電腦視覺（一）Homework7

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1. Thinning

Coding:

```
def Marking(img):
    arr = np.zeros(img.shape, np.uint8)
    for i in range(1, img.shape[0]-1):
        for j in range(1, img.shape[1]-1):
            if img[i][j] == 1 :
                if (img[i-1][j]==1 or img[i][j-1]==1 or
                    img [i][j+1]==1 or img[i+1][j]==1):
                    arr[i][j]=100 #set p
```

```
while(NoDuplicate):
    Yokoi_img = YokoiWholeImg(Origin_img)
    Marked_img = Marking(Yokoi_img)
    SetOrigin =  Origin_img.copy()
    for i in range(1, 65):
        for j in range(1, 65):
            if Marked_img[i][j] == 100:
                ForYokoi =  Origin_img.copy()
                ForYokoi[i][j] = Yokoi(Origin_img,i,j)
                if(ForYokoi[i][j]==1):
                    Origin_img[i][j] = 0
    count +=1
    if(SetOrigin ==  Origin_img).all():
        print(count)
        NoDuplicate=False
```

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While 迴圈：先 Yokoi 整張圖，根據此圖做 Pair Relation operator 找出 Marked-image 後由右上到左下比對為 p 的圖及原圖為 yokoi 後為 1 的 pixel 並做刪除後，得到新圖。再重新做一次 thinning，直到圖片不再變化為止。