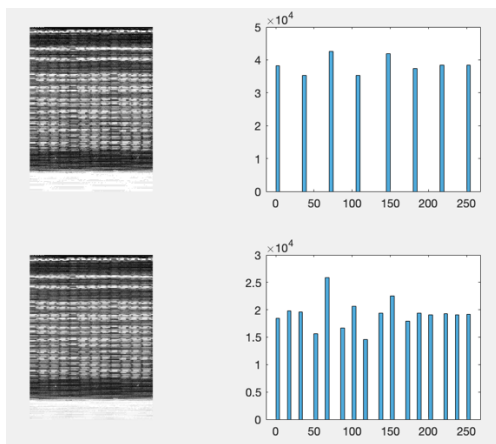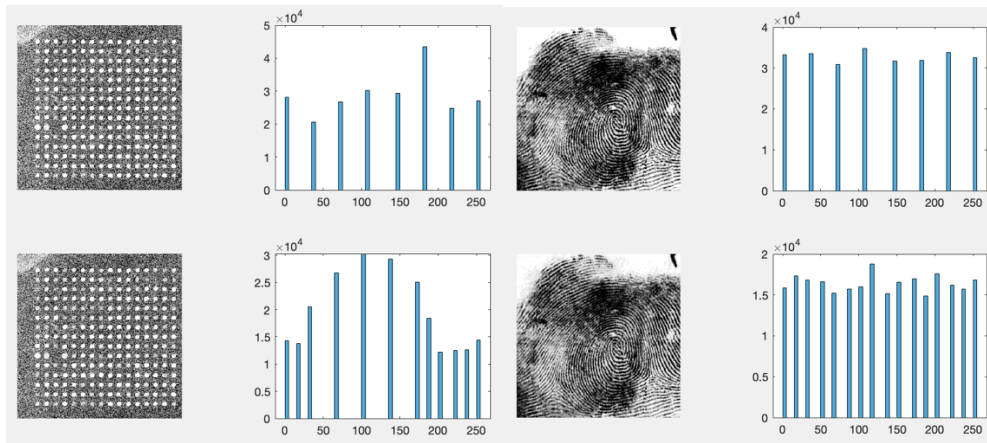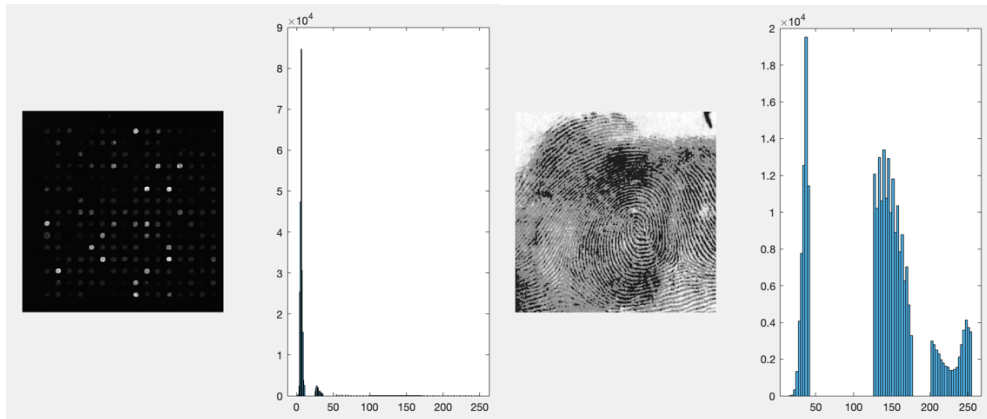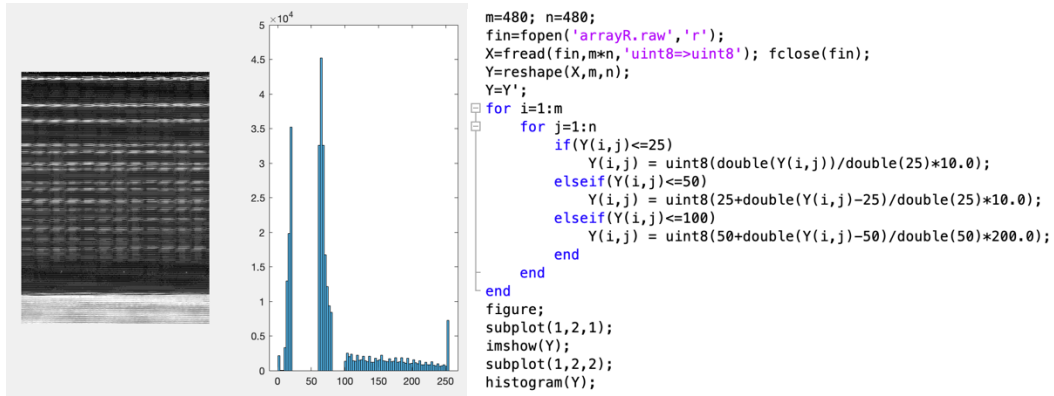## Problem1


```
m=480; n=480;
fin=fopen('arrayR.raw','r');
X=fread(fin,m*n,'uint8=>uint8'); fclose(fin);
Y=reshape(X,m,n);
Y=Y';
figure;
subplot(2,2,1);
imshow(histeq(Y,8));
subplot(2,2,2);
histogram(histeq(Y,8));
subplot(2,2,3);
imshow(histeq(Y,16));
subplot(2,2,4);
histogram(histeq(Y,16));
```
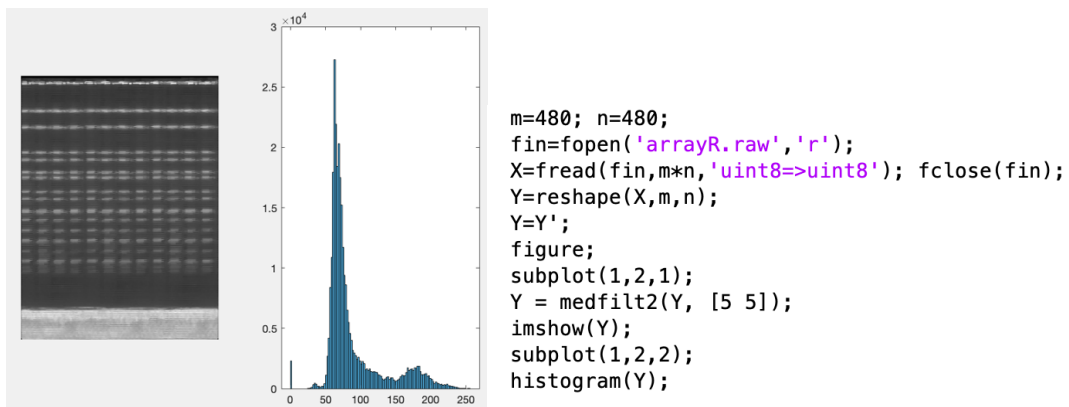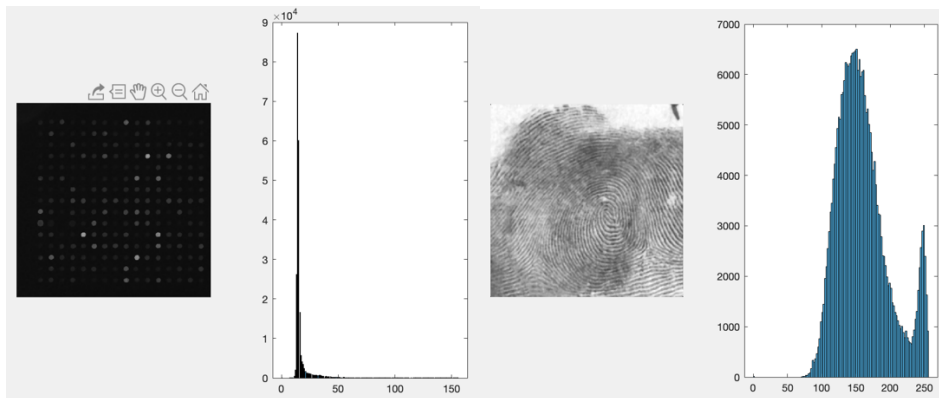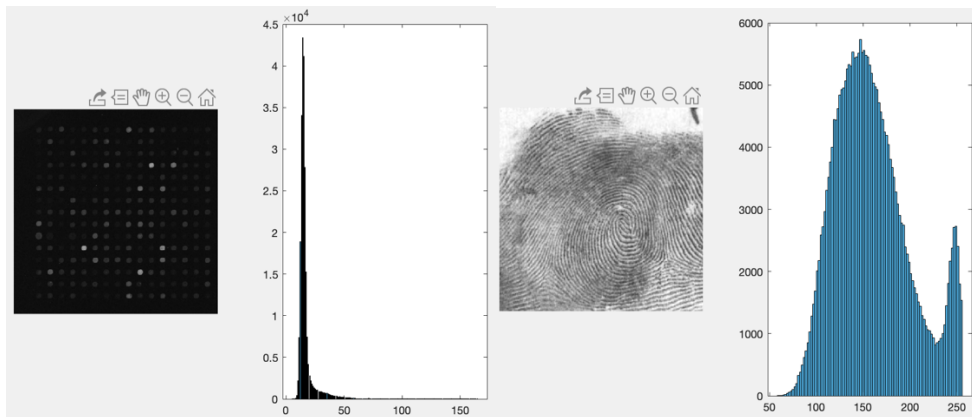
Problem2

```matlab
m=480; n=480;
fin=fopen('arrayR.raw','r');
X=fread(fin,m*n,'uint8=>uint8'); fclose(fin);
Y=reshape(X,m,n);
Y=Y';
for i=1:m
    for j=1:n
        if(Y(i,j)<=25)
            Y(i,j) = uint8(double(Y(i,j))/double(25)*10.0);
        elseif(Y(i,j)<=50)
            Y(i,j) = uint8(25+double(Y(i,j)-25)/double(25)*10.0);
        elseif(Y(i,j)<=100)
            Y(i,j) = uint8(50+double(Y(i,j)-50)/double(50)*200.0);
        end
    end
end
figure;
subplot(1,2,1);
imshow(Y);
subplot(1,2,2);
histogram(Y);
```

Problem3


```matlab
m=480; n=480;
fin=fopen('arrayR.raw','r');
X=fread(fin,m*n,'uint8=>uint8'); fclose(fin);
Y=reshape(X,m,n);
Y=Y';
figure;
subplot(1,2,1);
Y = medfilt2(Y, [5 5]);
imshow(Y);
subplot(1,2,2);
histogram(Y);
```
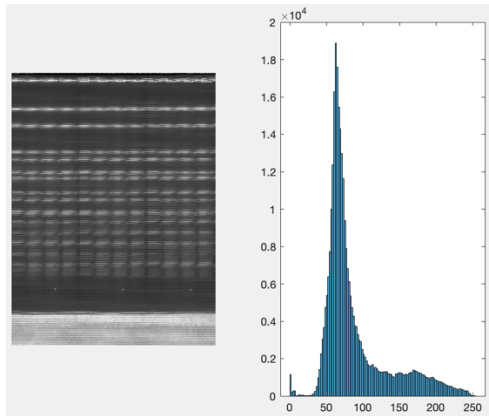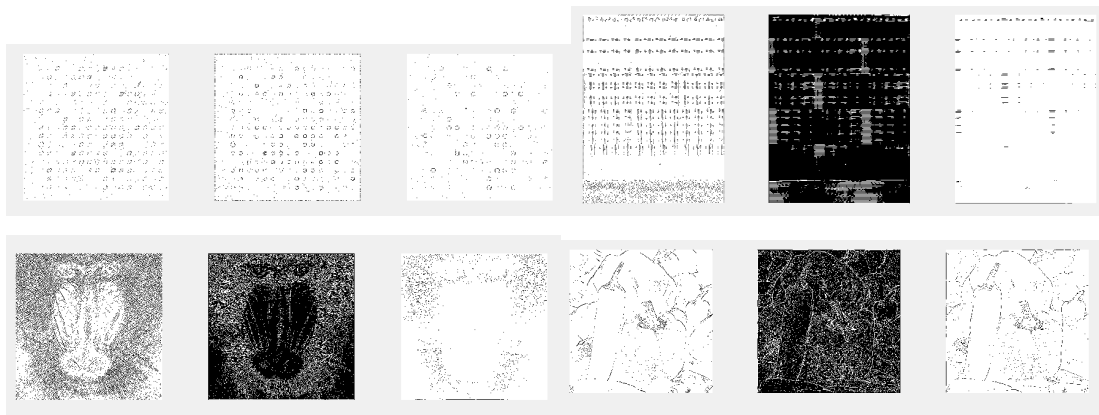
Problem4

```
m=480; n=480;
fin=fopen('arrayR.raw','r');
X=fread(fin,m*n,'uint8=>uint8'); fclose(fin);
Y=reshape(X,m,n);
Y=Y';
figure;
subplot(1,2,1);
Y = imgaussfilt(Y);
imshow(Y);
subplot(1,2,2);
histogram(Y);
```

Hw3(a)


```
w1 = [1 0 -1; 0 0 0; -1 0 1];
w2 = [1 0 1; 0 -4 0; 1 0 1];
w3 = [-1 -1 -1; -1 8 -1; -1 -1 -1];
m=480; n=480;
fin=fopen('arrayR.raw','r');
X=fread(fin,m*n,'uint8=>uint8'); fclose(fin);
Y=reshape(X,m,n);
Y=Y';
figure;
subplot(1,3,1);
t1 = conv2(w1, Y);
t1 = round(-115 + 255*(t1 - min(t1(:)))/(max(t1(:)) - min(t1(:))));
imshow(t1);
subplot(1,3,2);
t2 = conv2(w2, Y);
t2 = round(-152 + 255*(t2 - min(t2(:)))/(max(t2(:)) - min(t2(:))));
imshow(t2);
subplot(1,3,3);
t3 = conv2(w3, Y);
t3 = round(-65 + 255*(t3 - min(t3(:)))/(max(t3(:)) - min(t3(:))));
imshow(t3);
```