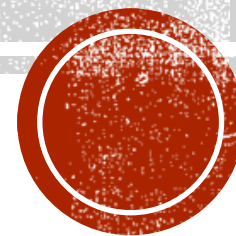


多媒體實習-OpenCV教學5

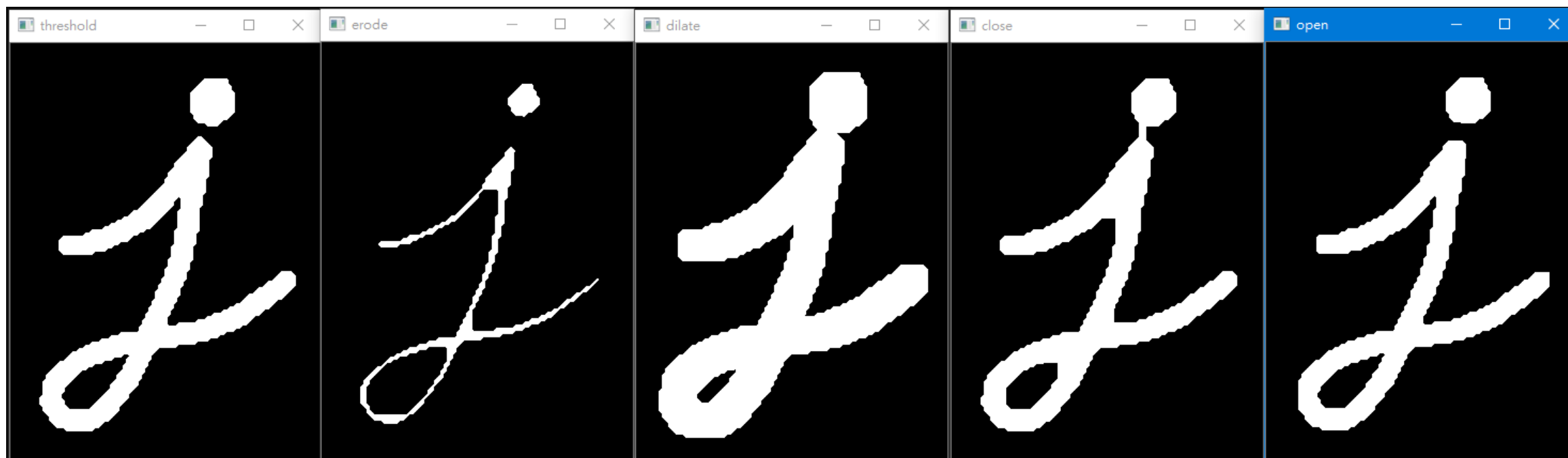


MORPHOLOGY(形態學)

- Erosion
- Dilation
- Opening
- Closing



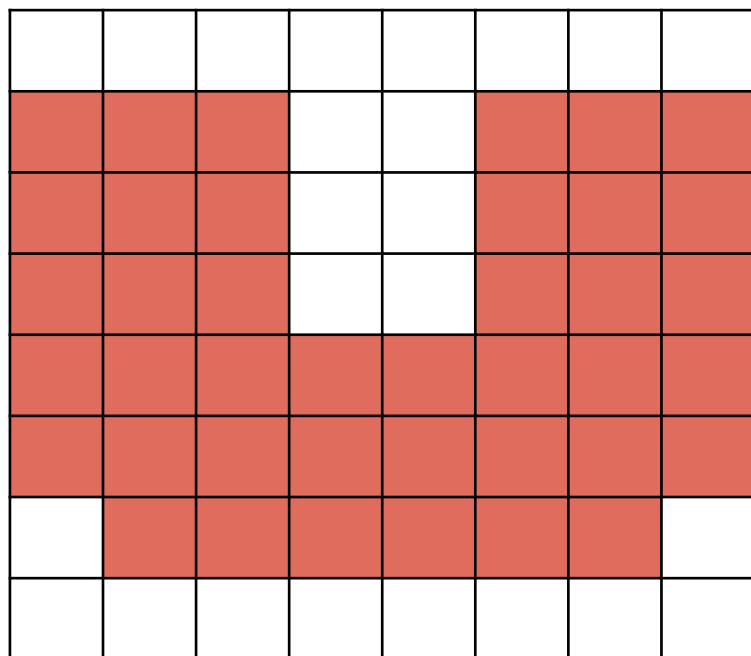
效果



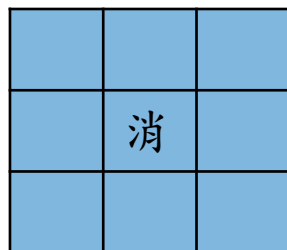
侵蝕 ERODE

<https://www.youtube.com/watch?v=fmyE7DiaIYQ>

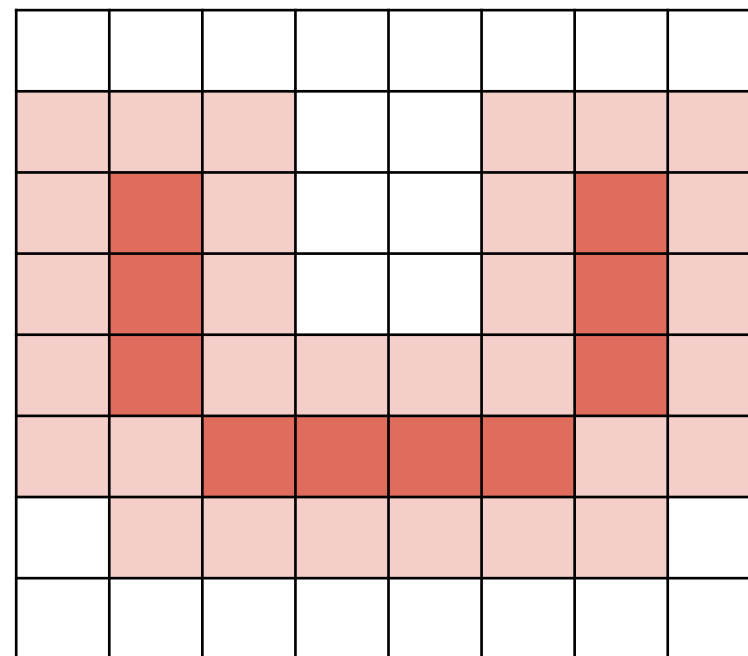
用 Structure element 掃過，
element 上任意部位與 Input AND，
若任一為 0 則消掉 element 中心處



Input Image



Structure element



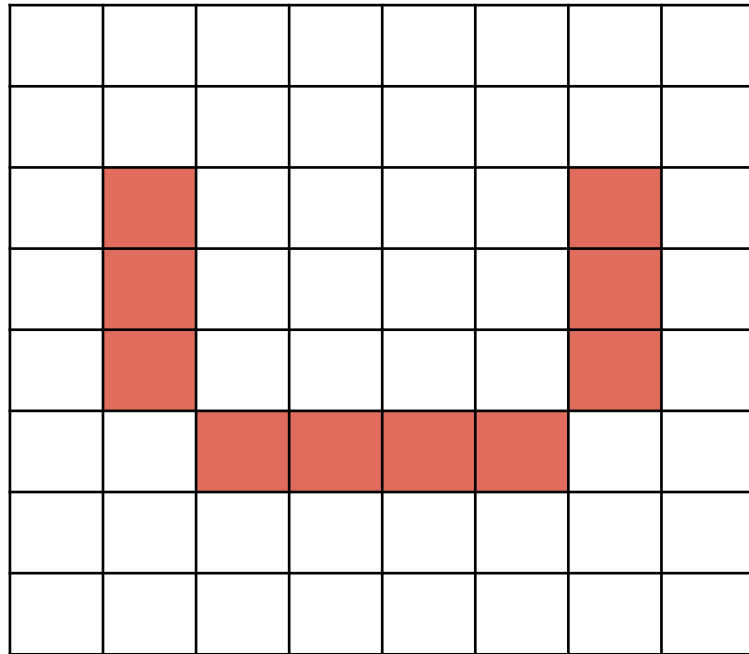
Output Image



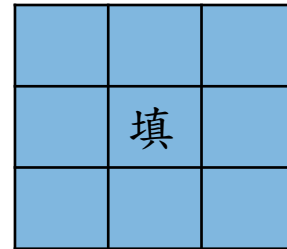
膨脹 DILATE

<https://www.youtube.com/watch?v=xO3ED27rMHs>

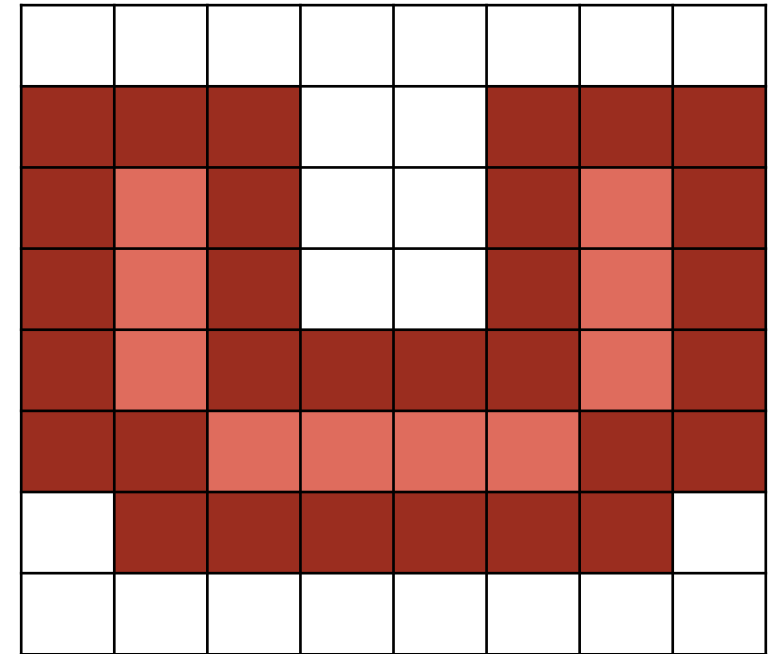
用 Structure element 掃過，
element 上任意部位與 Input OR，
若任一不為 0 則填滿 element 中心處



Input Image



Structure element



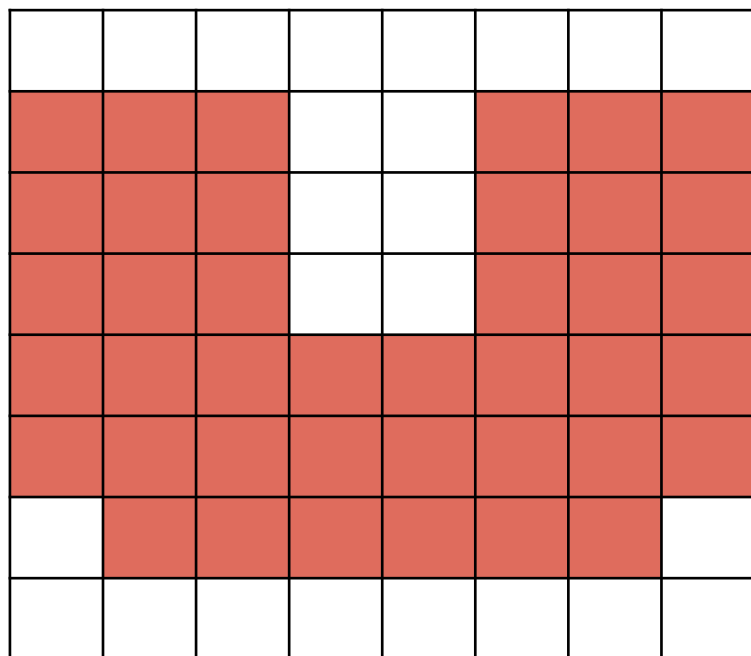
Output Image



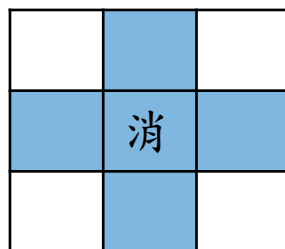
侵蝕 **ERODE**

<https://www.youtube.com/watch?v=fmyE7DiaIYQ>

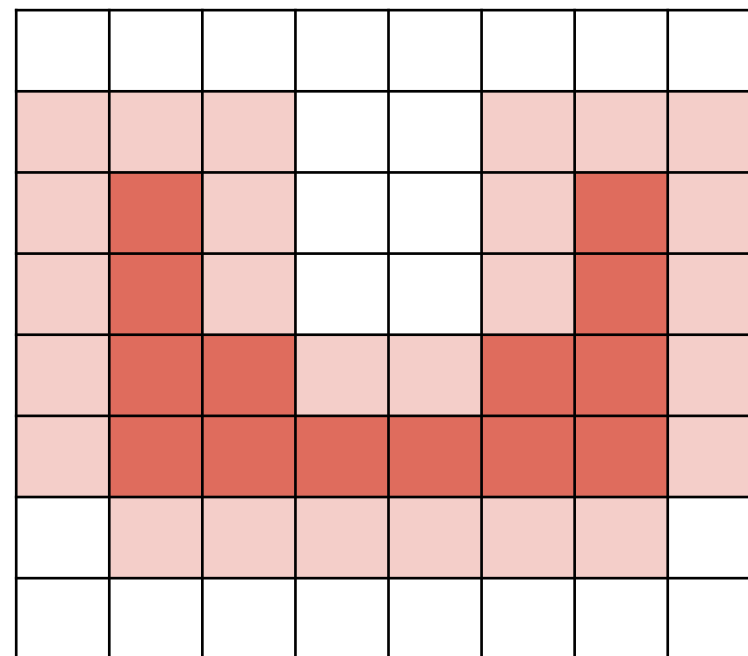
用 Structure element 掃過，
element 上任意部位與 Input AND，
若任一為 0 則消掉 element 中心處



Input Image



Structure element

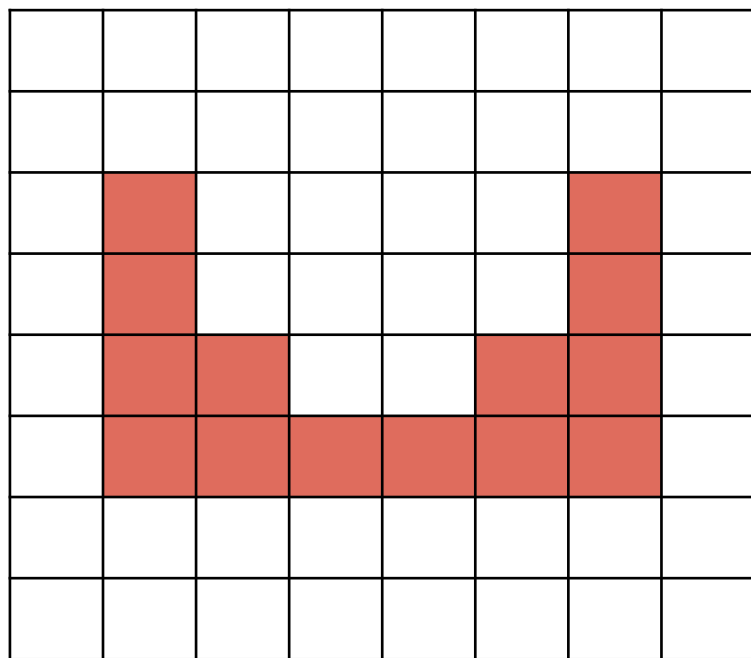


Output Image

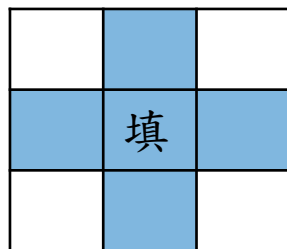


膨脹 DILATE

<https://www.youtube.com/watch?v=xO3ED27rMHs>

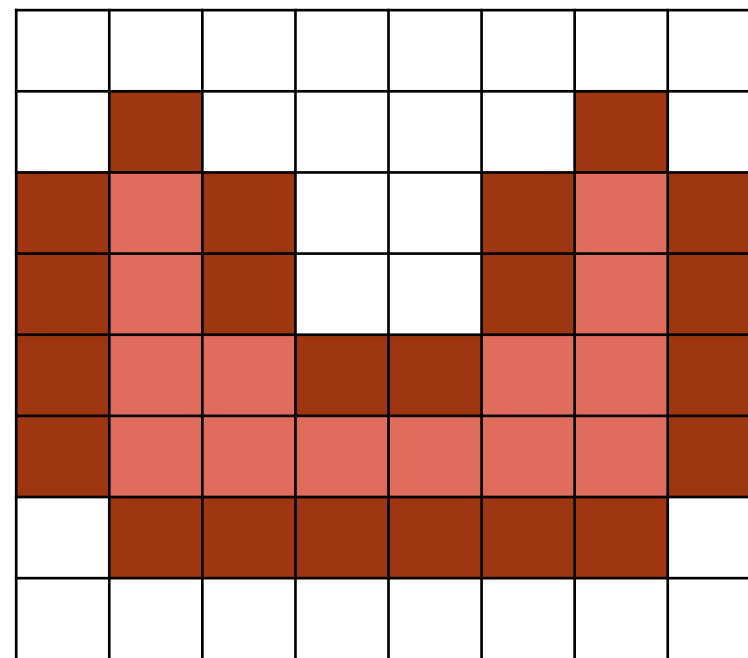


Input Image



Structure element

用 Structure element 掃過，
element 上任意部位與 Input OR，
若任一不為 0 則填滿 element 中心處

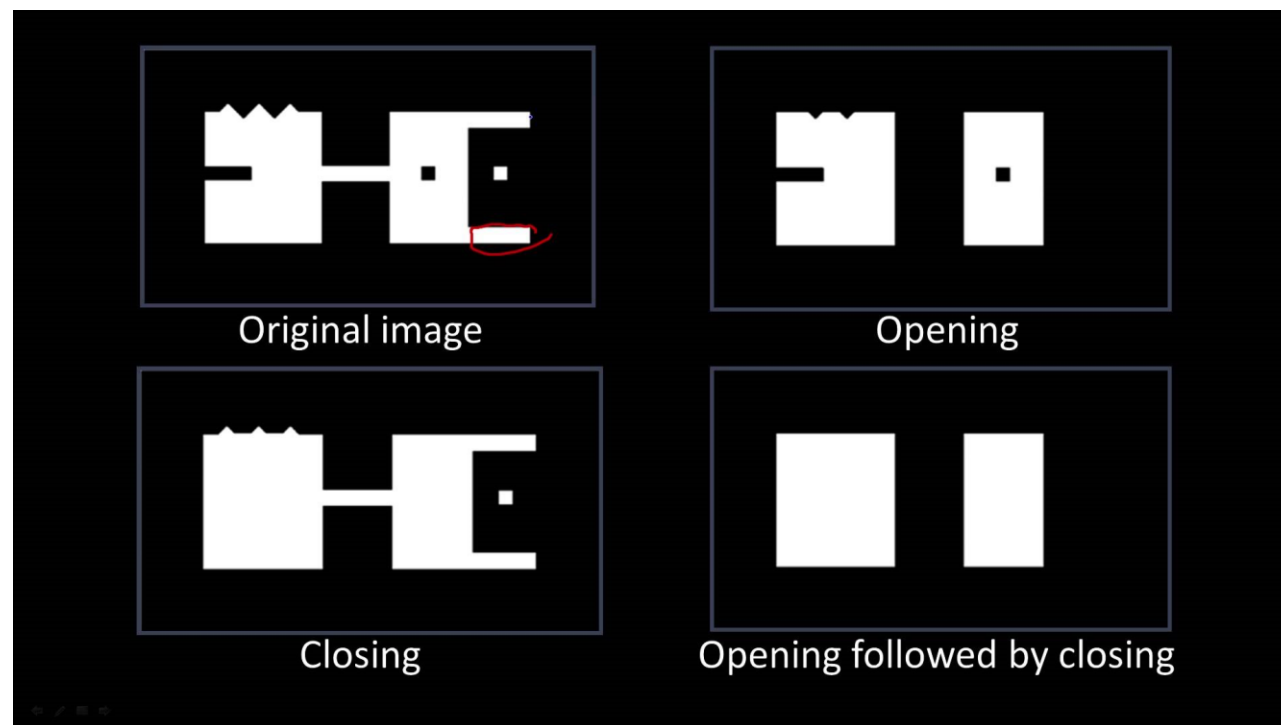


Output Image



OPENING 、 CLOSING

- Opening 先侵蝕再膨脹
功用: 斷細邊/雜訊, 可留下主要紋理
- Closing 先膨脹再侵蝕
功用: 補洞



CONNECTED COMPONENT

			2						
	1		2	2	2				
	1			2	2		3	3	3
								3	3
								3	3
	4								
	4	4	4						
	4	4			5	5	5		
	4	4				5	5	5	5
						5			

- 在這個範例當中組共有 5 個 connected components

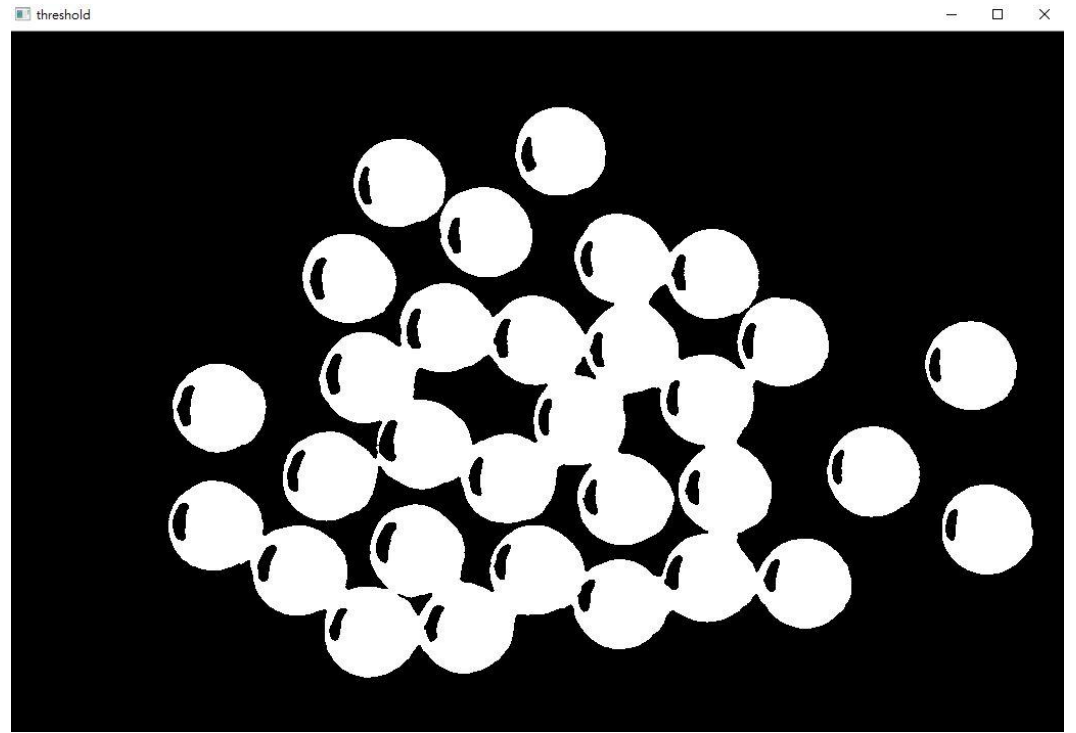


練習

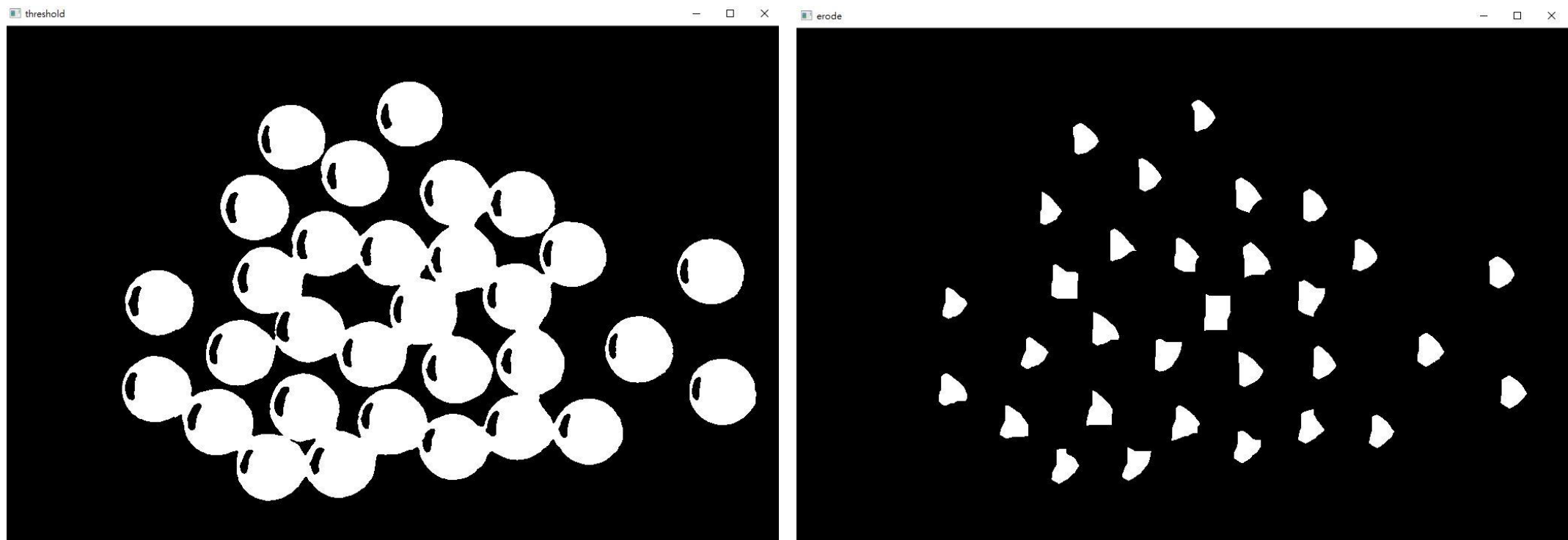
- 計算有幾個棋子，可以 `call function`
- **加分題** 為侵蝕或膨脹不 `call function`
實作其中一種



提示



提示



提示

- 建議先用模糊法去雜訊，或是用膨脹消除雜點
- 二值化要記得用 `THRESH_BINARY_INV`

