
# USAGE
# python image_stitching_simple.py --images images/scottsdale --output output.png

# import the necessary packages
from imutils import paths
import numpy as np
import argparse
import imutils
import cv2

# construct the argument parser and parse the arguments
ap = argparse.ArgumentParser()
ap.add_argument("-i", "--images", type=str, required=True,
                help="path to input directory of images to stitch")
ap.add_argument("-o", "--output", type=str, required=True,
                help="path to the output image")
args = vars(ap.parse_args())

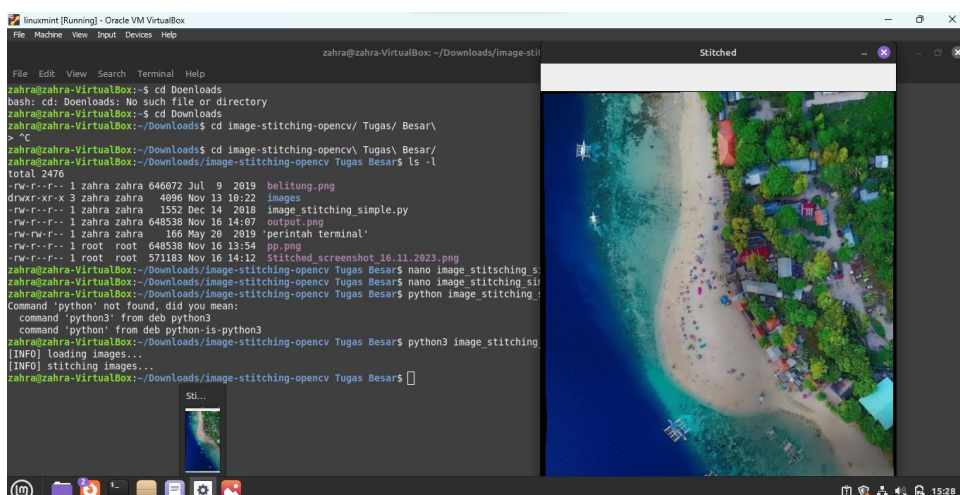
# grab the paths to the input images and initialize our images list
print("[INFO] loading images...")
imagePaths = sorted(list(paths.list_images(args["images"])))
images = []

# loop over the image paths, load each one, and add them to our
# images to stitch list
for imagePath in imagePaths:
    image = cv2.imread(imagePath)
    images.append(image)
```

3. Kemudian masukan perintah dibawah ini untuk mengeksekusinya
`python3 image_stitching_simple.py --images images/scottsdale --output output.png`

```
root@zahra-VirtualBox: /home/zahra/Downloads/image-stitching-opencv Tugas Besar#
python3 image_stitching_simple.py --images images/scottsdale --output pp.png
[INFO] loading images...
[INFO] stitching images...
```

4. Kemudian akan muncul output berupa gambar yang telah digabungkan.



Output:

