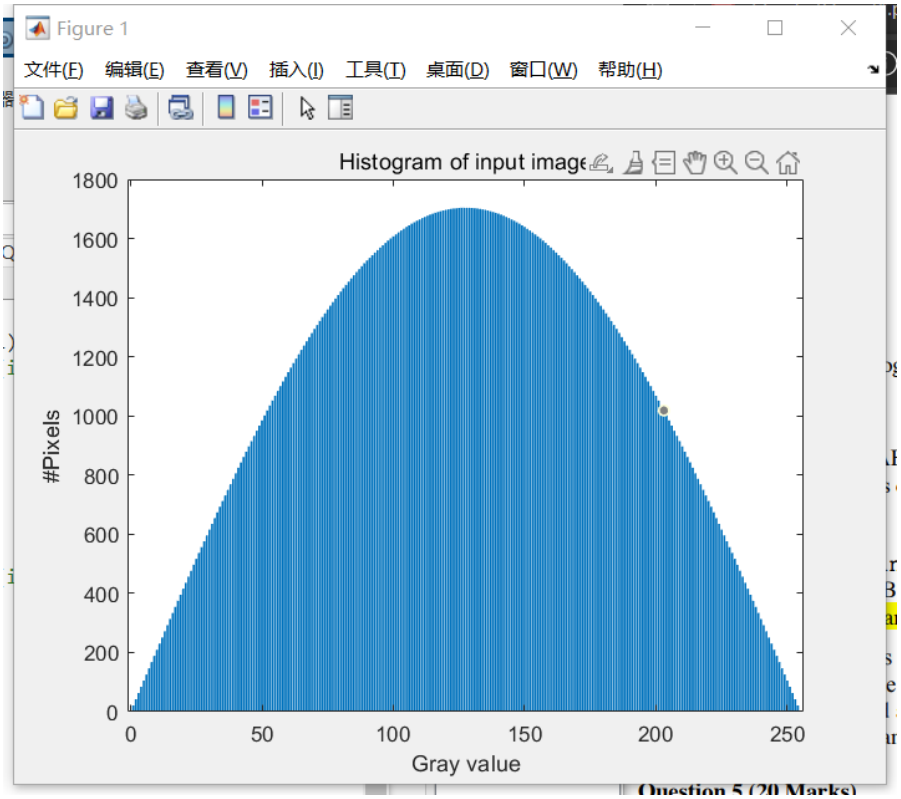
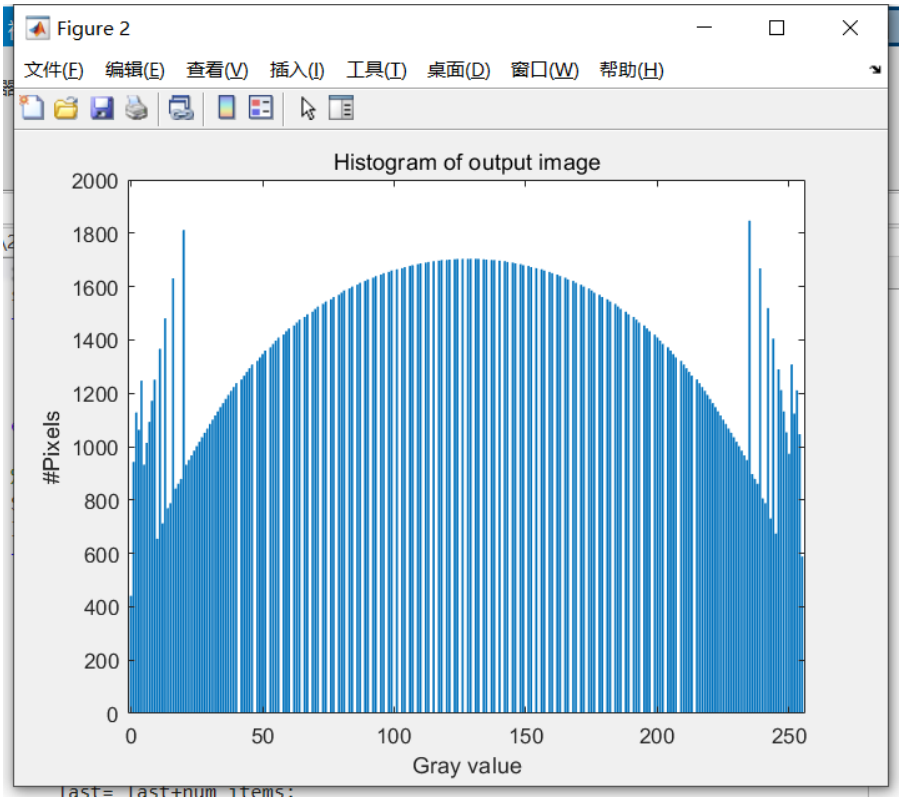
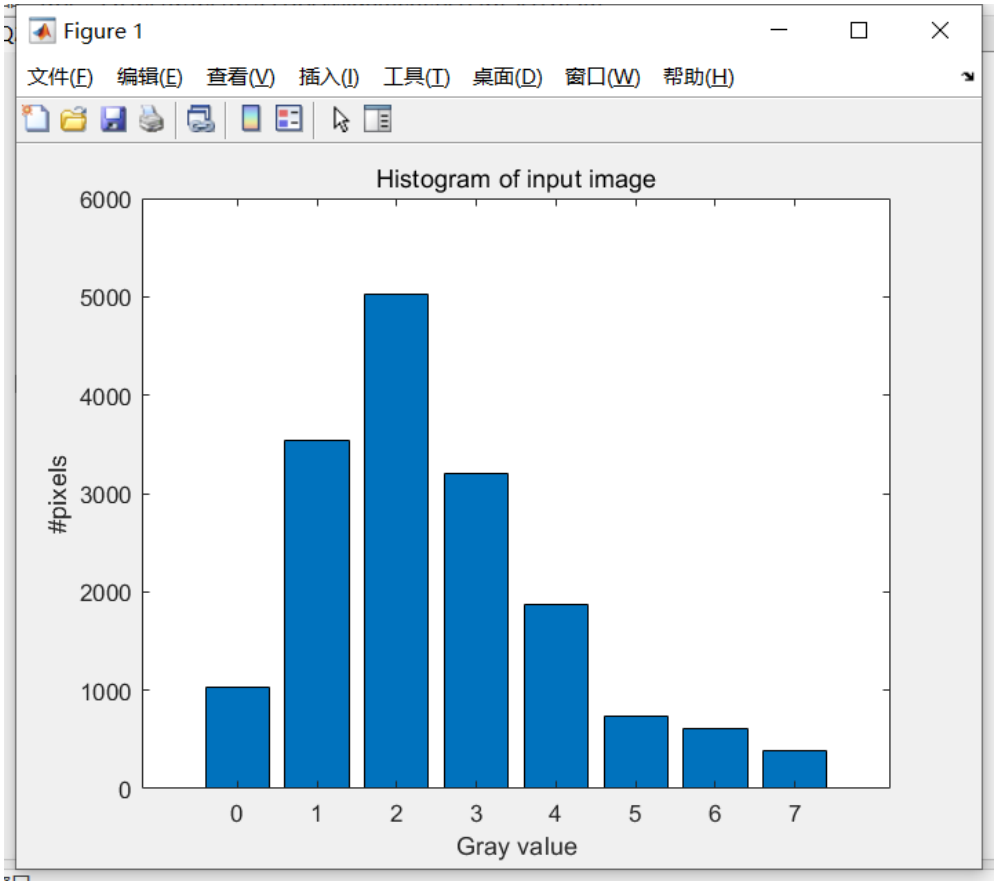
Note: All my work, I implemented by MATLAB, and I pushed them to my private repository on Github, and A1 under this repository to do version control. If there is any issue of assignment, I can give marker access to check my versions.

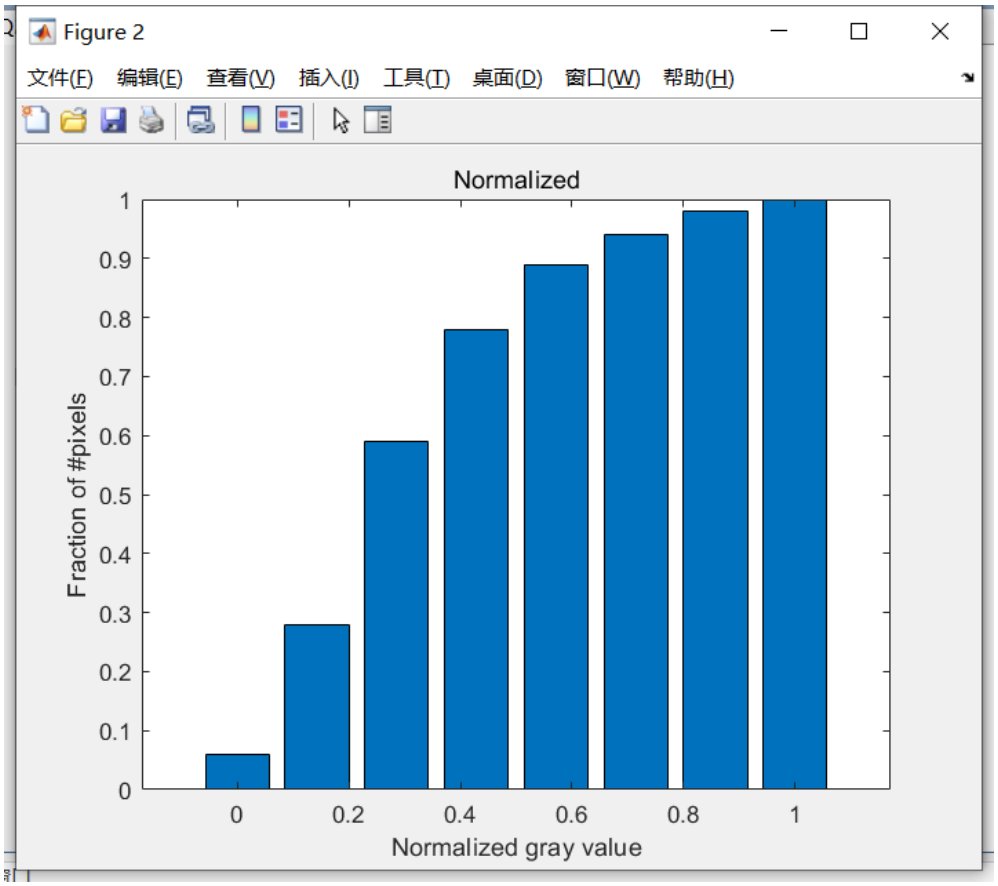
Q1.





Q2. Histograms of input image, normalized image and output image are shown below.





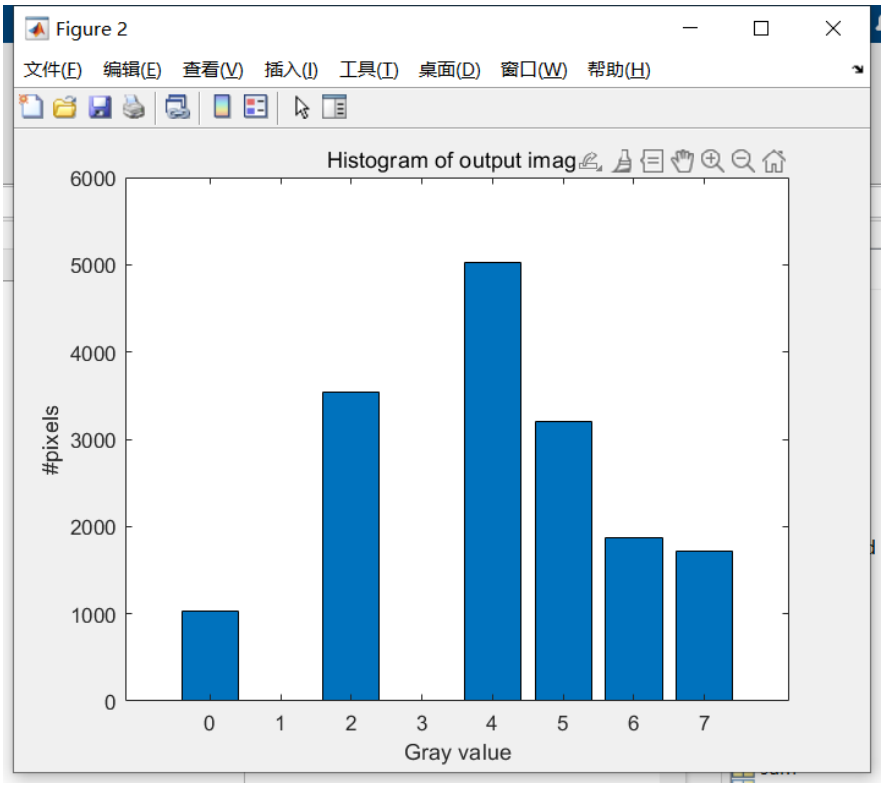
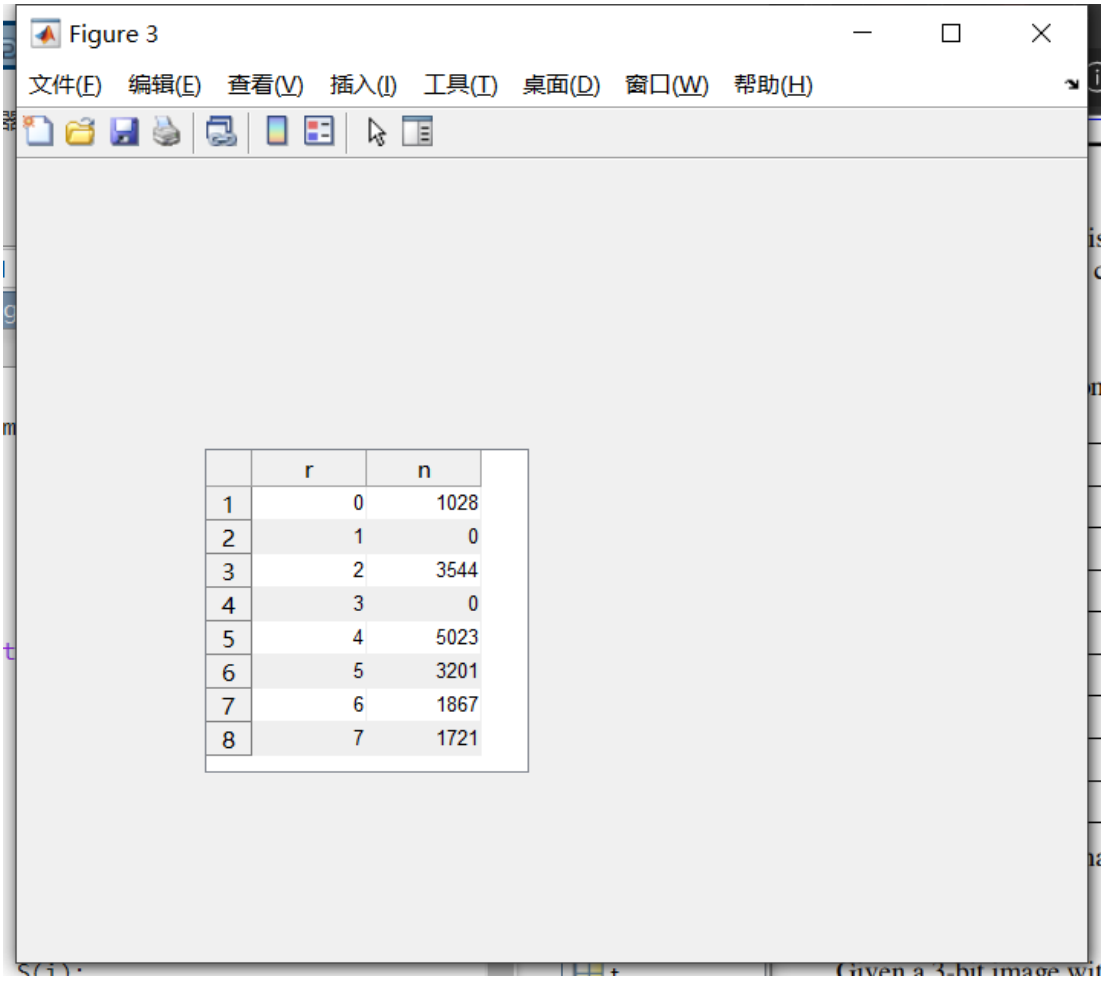
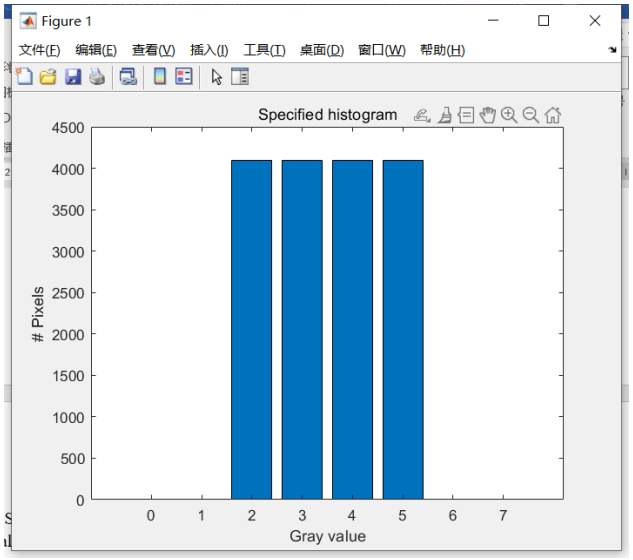


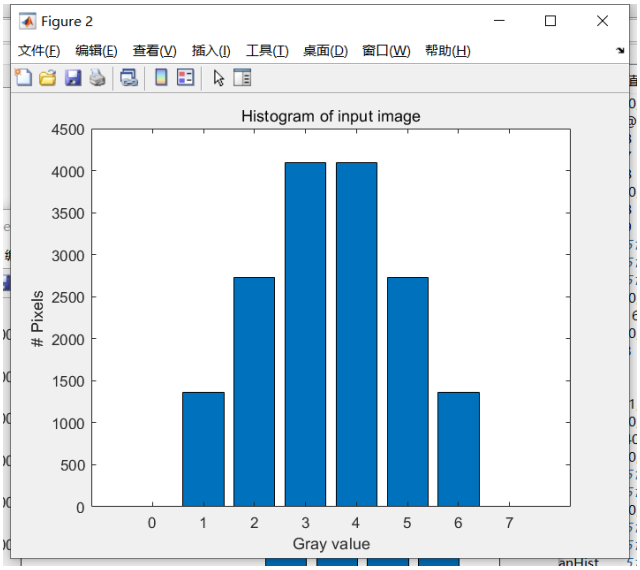
Table of output image

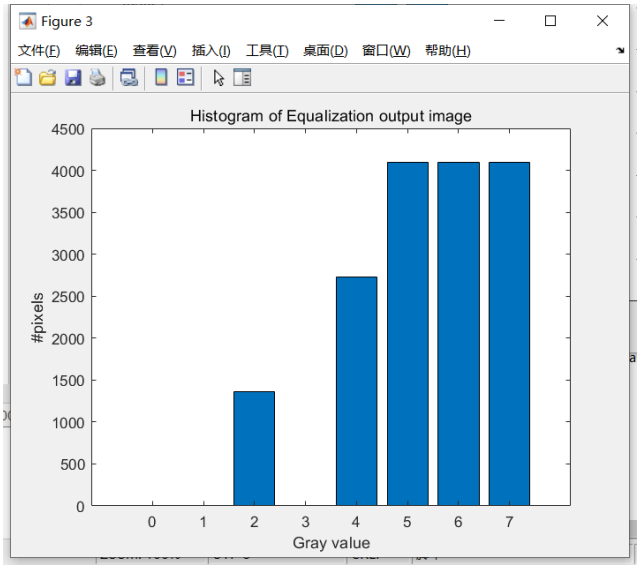


	r	n
1	0	1028
2	1	0
3	2	3544
4	3	0
5	4	5023
6	5	3201
7	6	1867
8	7	1721

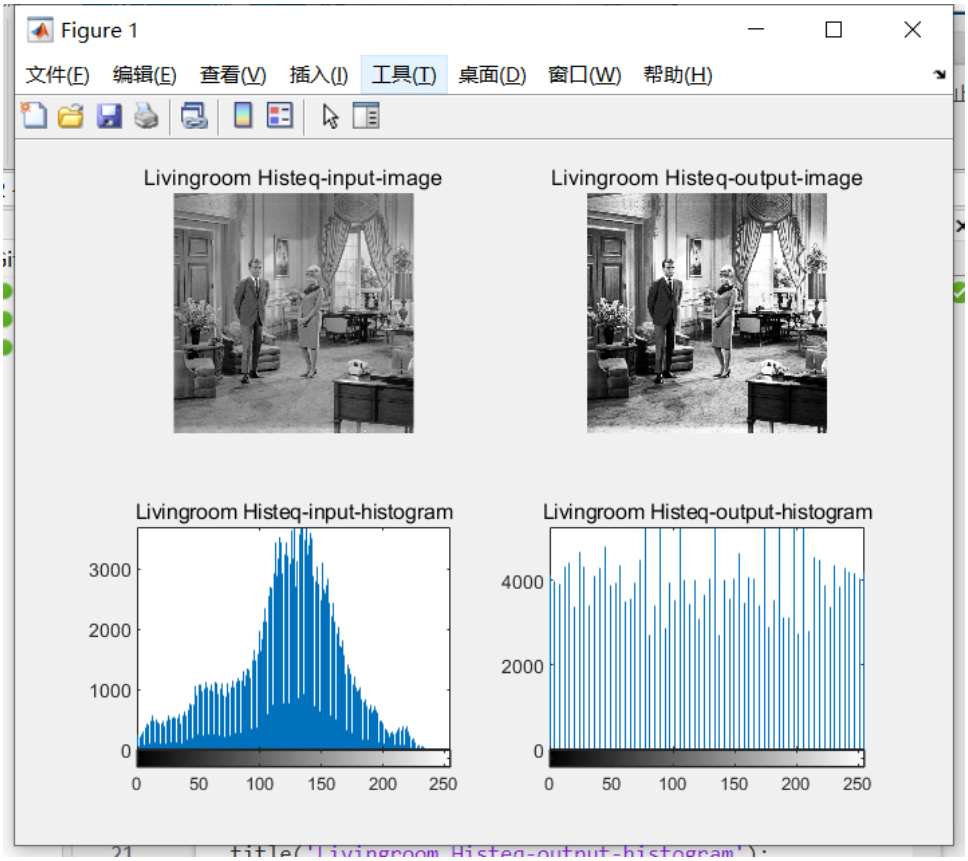
Q3. Specified histogram, Histogram of input image and Histogram of output image by equalization as shown below. However, I didn't figure out how to do specification by MATLAB. I tried my best to implement.

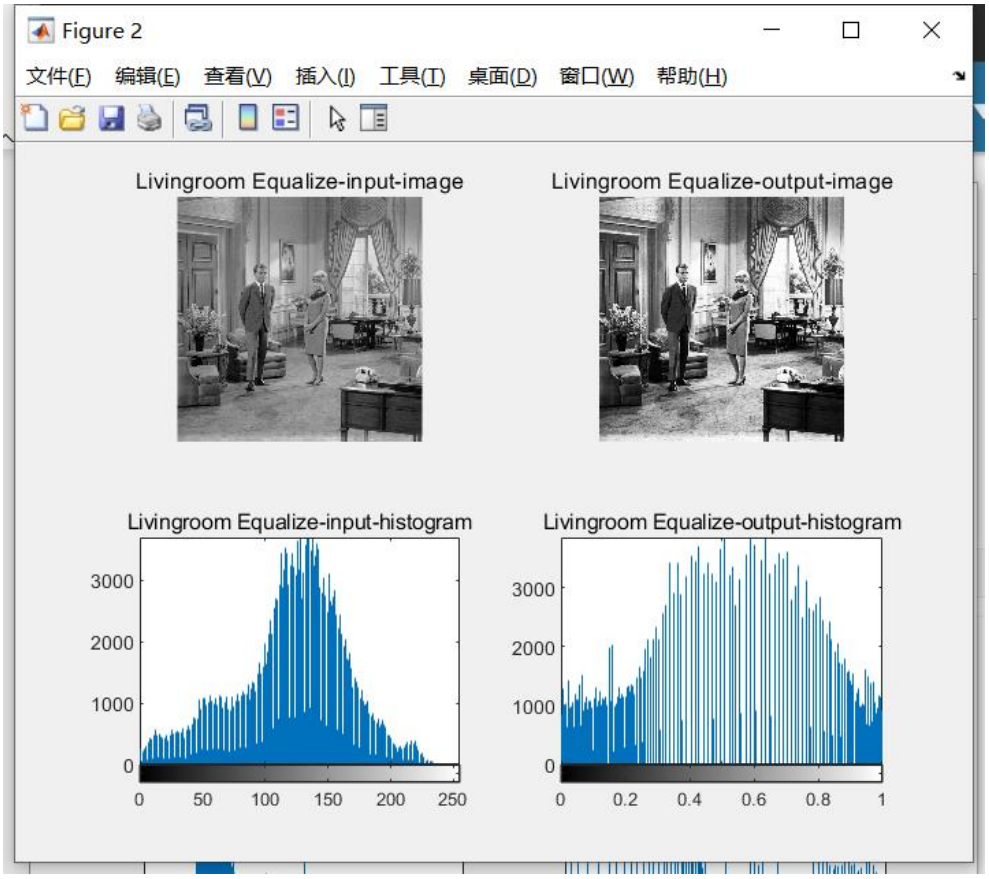






Q4. Livingroom and woman_darkhair images and histograms are shown below. I have no clue histograms are different by two functions.





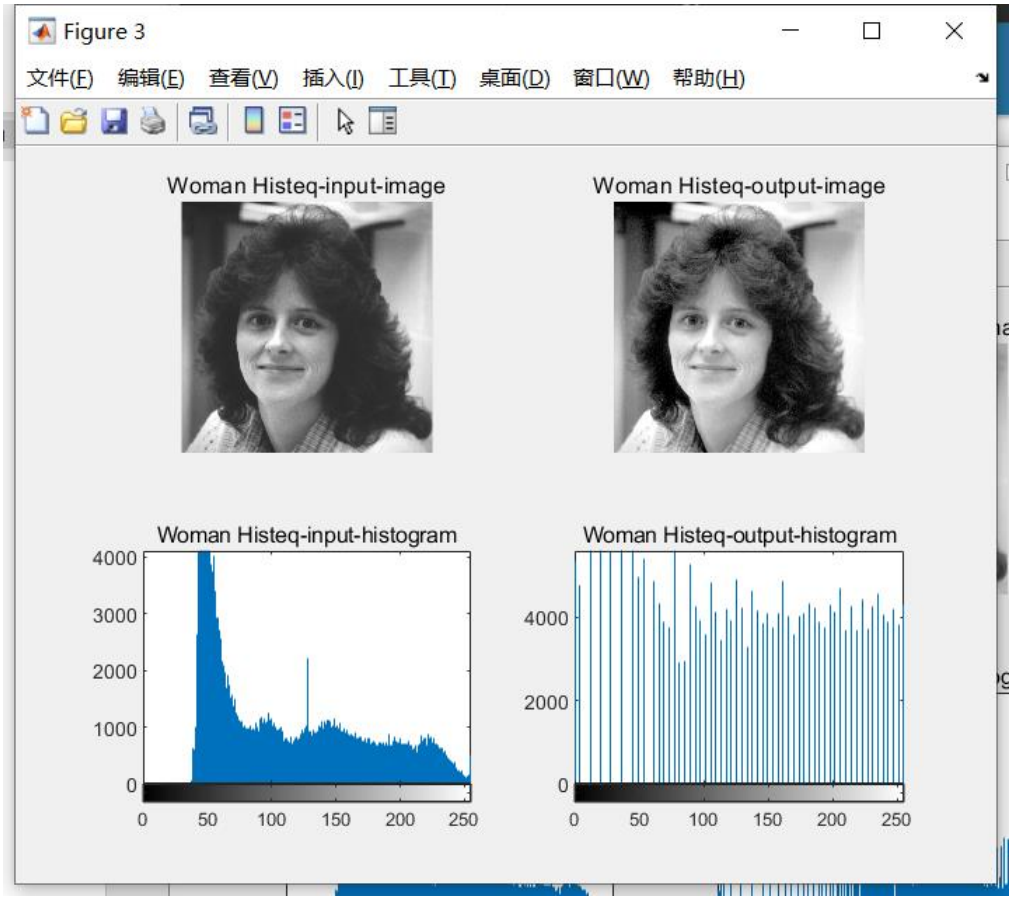


Figure 3
文件(F) 编辑(E) 查看(V) 插入(I) 工具(T) 桌面(D) 窗口(W) 帮助(H)
Woman Histeq-input-image
Woman Histeq-output-image
Woman Histeq-input-histogram
Woman Histeq-output-histogram
4000
3000
2000
1000
0
0 50 100 150 200 250

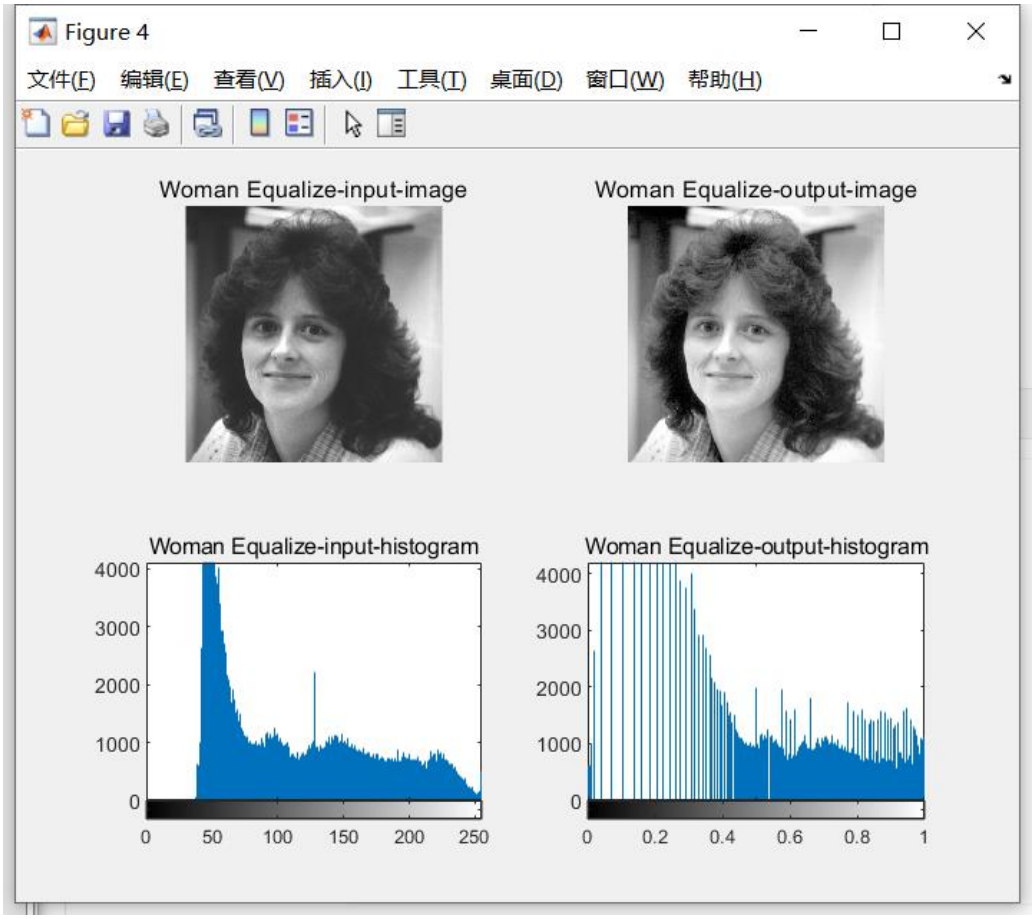


Figure 4
文件(F) 编辑(E) 查看(V) 插入(I) 工具(T) 桌面(D) 窗口(W) 帮助(H)
Woman Equalize-input-image
Woman Equalize-output-image
Woman Equalize-input-histogram
Woman Equalize-output-histogram
4000
3000
2000
1000
0
0 50 100 150 200 250
0 0.2 0.4 0.6 0.8 1

Q5. Comparison of 15 images in one figure, then I extracted and compared them in 3 groups by different densities.

5 %

Image 5%

Median filter 3x3 5%

Average filter 3x3 5%

Average filter 3x3 5%

Average filter 5x5 5%

10%

Image 10%

Median filter 3x3 10%

Average filter 3x3 10%

Median filter 5x5 10%

Average filter 5x5 10%

20 %

Image 20%

Median filter 3x3 20%

Average filter 3x3 20%

Average filter 3x3 20%

Average filter 5x5 20%