Computer Vision HW1

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part 1 : use python

1.upside-dwon

2.right-side-left

3.diagnolly mirrored

source code

```
import cv2
import numpy as np
img = cv2.imread('lena.bmp')
img2 = cv2.imread('lena.bmp')
img3 = cv2.imread('lena.bmp')
##upside down
for i in range (0,512):
    for j in range (0,256):
        img[i][j]=img2[511-j]
        img[i][511-j]=img2[i][j]
```

```
import cv2
import numpy as np
img = cv2.imread('lena.bmp')
img2 = cv2.imread('lena.bmp')
img3 = cv2.imread('lena.bmp')
##right-side-left
for i in range (0,512):
    for j in range (0,256):
        img[i][j]=img2[i][511-j]
        img[i][511-j]=img2[i][j]
cv2.imwrite('lena_right-side-left.jpg',img)
##upside down
for j in range (0,512):
    for i in range (0,256):
        img[i][j]=img2[511-i][j]
        img[511-i][j]=img2[i][j]
cv2.imwrite('lena_upside-down.jpg',img)
#diagonally-mirrored
for i in range (0,512):
    for j in range (0,256):
        img3[i][j]=img[i][511-j]
        img3[i][511-j]=img[i][j]
cv2.imwrite('lena_diagonally-mirrored.jpg', img3)
```

```
cv2.imwrite('lena_upside-down.jpg',img)
##right-side-left
for j in range (0,512):
    for i in range (0,256):
        img[i][j]=img2[511-i][j]
        img[511-i][j]=img2[i][j]
cv2.imwrite('lena_right-side-left.jpg',img)
#diagonally-mirrored
for i in range (0,512):
    for j in range (0,256):
        img3[i][j]=img[i][511-j]
        img3[i][511-j]=img[i][j]
cv2.imwrite('lena_diagonally-mirrored.jpg', img3)
```

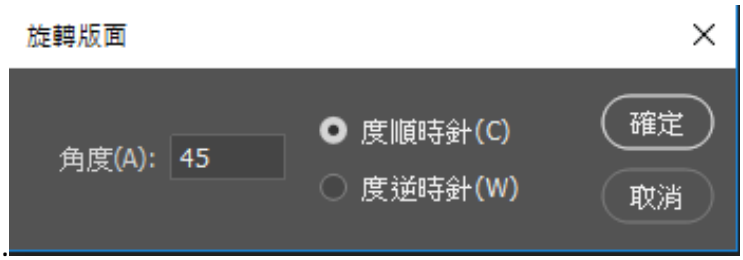
part.2 use photoshop

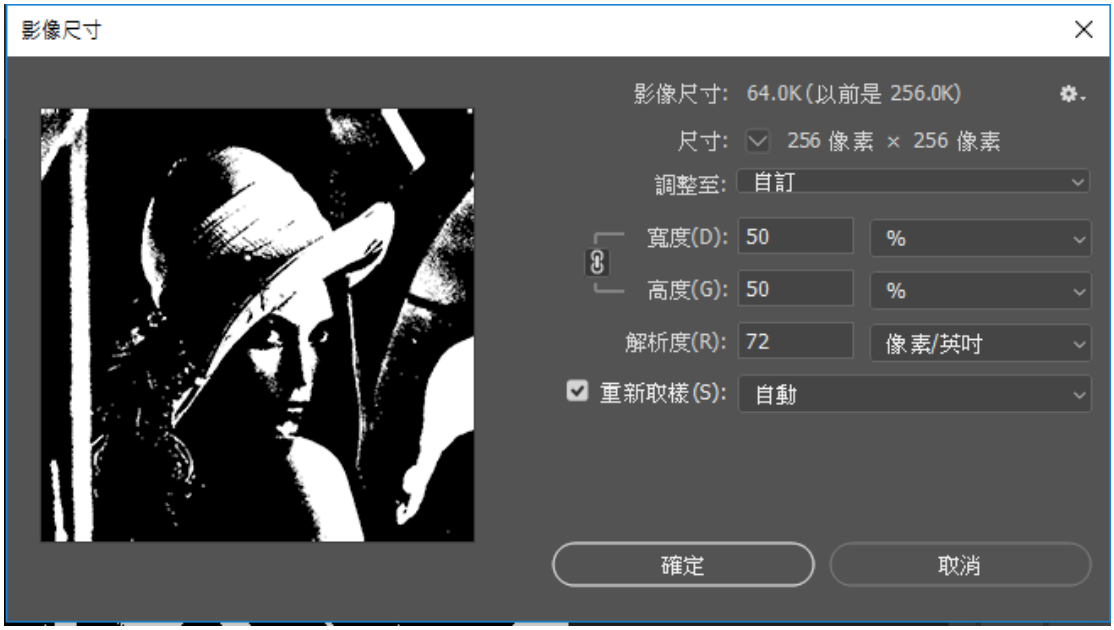
1. rotate 45 degrees clockwise

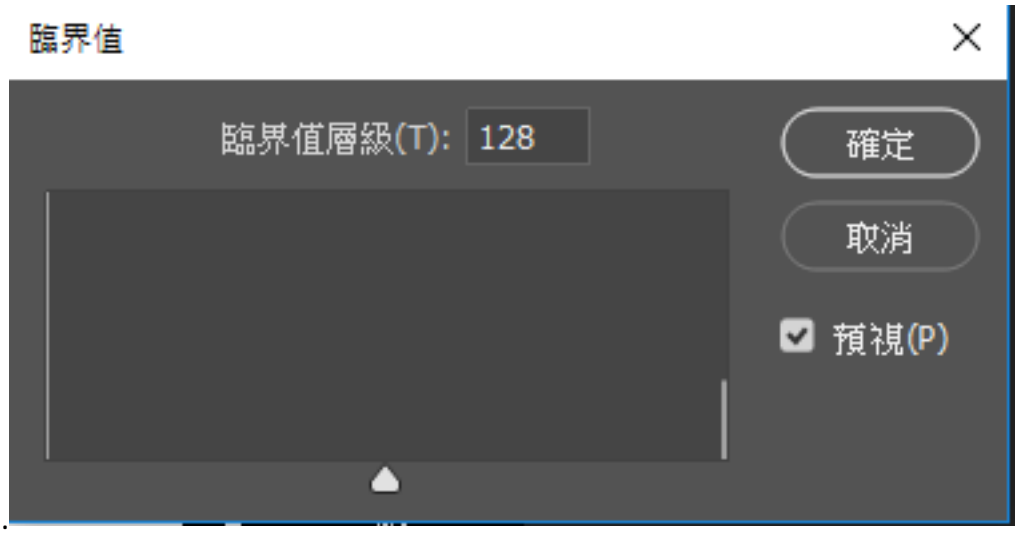
2.shrink in half

2. binarize at 128

method:

1. 
旋轉版面
角度(A): 45
度順時針(C)
度逆時針(W)
確定
取消

2. 
影像尺寸
影像尺寸: 64.0K (以前是 256.0K)
尺寸: 256 像素 × 256 像素
調整至: 自訂
寬度(D): 50 %
高度(G): 50 %
解析度(R): 72 像素/英吋
重新取樣(S): 自動
確定
取消

3. 
臨界值
臨界值層級(T): 128
確定
取消
預視(P)