

LAPORAN TUGAS PREPROCESSING

PCD



Oleh :

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PROGRAM STUDI INFORMATIKA

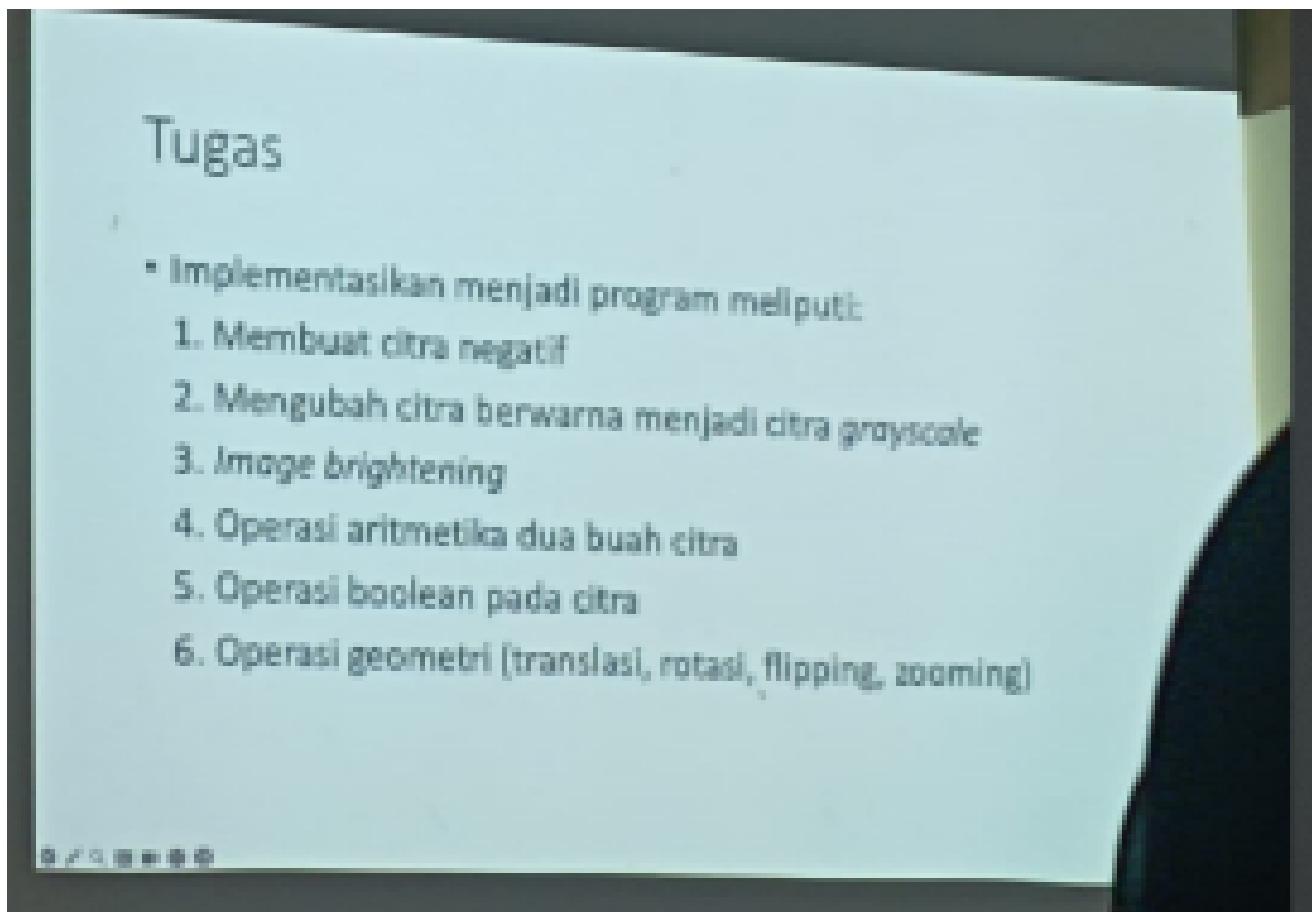
FAKULTAS ILMU KOMPUTER

UNIVERSITAS PEMBANGUNAN NASIONAL “VETERAN”

JAWA TIMUR

2023

Soal :



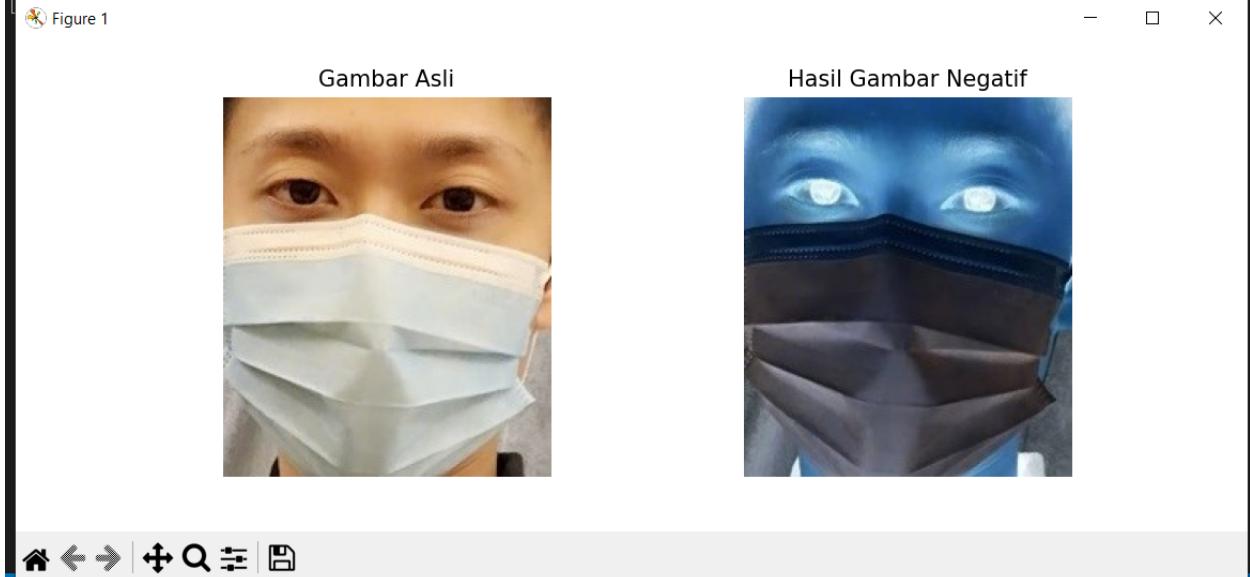
Jawab :

Kami Membuat Index.py untuk UI navigasi dalam memangil function soal dengan code sebagai berikut :

```
Menu:  
1. Citra Negatif  
2. Citra GrayScale  
3. Image Brightening  
4. Operasi Aritmatika 2 Buah Citra  
5. Option Boolean Pada Citra  
6. Operasi Geometri  
7. Quit  
Enter the number of your choice: 
```

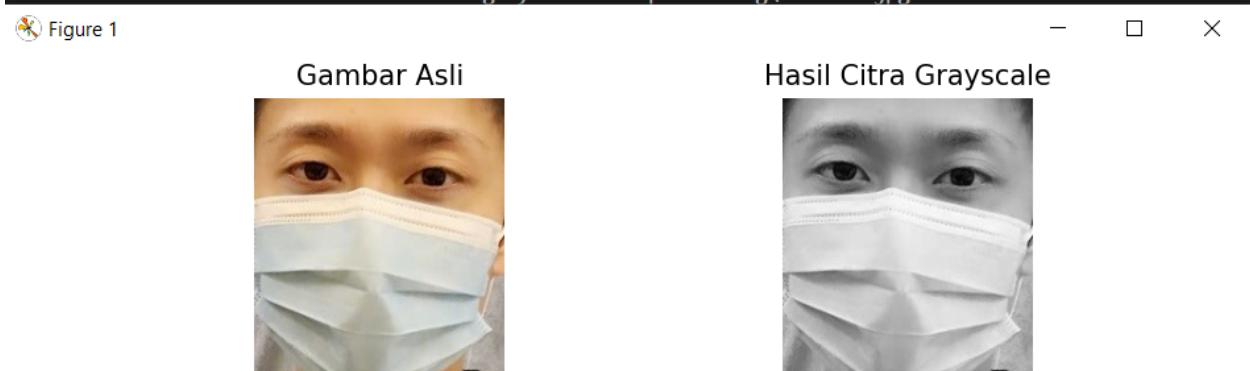
1. Operasi Citra Negatif

```
Menu:  
1. Citra Negatif  
2. Citra Grayscale  
3. Image Brightening  
4. Operasi Aritmatika 2 Buah Citra  
5. Option Boolean Pada Citra  
6. Operasi Geometri  
7. Quit  
Enter the number of your choice: 1  
Option 1 selected.  
Masukkan Path Gambar untuk konversi ke negatif: Preprocessing\Gambar1.jpg
```



2. Operasi Grayscale

```
Menu:  
1. Citra Negatif  
2. Citra Grayscale  
3. Image Brightening  
4. Operasi Aritmatika 2 Buah Citra  
5. Option Boolean Pada Citra  
6. Operasi Geometri  
7. Quit  
Enter the number of your choice: 2  
Option 2 selected.  
Masukkan Path Gambar untuk konversi ke grayscale: Preprocessing\Gambar1.jpg
```



3. Operasi Image Brightening



4. Operasi Aritmatika Dua Buah citra

- Penjumlahan

```

22
23     for x in range(ukuran_horizontal):
24         for y in range(ukuran_vertikal):
25             R = clipping(PIXEL_A[x, y][0] + PIXEL_B[x, y][0])
26             G = clipping(PIXEL_A[x, y][1] + PIXEL_B[x, y][1])
27             B = clipping(PIXEL_A[x, y][2] + PIXEL_B[x, y][2])
28             PIXEL_HASIL[x, y] = (R, G, B)
29
30     # Menampilkan citra hasil
31     CITRA_HASIL.show()

```

PROBLEMS DEBUG CONSOLE TERMINAL PORTS

▼ TERMINAL

```

1. Citra Negatif
2. Citra GrayScale
3. Image Brightening
4. Operasi Aritmatika 2 Buah Citra
5. Option Boolean Pada Citra
6. Operasi Geometri
7. Quit
Enter the number of your choice: 4
1.Penjumlahan
2.Pengurangan

Masukan No Pilihan Operasi : 1
Masukkan Path Gambar 1: Gambar1.jpg
Masukkan Path Gambar 2: Gambar2.jpg

```

tma... ... ⚡ 220%

- Pengurangan

```

22
23     for x in range(ukuran_horizontal):
24         for y in range(ukuran_vertikal):
25             R = clipping(PIXEL_A[x, y][0] - PIXEL_B[x, y][0])
26             G = clipping(PIXEL_A[x, y][1] - PIXEL_B[x, y][1])
27             B = clipping(PIXEL_A[x, y][2] - PIXEL_B[x, y][2])
28             PIXEL_HASIL[x, y] = (R, G, B)
29
30     # Menampilkan citra hasil
31     CITRA_HASIL.show()
32

```

PROBLEMS DEBUG CONSOLE TERMINAL PORTS

▼ TERMINAL

```

1. Citra Negatif
2. Citra GrayScale
3. Image Brightening
4. Operasi Aritmatika 2 Buah Citra
5. Option Boolean Pada Citra
6. Operasi Geometri
7. Quit
Enter the number of your choice: 4
1.Penjumlahan
2.Pengurangan

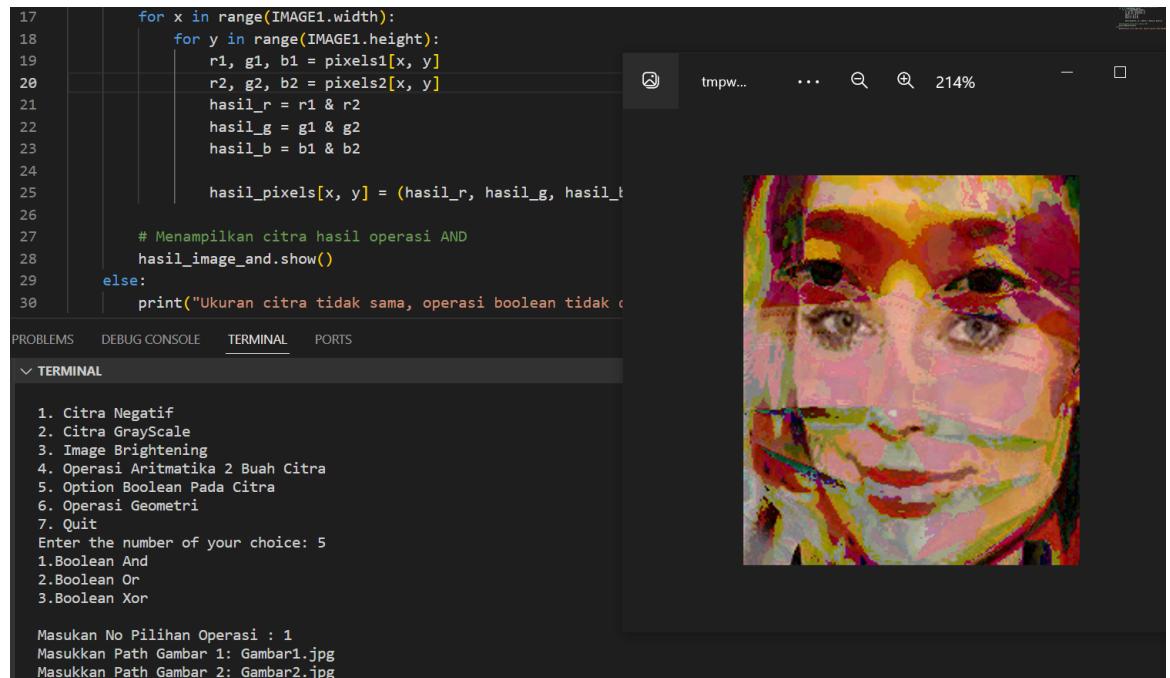
Masukan No Pilihan Operasi : 2
Masukkan Path Gambar 1: Gambar1.jpg
Masukkan Path Gambar 2: Gambar2.jpg

```

tma... ... ⚡ 259%

5. Operasi Boolean

- Boolean And



```
17     for x in range(IMAGE1.width):
18         for y in range(IMAGE1.height):
19             r1, g1, b1 = pixels1[x, y]
20             r2, g2, b2 = pixels2[x, y]
21             hasil_r = r1 & r2
22             hasil_g = g1 & g2
23             hasil_b = b1 & b2
24
25             hasil_pixels[x, y] = (hasil_r, hasil_g, hasil_b)
26
27     # Menampilkan citra hasil operasi AND
28     hasil_image_and.show()
29 else:
30     print("Ukuran citra tidak sama, operasi boolean tidak dapat dilakukan")
```

PROBLEMS DEBUG CONSOLE TERMINAL PORTS

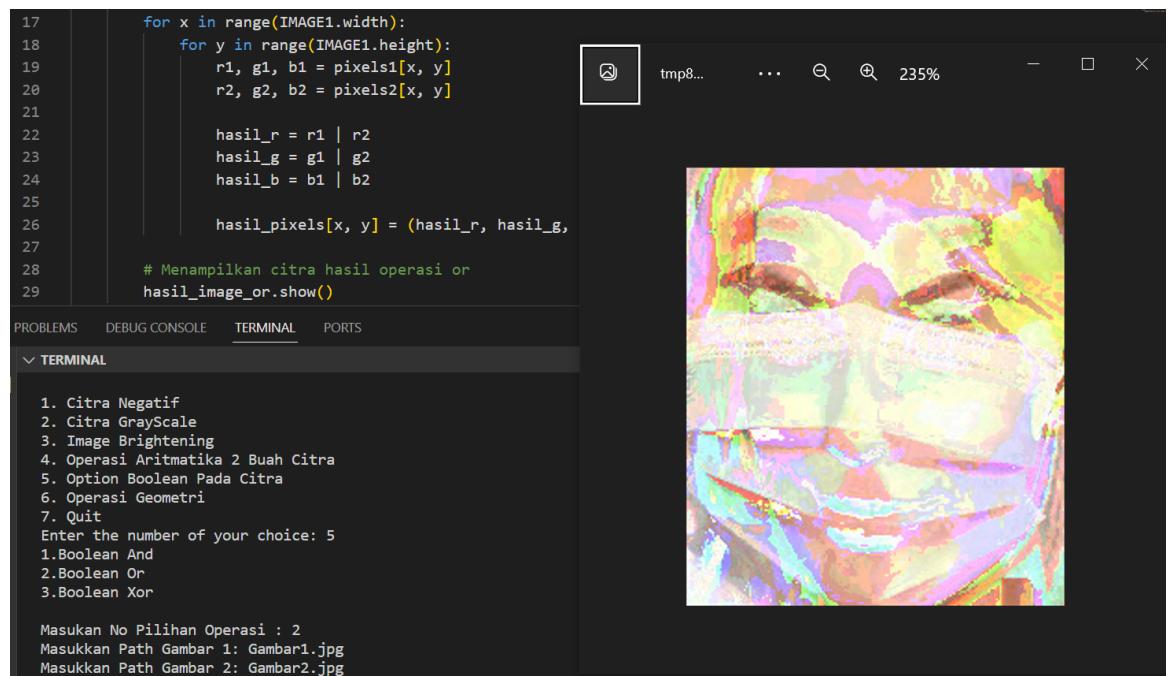
▼ TERMINAL

```
1. Citra Negatif
2. Citra GrayScale
3. Image Brightening
4. Operasi Aritmatika 2 Buah Citra
5. Option Boolean Pada Citra
6. Operasi Geometri
7. Quit
Enter the number of your choice: 5
1.Boolean And
2.Boolean Or
3.Boolean Xor

Masukan No Pilihan Operasi : 1
Masukkan Path Gambar 1: Gambar1.jpg
Masukkan Path Gambar 2: Gambar2.jpg
```



- Boolean Or



```
17     for x in range(IMAGE1.width):
18         for y in range(IMAGE1.height):
19             r1, g1, b1 = pixels1[x, y]
20             r2, g2, b2 = pixels2[x, y]
21
22             hasil_r = r1 | r2
23             hasil_g = g1 | g2
24             hasil_b = b1 | b2
25
26             hasil_pixels[x, y] = (hasil_r, hasil_g, hasil_b)
27
28     # Menampilkan citra hasil operasi or
29     hasil_image_or.show()
```

PROBLEMS DEBUG CONSOLE TERMINAL PORTS

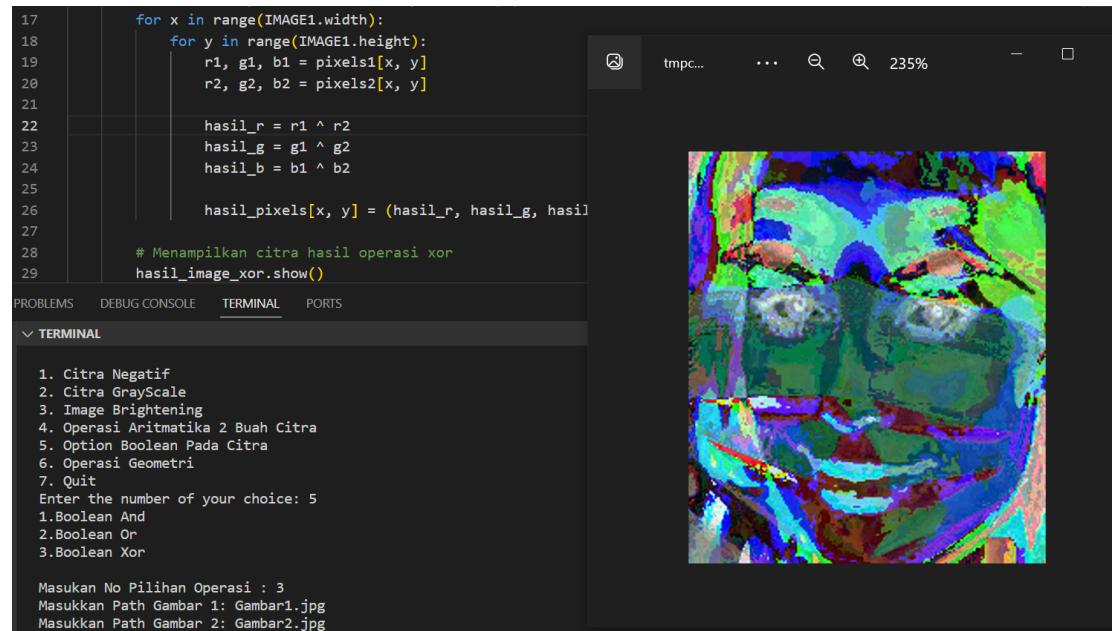
▼ TERMINAL

```
1. Citra Negatif
2. Citra GrayScale
3. Image Brightening
4. Operasi Aritmatika 2 Buah Citra
5. Option Boolean Pada Citra
6. Operasi Geometri
7. Quit
Enter the number of your choice: 5
1.Boolean And
2.Boolean Or
3.Boolean Xor

Masukan No Pilihan Operasi : 2
Masukkan Path Gambar 1: Gambar1.jpg
Masukkan Path Gambar 2: Gambar2.jpg
```



- Boolean Xor



A screenshot of a Python code editor showing a script for performing an XOR operation on two images. The code uses nested loops to iterate through the pixels of two images, `IMAGE1` and `IMAGE2`, and calculates the result for each pixel using the formula `hasil_r = r1 ^ r2`, `hasil_g = g1 ^ g2`, and `hasil_b = b1 ^ b2`. The resulting image, `hasil_image_xor`, is then displayed.

```

17     for x in range(IMAGE1.width):
18         for y in range(IMAGE1.height):
19             r1, g1, b1 = pixels1[x, y]
20             r2, g2, b2 = pixels2[x, y]
21
22             hasil_r = r1 ^ r2
23             hasil_g = g1 ^ g2
24             hasil_b = b1 ^ b2
25
26             hasil_pixels[x, y] = (hasil_r, hasil_g, hasil_b)
27
28     # Menampilkan citra hasil operasi xor
29     hasil_image_xor.show()

```

TERMINAL

1. Citra Negatif
2. Citra GrayScale
3. Image Brightening
4. Operasi Aritmatika 2 Buah Citra
5. Option Boolean Pada Citra
6. Operasi Geometri
7. Quit

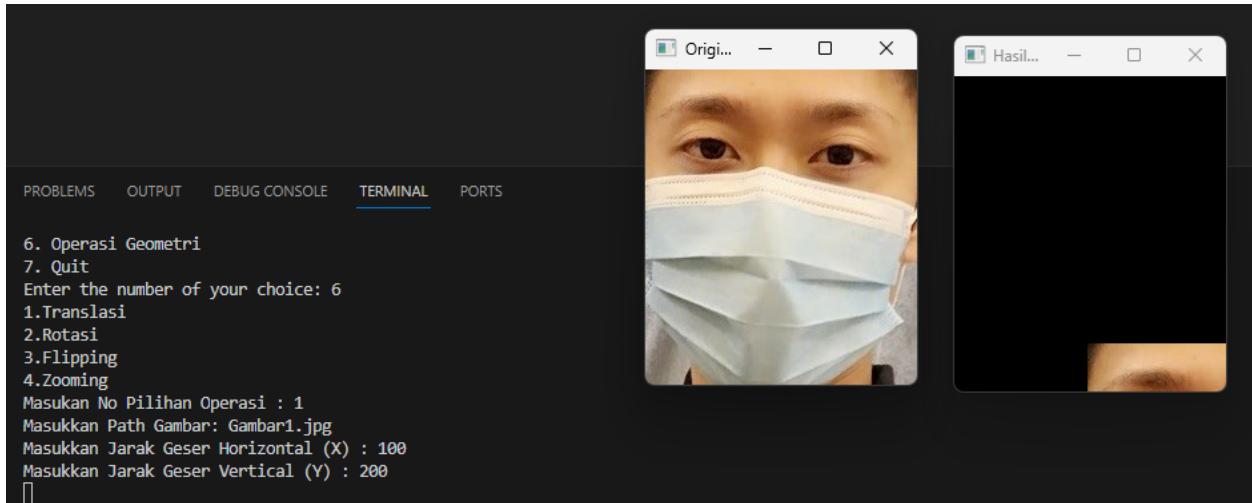
Enter the number of your choice: 5

- 1.Boolean And
- 2.Boolean Or
- 3.Boolean Xor

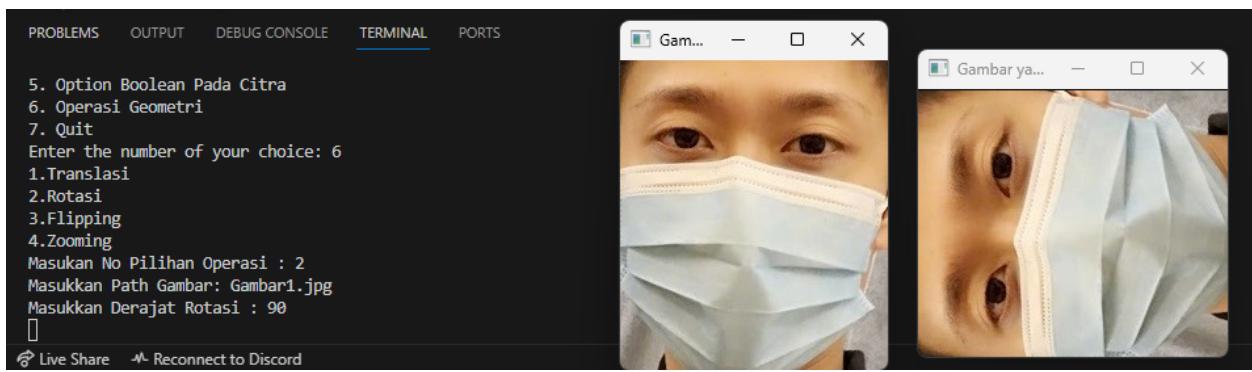
Masukan No Pilihan Operasi : 3
Masukkan Path Gambar 1: Gambar1.jpg
Masukkan Path Gambar 2: Gambar2.jpg

6. Operasi Geometri

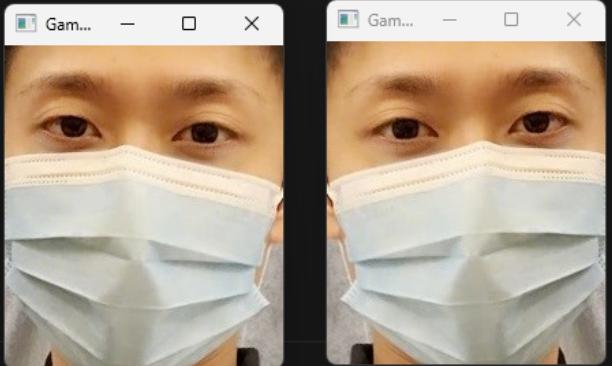
- Tranlasi



- Rotasi



- Flip

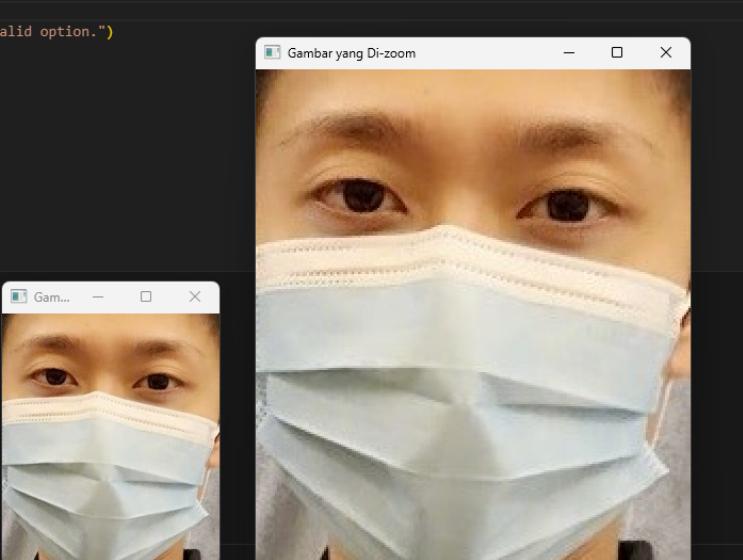


PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
5. Option Boolean Pada Citra
6. Operasi Geometri
7. Quit
Enter the number of your choice: 6
1.Translasi
2.Rotasi
3.Flipping
4.Zooming
Masukan No Pilihan Operasi : 3
Masukkan Path Gambar: Gambar1.jpg
Masukkan Type Flip 0 = Horizontal, 1 = Vertikal  0
□
```

Live Share Reconnect to Discord

- Zoom



```
212     else:
213         print("Invalid choice. Please choose a valid option.")
214
215 if __name__ == "__main__":
216     main()
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
5. Option Boolean Pada Citra
6. Operasi Geometri
7. Quit
Enter the number of your choice: 6
1.Translasi
2.Rotasi
3.Flipping
4.Zooming
Masukan No Pilihan Operasi : 4
Masukkan Path Gambar: Gambar1.jpg
Masukkan Berapa Kali Zoom : 2
□
```

Live Share Reconnect to Discord