

```
1 from PIL import Image
2 import numpy as np
3
4 im = Image.open("Lenna.jpg")
5 print(im.format)
6 print(im.size)
7 print(im.mode)
8
9
10 arr = np.array(im.copy())
11 print(type(arr))
12 print(arr.shape)
13
14 arr80persen = arr.copy()
15 arr90persen = arr.copy()
16 arr110persen = arr.copy()
17 arr120persen = arr.copy()
18
19
20 for y in range(arr.shape[0]):
21     for x in range(arr.shape[1]):
22         akum = (int(arr[y,x,0])+int(arr[y,x,1])+int(arr[y,x,2]))
23         tmp = max(min(int(akum/3),255),0)
24         arr[y,x] = [tmp,tmp,tmp]
25         tmp90persen = max(int(tmp*0.9),0)
26         tmp80persen = max(int(tmp*0.8),0)
27         arr90persen[y,x]=[tmp90persen,tmp90persen,tmp90persen]
28         arr80persen[y,x]=[tmp80persen,tmp80persen,tmp80persen]
29         tmp110persen = min(int(tmp*1.1),255)
30         tmp120persen = min(int(tmp*1.2),255)
31         arr110persen[y,x]=[tmp110persen,tmp110persen,tmp110persen]
32         arr120persen[y,x]=[tmp120persen,tmp120persen,tmp120persen]
33
34 Image.fromarray(np.hstack((arr80persen,arr90persen,arr,arr110persen,arr120persen))).show()
```