

```

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 arrMinus40 = arr.copy()
15 arrMinus20 = arr.copy()
16 arrPlus20 = arr.copy()
17 arrPlus40 = 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         tmpMin10 = max(tmp-20,0)
26         tmpMin20 = max(tmp-40,0)
27         arrMinus20[y,x]=[tmpMin10,tmpMin10,tmpMin10]
28         arrMinus40[y,x]=[tmpMin20,tmpMin20,tmpMin20]
29         tmpPlus10 = min(tmp+20,255)
30         tmpPlus20 = min(tmp+40,255)
31         arrPlus20[y,x]=[tmpPlus10,tmpPlus10,tmpPlus10]
32         arrPlus40[y,x]=[tmpPlus20,tmpPlus20,tmpPlus20]
33
34
35
36 Image.fromarray(np.hstack((arrMinus40,arrMinus20,arr,arrPlus20,arrPlus40))).show()

```