

Aslan Oztreves
 CS 435
 Matthew Burlick
 Homework #2

Theory Problems

Aslan Oztreves.

1)

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

2)

$$\vec{v} = 1$$

$$\begin{bmatrix} 1 & 4 & 6 & 4 & 1 \\ 1 & 4 & 6 & 4 & 1 \\ 1 & 4 & 6 & 4 & 1 \\ 1 & 4 & 6 & 4 & 1 \\ 1 & 4 & 6 & 4 & 1 \end{bmatrix} \times \begin{bmatrix} 1 \\ 4 \\ 6 \\ 4 \\ 1 \end{bmatrix} = \begin{bmatrix} 1 & 4 & 6 & 4 & 1 \\ 4 & 16 & 24 & 16 & 4 \\ 6 & 24 & 36 & 24 & 6 \\ 4 & 16 & 24 & 16 & 4 \\ 1 & 4 & 6 & 4 & 1 \end{bmatrix} \frac{1}{256}$$

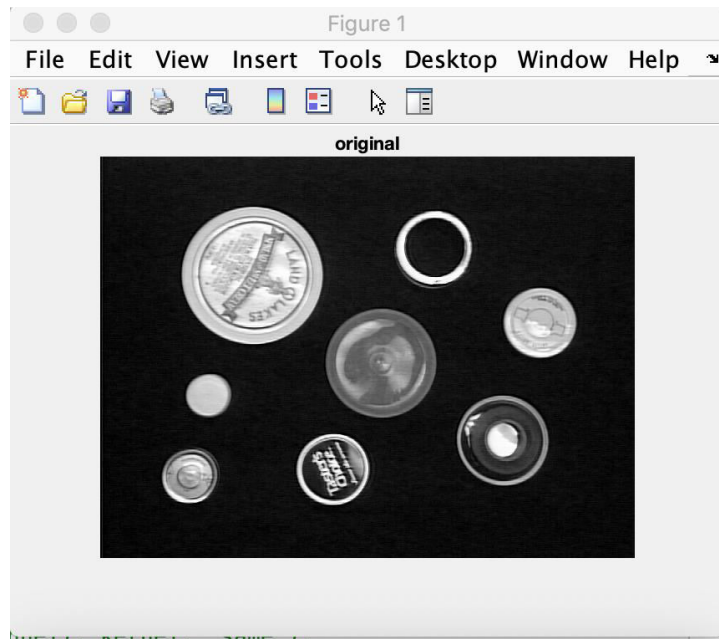
3)

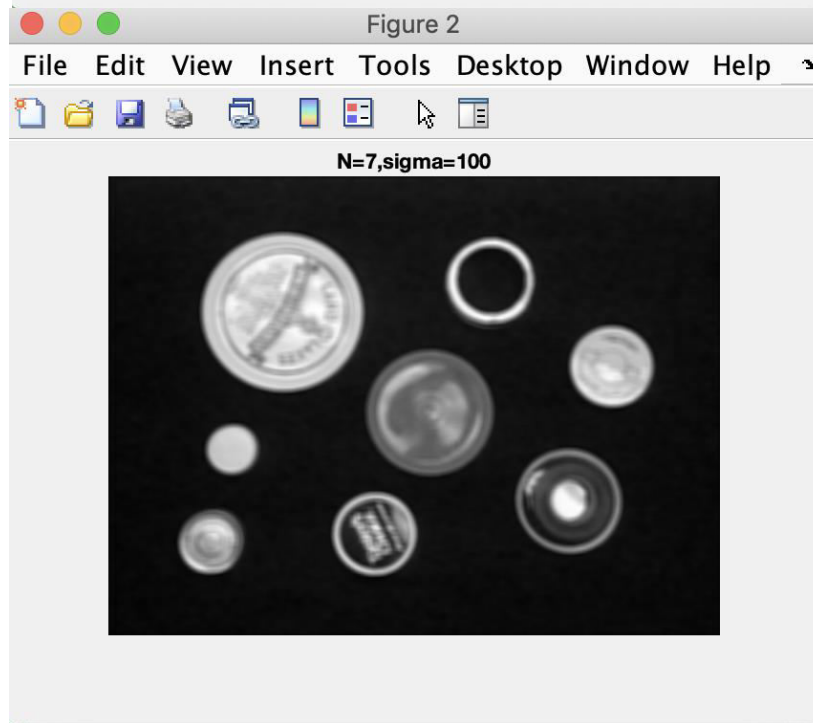
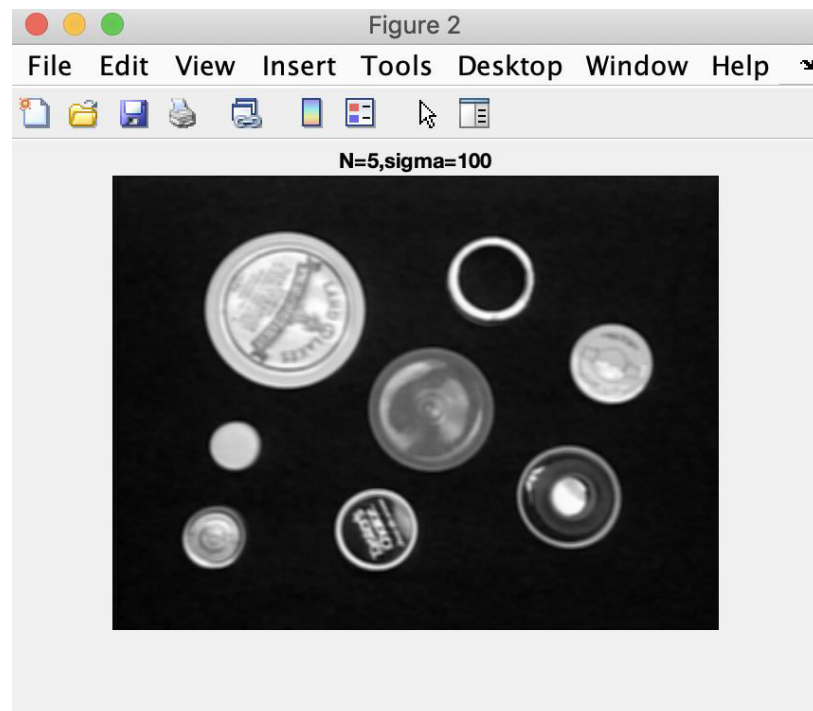
$$\frac{1}{9} \begin{bmatrix} 1 & 1 & 1 \\ 1 & 1 & 1 \\ 1 & 1 & 1 \end{bmatrix} \frac{d}{dx} = \begin{bmatrix} -1/18 & 0 & 1/18 \\ -1/18 & 0 & 1/18 \\ -1/18 & 0 & 1/18 \end{bmatrix} \frac{d}{dy} = \begin{bmatrix} -1/18 & -1/18 & -1/18 \\ 0 & 0 & 0 \\ 1/18 & 1/18 & 1/18 \end{bmatrix}$$

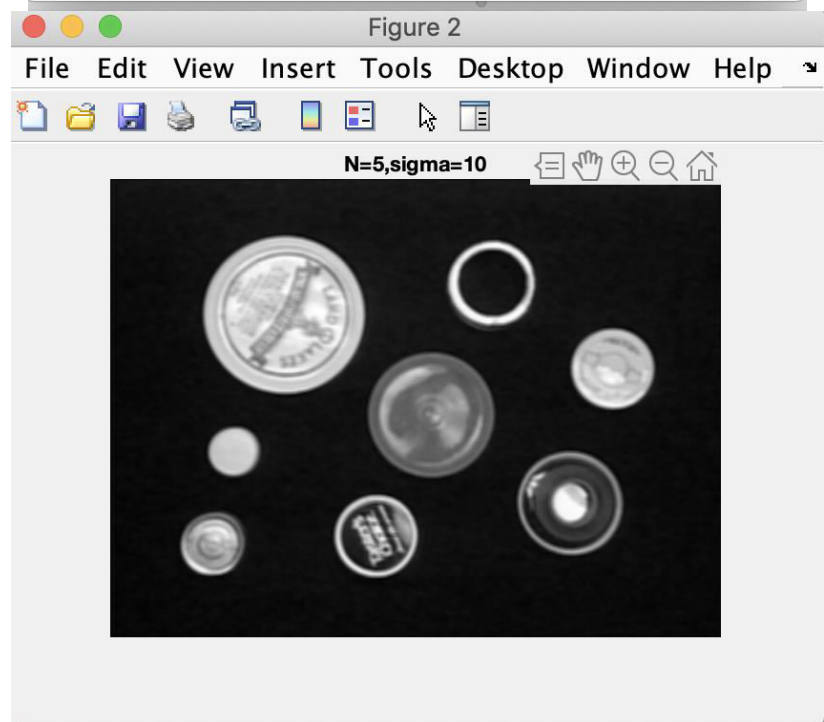
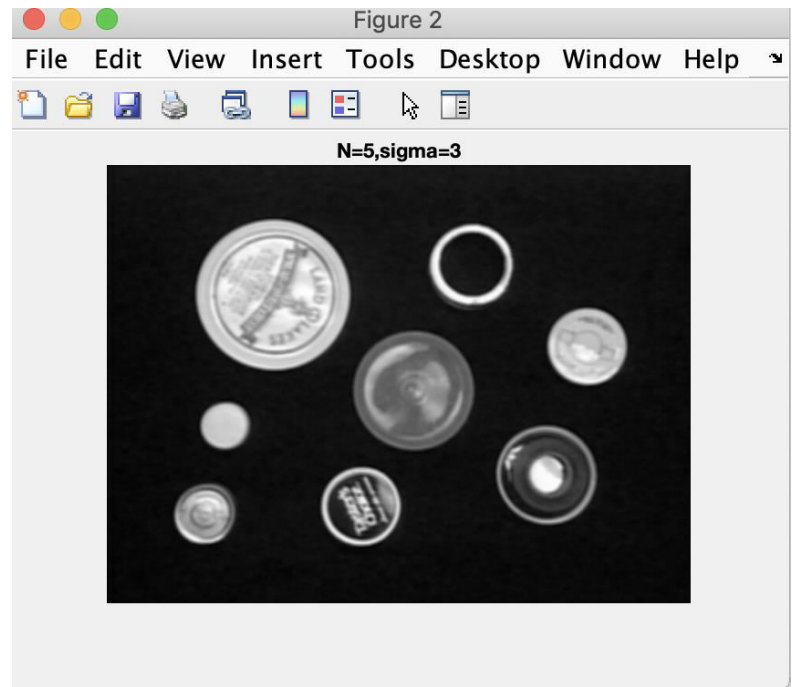
4)

$$|G| = \sqrt{G_x^2 + G_y^2} = 0 \text{ magnitude.}$$

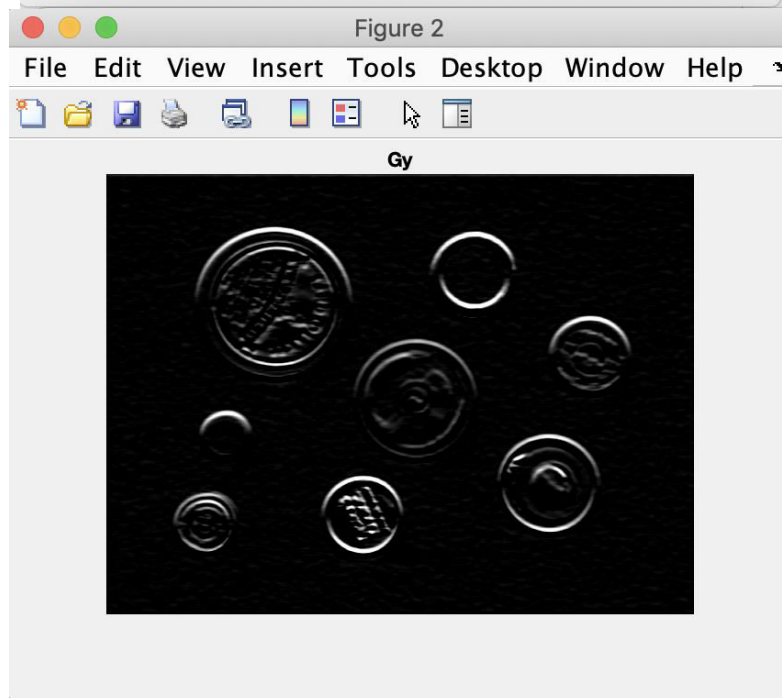
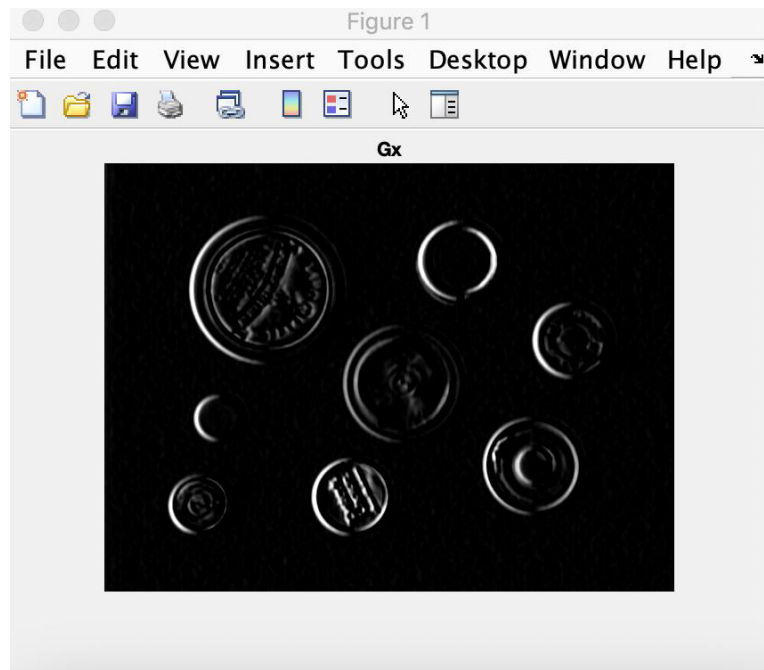
$$\theta = \tan^{-1}(0/0) = 0 \text{ direction}$$

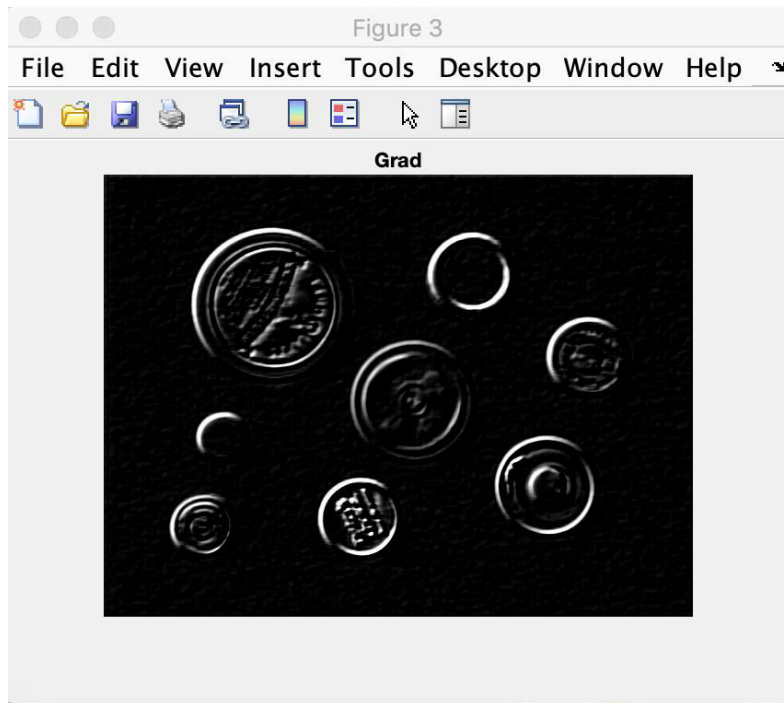




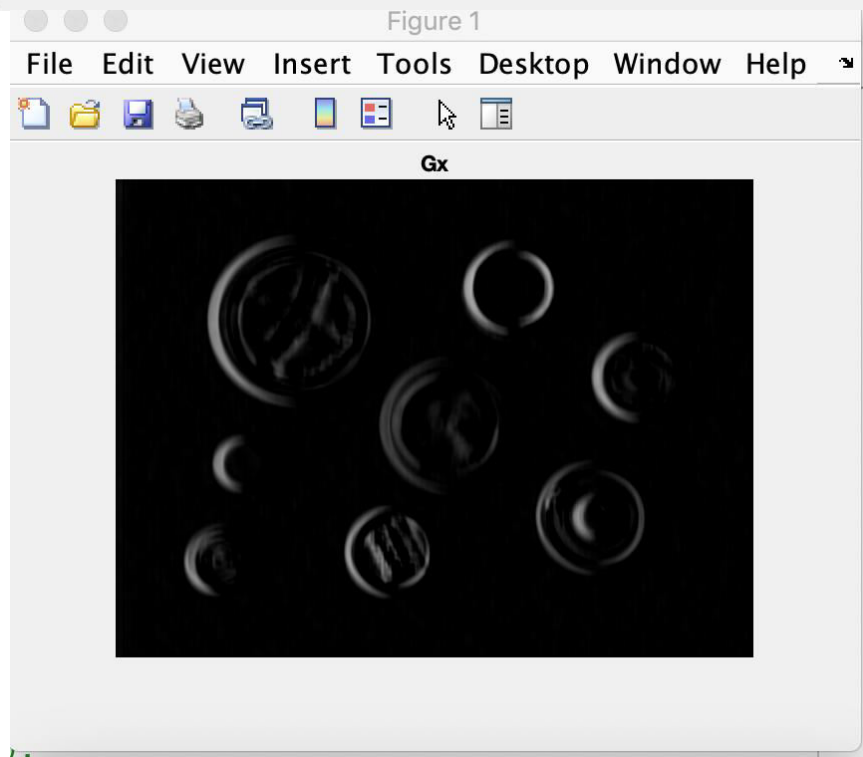
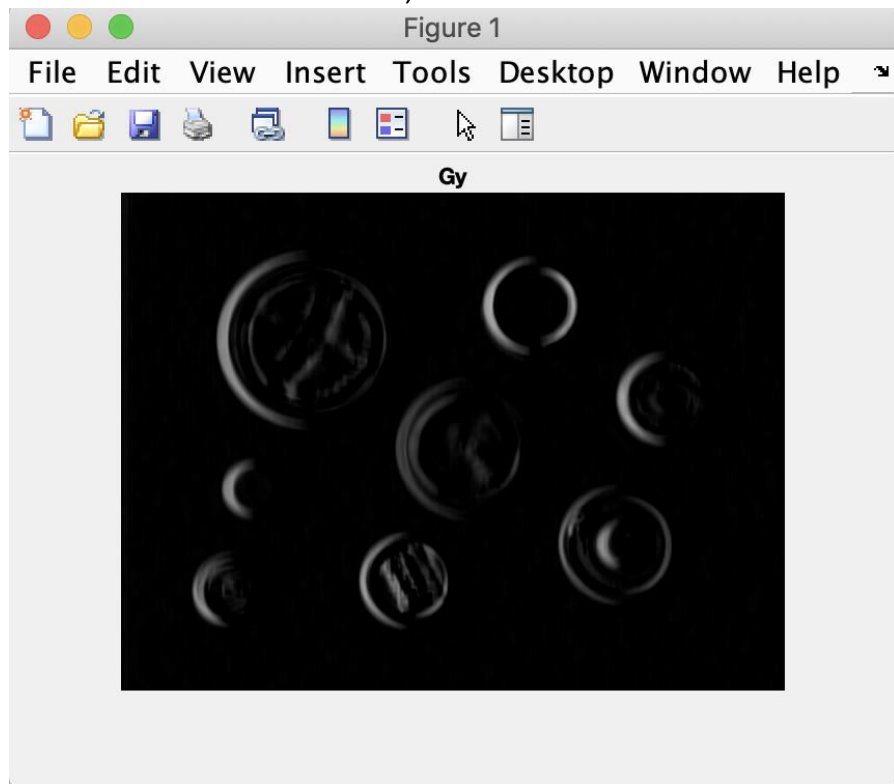


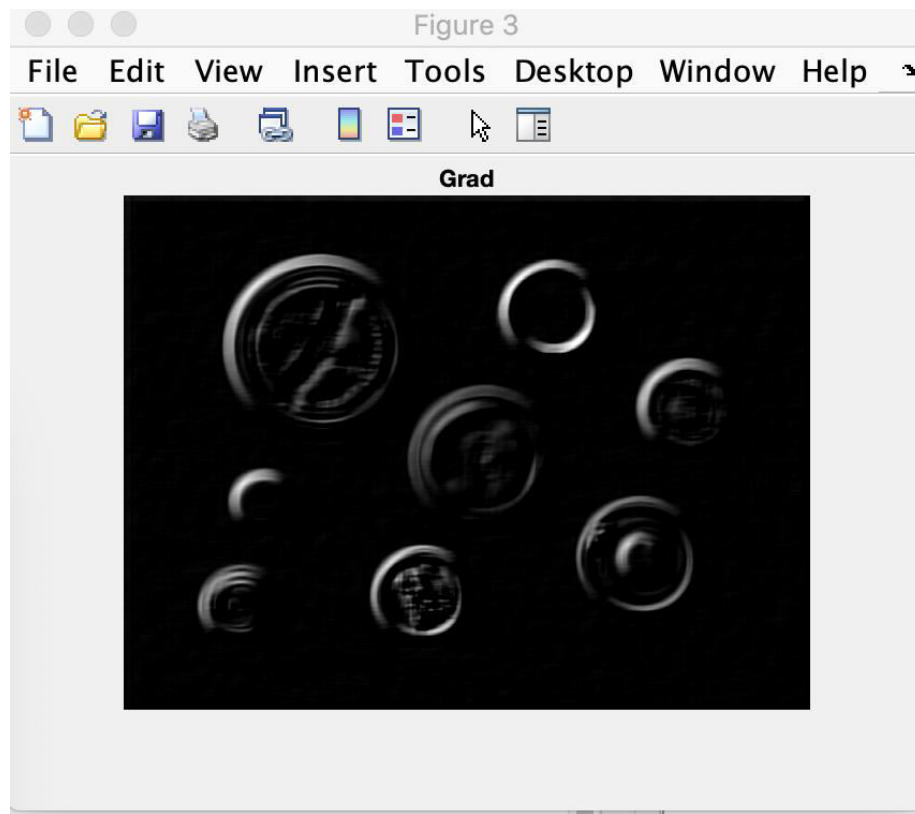
Part 2
N=5,SIGMA=3



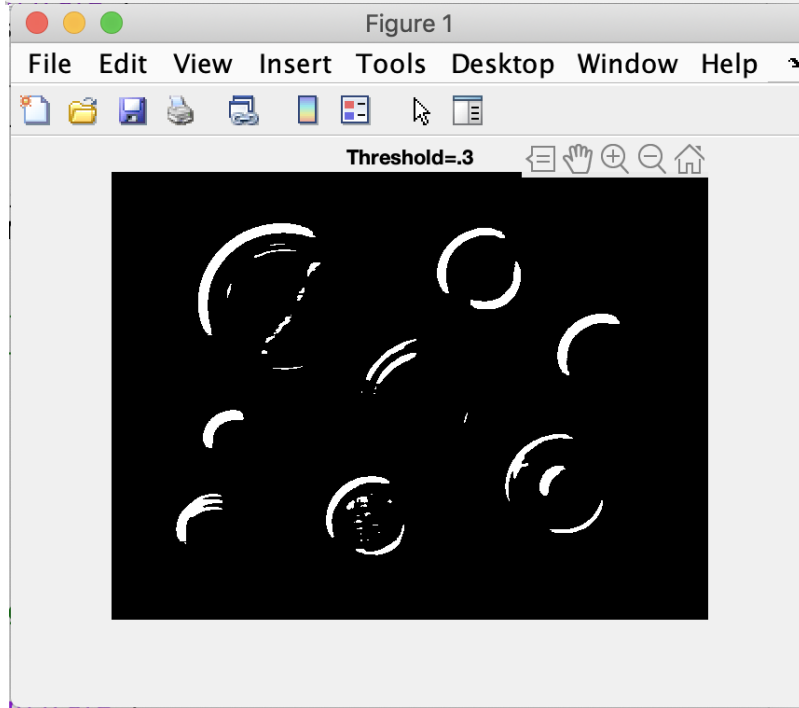
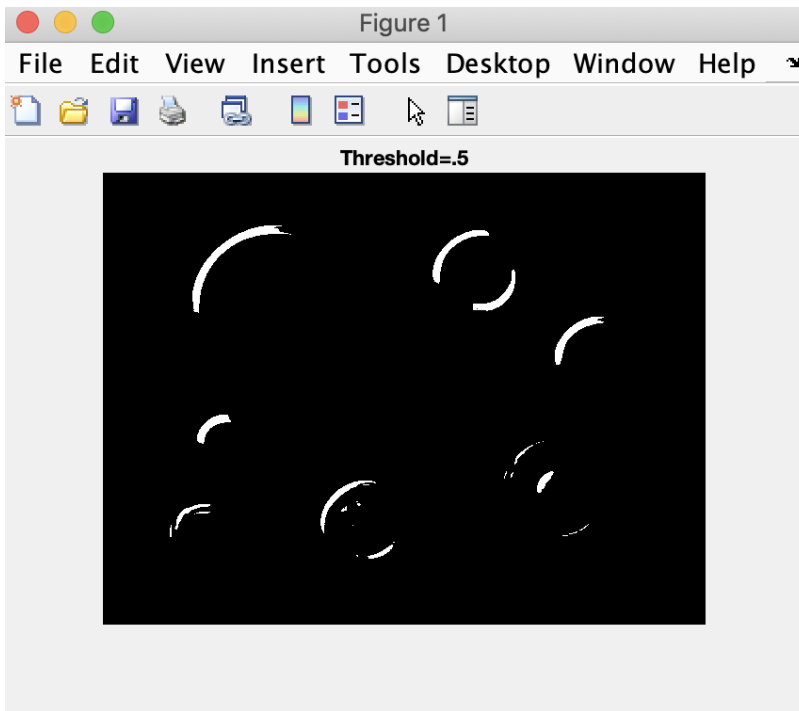


N=11,SIGMA =300

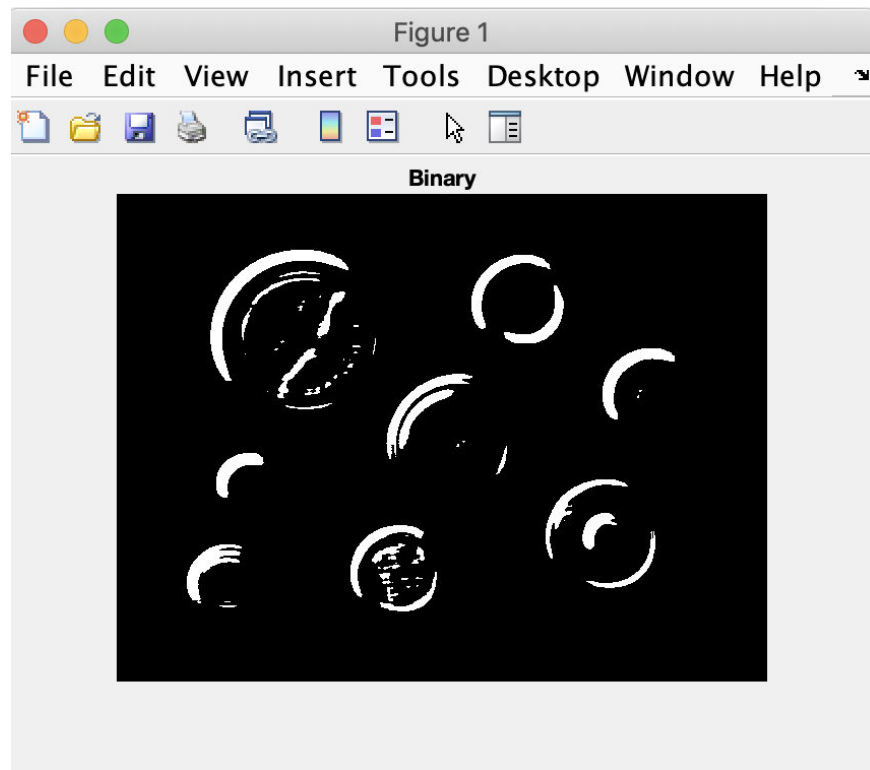




Part 3



Part 4



Part 5

