Laporan Pengolahan Citra Digital

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Resources

There are quite a few dependencies that need to be satisfied in the system.

Image sample

original image 100x100px:

Python Library

1. NumPy

```
pip install numpy
```

2. Pillow

```
pip install Pillow
```

Python Source Code

1. Import numpy adn Pillow library

```python
from PIL import Image
from numpy import asarray
```

2. Open image as variable

```python
image = Image.open('image.jpg')
```

3. crop image by storing it in a variable

```
croppedIm = image.crop((0,0,5,5))
```

> (left, up, right, bottom)

4. show cropped image

```
croppedIm.show()
```

5. Save cropped image

```
croppedIm.save('croppedIm.jpg')
```
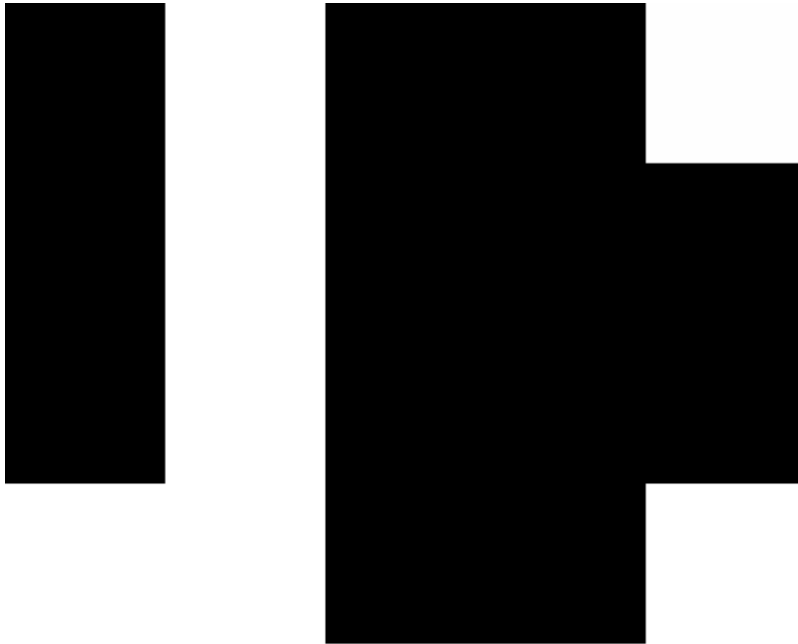
6. Declare width and height of the croped image

```
 width, height = croppedIm.size
```

7. Resize cropped image by 80 times without resampling it.

```
resizedCrIm=croppedIm.resize((width*80, height*80), resample=0)
```

8. Save resized image

```
resizedCrIm.save('RCI.jpg')
```

9. Convert image color to array using `asarray` and store it as variable

```
np_img = asarray('image.jpg')
```

10. Print array

```
print(np_img)
```

11. Run program

```
python3 convert.py
```

12. Result color will display in RGB format.

```
[y coorditnate[x coordinate]]
```

```
[[[  0   0   0]
  [255 255 255]
  [  0   0   0]
  [  0   0   0]
  [254 254 254]]
```

```
[[  0   0   0]
 [255 255 255]
 [  0   0   0]
 [  0   0   0]
 [  0   0   0]]

[[  0   0   0]
 [255 255 255]
 [  0   0   0]
 [  0   0   0]
 [  0   0   0]]

[[255 255 255]
 [255 255 255]
 [  0   0   0]
 [  0   0   0]
 [255 255 255]]

[[255 255 255]
 [255 255 255]
 [255 255 255]
 [255 255 255]
 [255 255 255]]]
```

Explanation

Pillow library will return the value of the coordinate (0px,0px) in the image.jpg and continue scanning until the right pixel point of the image. And then the process went on until the bottom right pixel of the image has scanned. If we pick the first line output value.

```
[[[  0   0   0]
```

The first row is 0 which represent Red Channel Value in RGB pallet. While the second is Green and the third is Blue Channel