Computer vision homework 1
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a. Use a program to turn (1)upside-down (2)right-side-left
   (3)diagonally mirrored

Upside-down

Right-side-left

Diagonally mirrored

Main code:

```
1   from PIL import Image
2
3   image = Image.open('lena.bmp')
4   right_left = image.copy()
5
6   (h , w) = image.size
7
8   for i in range(0 , h):
9     for j in range(0 , w):
10      tmp = image.getpixel((i , j))
11      right_left.putpixel((h-i-1 , j) , tmp)
12
13  right_left.show()
14  #right_left.save('C:\Users\user\Documents\computer_vision\Right_left.bmp')
15
16  up_down = image.copy()
17
18  for j in range(0 , w):
19    for i in range(0 , h):
20      tmp = image.getpixel((i , j))
21      up_down.putpixel((i , w-j-1) , tmp)
22
23  up_down.show()
24  #up_down.save('C:\Users\user\Documents\computer_vision\up_down.bmp')
25
26  diagonal = image.copy()
27
28  for i in range(0 , h):
29    for j in range(0 , w):
30      tmp = image.getpixel((i , j))
31      diagonal.putpixel((j , i) , tmp)
32
33  diagonal.show()
34  #diagonal.save('C:\Users\user\Documents\computer_vision\diagonal.bmp')
```

b. Use photoshop to (1)rotate (2)shrink (3)binarize

Rotate 45 degree clockwise

Method:

1. Import Image

2.click 影像 -> 影像旋轉 -> 45 degree and enter

Shrink in half

Method:

1. Import Image
2. 2. Click 影像 -> 影像尺寸 -> make the parameters half of the origin

Binarize at 128

Method:

1. Import image
2. Click 影像 -> 調整 -> 臨界值 -> 輸入 128