Computer Vision HW4 Report

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Execution

> Using Python 3.7

```
$ python hw4.py
```

Code Explanation

- For all image processing (including read and write Images, accessing each pixels), I use the following libraries:

  - **Python OpenCV library** `cv2`

  - **Python numpy library** `numpy`

- Function `union()` do binary dilation, and function `intersection()` do binary erosion. Two functions have same parameters, with the octogonal 3-5-5-5-3 `kernel`, source binary image `img1`, and resulting binary image `img2`.

- Since Hit-and-miss use the L-shape kernel (different with the octogonal kernel), it would produce wrong image if applying function `intersection()` directly. Thus, I just check the 3 critical pixels (by the slide) to determine black or white for each pixel.

References

- Dilation (morphology) (https://en.wikipedia.org/wiki/Dilation_(morphology))

- Erosion (morphology) (https://en.wikipedia.org/wiki/Erosion_(morphology))

- Opening (morphology) (https://en.wikipedia.org/wiki/Opening_(morphology))

- Closing (morphology) (https://en.wikipedia.org/wiki/Closing_(morphology))

- Hit-or-miss transform (https://en.wikipedia.org/wiki/Hit-or-miss_transform)

Results

Subtask	Image	Subtask	Image
(a)		(b)	
(c)		(d)	
(e)			