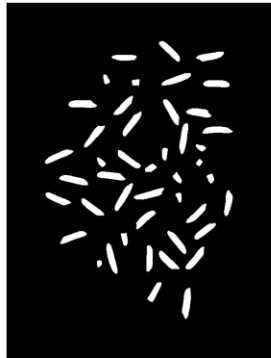


TASK1:

Threshold Value = 158.3585880635558



```
threshold = 105.57441884190172
threshold = 109.81398352270853
threshold = 113.11635260461172
threshold = 116.60406577299771
threshold = 120.089693626856
threshold = 124.37809139257678
threshold = 128.0667799094849
threshold = 132.35231755042864
threshold = 136.55423722342798
threshold = 140.34071517058115
threshold = 143.67831300176755
threshold = 145.72966010923642
threshold = 147.20622845072853
threshold = 148.17972637728968
threshold = 148.6570737327494
```

In the image “rice\_img1\_Task1.png”, I set the parameters as(threshold = 100  
epst = 0.01).

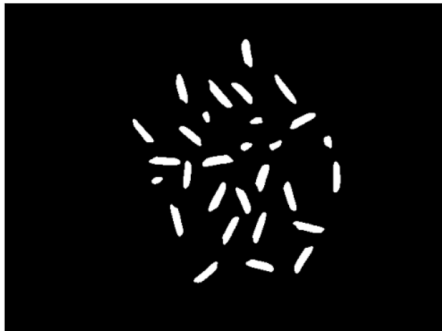
In the image6 and image7, we cannot set the initial threshold too small such as  
0.5. Because this will lead some error. You can find that in the picture bellow. If  
you set the threshold as 1, we cant find correct image.

Threshold Value = 15.2168850921881



After we change the parameter to 100, we can get the correct answer.

Threshold Value = 78.0772157334765



## Task2





These four image is my result from task2. The number of kernels will be shown below.

number of kernels in image1: 45

number of kernels in image2: 45

number of kernels in image3: 29

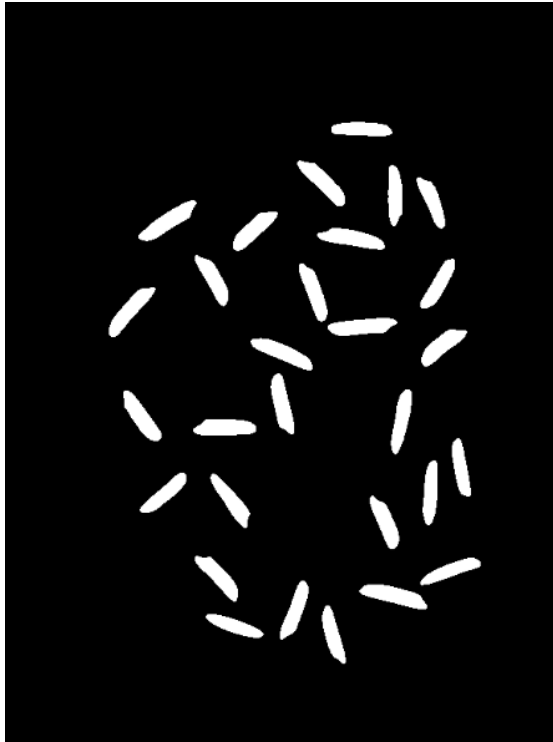
number of kernels in image4: 34

The second round of searching is the difficulty of this problem. When I was doing this experiment, I was thinking about whether I can get the same result if searching in reverse order. The final answer shows that the corresponding result can also be obtained.

### Task3

In the absence of min\_area, I used the average value for this experiment and finally got good results in all four graphs.

The method I use is to traverse all the grids, the grids with the same color will be sorted into a dictionary. But we must remove the maximum value because the background will also be calculated.



This is the result of image2. The percentage of damage kernels: 0.6590909090909091, when min\_area = average value = 685.

Through this assignment, I realized the importance of adjusting parameters for image recognition.