
homework2 solution

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q1

```
im1 = [zeros(128,128), 128*ones(128,128); 255*ones(128,256)];
im2 = [255*ones(128,256); zeros(128,128), 128*ones(128,128)];
im3 = [255*ones(256, 128),[zeros(128,128); 128*ones(128,128)]];
im4 = [[zeros(128,128); 128*ones(128,128)], 255*ones(256, 128)];
% No, suppose the pixel in the centre of image and taking im1 for
  example, after averaging filter, it will contribute to new intensity
  which is not any of 0,128,255. So there will be a new histogram
```

q2

$f(D) = 2D - 150$, largest intensity map to 0 is 75. smallest intensity map to 255 is 202.5

q3

the solution to q3 should be integral of $2n+1$ from 0 to 100 divide from 0 to 255, the value is $0.155 \times 255 = 39.5$

q4

I can see some birds in some blocks differ: local is equalization by 80×80 block while global is equalized by whole image

q5

a - b

```
[im, format] = imread('baby_shark.png');
im_a = imrotate(im, -30);
im_ab = flipdim(im_a,1);
imshow(im_ab,format);
% b - a
im_b = flipdim(im, 1);
im_ba = imrotate(im_b, -30);
imshow(im_ba, format);
```

```
% not the same result

Error using imread>get_full_filename (line 570)
File "baby_shark.png" does not exist.

Error in imread (line 377)
    fullname = get_full_filename(filename);

Error in hw2_ans (line 20)
[im, format] = imread('baby_shark.png');
```

q6

```
A = [1/2, -1; 1/2, 1/2];
b = [1/2; 0];
```

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