1. A binary array that represents a portion of a black and white image is given below. Perform the operations listed below on this piece of image. Assume that all of the pixels that surround this segment contain black background.

0	0	0	0	0	0	0
0	0	1	1	0	0	0
0	0	0	1	0	0	0
0	0	0	1	1	0	0
0	0	1	1	1	1	0
0	0	1	1	1	0	0
0	1	0	1	0	1	0
0	0	0	0	0	0	0

(a) Dilation with the structuring element | ① | 1 | 1 | The origin is shown with a circled element.

(b) Erosion with the structuring element | ① | 1 | 1 |

(c) Dilation with the structuring element

1	①
0	1

(d) Erosion with the structuring element

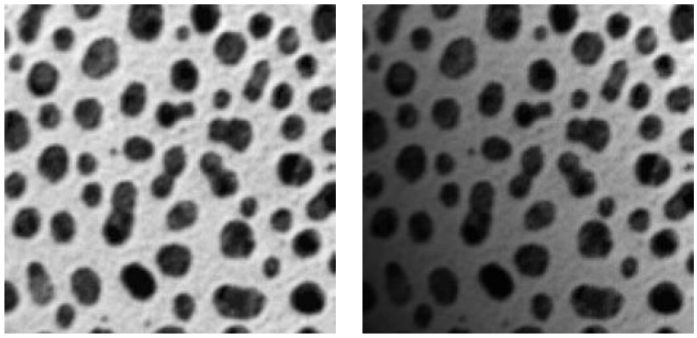
1	①
0	1

(e) Opening with each of the above structuring elements.

(f) Closing with each of the above structuring elements.

2.

The images blobz1.png and blobz2.png are shown in figure 1. The difference is that blobz1 has nearly uniform illumination while blobz2 has very nonuniform illumination. The goal of this problem is to construct an algorithm based on global greyscale thresholding for the segmentation of each image.



blobz1.png blobz2.png

Figure 1: Microscope images with uniform and nonuniform illumination.

3. 要求：

（1）三个部分，算法描述和文档、代码和有关图像

（2）语言：Matlab

（3）学术规范：自己独立完成，抄袭者和被抄袭者的成绩一律按原成绩的50%计。

4. 作业提交方式和完成时间：

（1）文档、代码和图像以 WINZIP 打包，文件名为：hm5-姓名-学号，交作业邮箱：dip2016@126.com

（2）作业完成时间：2019年1月16日前