Laporan Pengolahan Citra Digital

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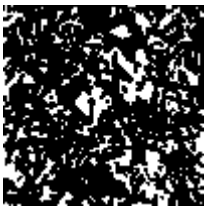
Resources

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

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

2. Open image as variable

```
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]]
```

```
[[249 249 249]
 [253 253 253]
 [242 242 242]
 [210 210 210]
 [178 178 178]
 [204 204 204]
 [205 205 205]
 [187 187 187]
 [229 229 229]
 [255 255 255]]

[[250 250 250]
 [241 241 241]
 [225 225 225]
 [180 180 180]
 [151 151 151]
 [178 178 178]
 [192 192 192]
 [196 196 196]
 [227 227 227]
 [252 252 252]]

[[233 233 233]
 [225 225 225]
 [249 249 249]
 [233 233 233]
 [182 182 182]
 [164 164 164]
 [171 171 171]
 [184 184 184]
 [221 221 221]
 [242 242 242]]

[[245 245 245]
 [245 245 245]
```

```
  [253 253 253]
  [249 249 249]
  [240 240 240]
  [223 223 223]
  [192 192 192]
  [192 192 192]
  [231 231 231]
  [253 253 253]]

 [[229 229 229]
  [233 233 233]
  [247 247 247]
  [249 249 249]
  [242 242 242]
  [235 235 235]
  [215 215 215]
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  [240 240 240]
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 [[181 181 181]
  [207 207 207]
  [247 247 247]
  [228 228 228]
  [215 215 215]
  [212 212 212]
  [200 200 200]
  [225 225 225]
  [241 241 241]
  [235 235 235]]

 [[165 165 165]
  [200 200 200]
  [234 234 234]
  [221 221 221]
  [189 189 189]
  [185 185 185]
  [218 218 218]
  [218 218 218]
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  [212 212 212]]

 [[155 155 155]
  [168 168 168]
  [168 168 168]
  [174 174 174]
  [151 151 151]
  [201 201 201]
  [255 255 255]
  [255 255 255]
  [234 234 234]
  [198 198 198]]

 [[187 187 187]
```

```
  [180 180 180]
  [173 173 173]
  [139 139 139]
  [192 192 192]
  [249 249 249]
  [255 255 255]
  [255 255 255]
  [255 255 255]
  [249 249 249]]

 [[209 209 209]
  [217 217 217]
  [190 190 190]
  [200 200 200]
  [250 250 250]
  [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.

```
    [[249 249 249]
```

The first row is 249 which represent Red Channel Value in RGB pallet. While the second is Green and the third is Blue Channel