Computer Vision HW6 Report

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Execution

Using python 3.7

\$ python hw6.py

Results

```
1 2 1 1 1 1 1 1 1 1 1 2 2 3 2 2 2 1
11111111
                                                                                          1111111111111
                                     1 1 5 5 5 5 5 5 5 5 1 1 2 1 1 1 2 2 1 1 1 2
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1 5 5
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11111
11111
115551
155511
        1 5 5 1
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                                              2 2
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11
15
15
155
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                                                                                                       1 5 5 5 5 1 1 1 1 5 5 5 5 1 1 2 1
           1 5 1 1
1 5 1
                                          1
           1521
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                                                                  1 1
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                                                                    5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 1
                                                                1211111111111111111111
```

Code Explanation

Downsampling

```
for i in range(tiny_img_height):
    for j in range(tiny_img_width):
        if (img[8*i, 8*j] < 128):
            tiny_binimg[i, j] = 0
        else:
            tiny_binimg[i, j] = 255</pre>
```

The (i, j) pixel in downsampled image is the (8i, 8j) pixel in original image.

h-function

```
1  def h(a1, a2, a3, a4):
2    if a1 != a2:
3     return 's'
4    elif a1 == a3 == a4:
5     return 'r'
6    else:
7    return 'q'
```

f-function

Remark

- 1. The h-function and f-function are according to the definition of Ch6 slides.
- 2. The 64×64 matrix result is written to the file lena_yokoi.txt .
- 3. The result in the last page is the screenshot of the entire content of lena_yokoi.txt.