

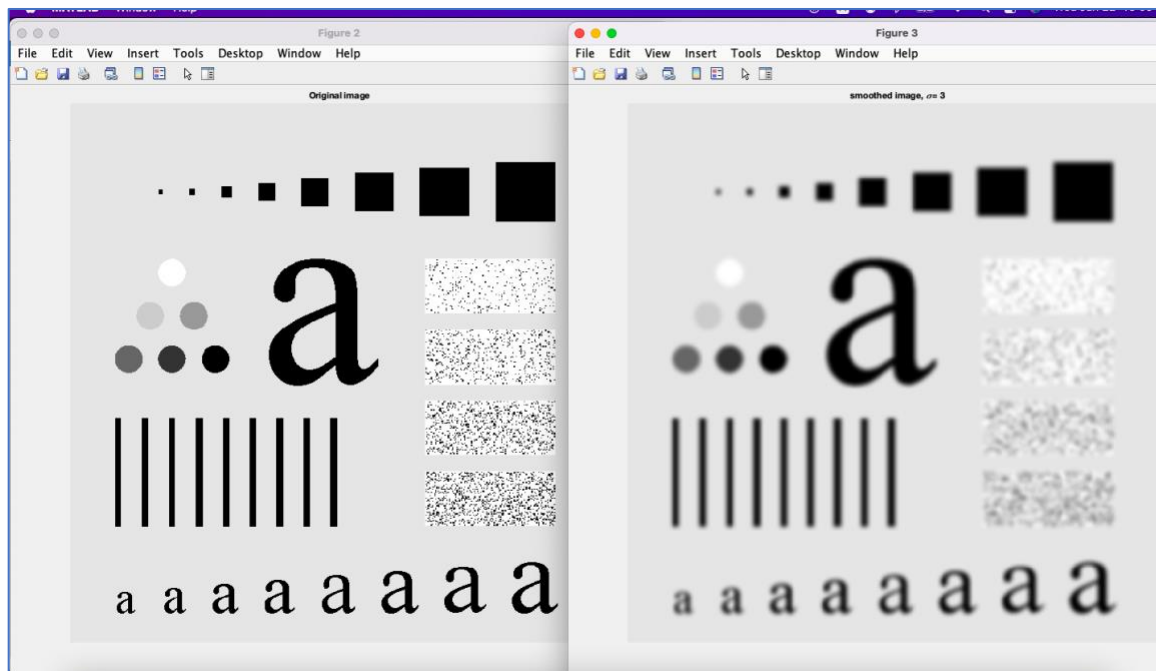
Exercise 03

Tian Xiaoyang
26001904581

Task 1 Code

```
Editor - /Users/wcwe/Documents/MATLAB/correlation_filter.m
correlation_filter.m
1
2 % Tian Xiaoyang
3 % image smoothing using correlation
4
5
6 ogImg = imread("/Users/wcwe/Desktop/test03.jpg");
7
8 Iblur = imgaussfilt(ogImg,3);
9
10 % display original image
11 figure
12 imshow(ogImg)
13 title('Original image')
14
15 %display image after smoothing
16 figure
17 imshow(Iblur)
18 title('smoothed image, \sigma= 3')
```

Result



Task 2

Laplacian filter

Code

```
Editor - /Users/wcwe/Documents/MATLAB/laplacian_filter.m
correlation_filter.m  laplacian_filter.m  +
1  %% Tian Xiaoyang
2  %% laplacian filter
3
4  ogImg = imread("/Users/wcwe/Desktop/test03_b.jpg");
5  grayImg = rgb2gray(ogImg);
6
7  %% turn pixel values into double
8  dbImg = double(grayImg);
9
10 Laplacian=[0 1 0; 1 -4 1; 0 1 0];
11
12 % convolve the image using Laplacian Filter
13 LapImg=conv2(dbImg, Laplacian, 'same');
14
15 % display the images.
16 imtool(dbImg, []);
17 imtool(abs(LapImg), []);
```

Result

