Computer Vision HW6 Report

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Execution

> Using python 3.7

```
$ python hw6.py
```

Results

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
```

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

h-function

```
def h(a1, a2, a3, a4):
    if a1 != a2:
        return 's'
    elif a1 == a3 == a4:
        return 'r'
    else:
        return 'q'
```

f-function

```
def f(h1, h2, h3, h4):
    if (h1 == h2 == h3 == h4 == 'r'):
        return 5
    else:
        return ((h1 == 'q') + (h2 == 'q') + \
                (h3 == 'q') + (h4 == 'q'))
```

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` .