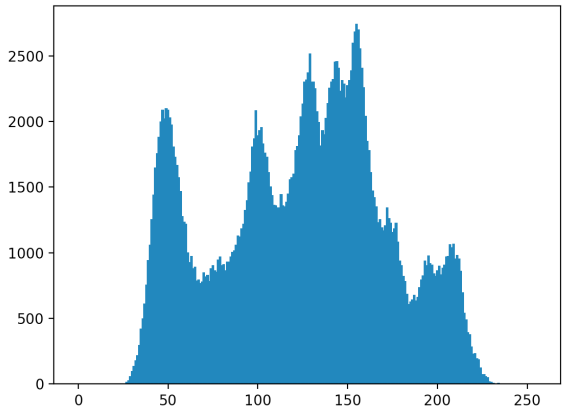
Computer Vision HW3 B07902127 資工三 羅義鈞

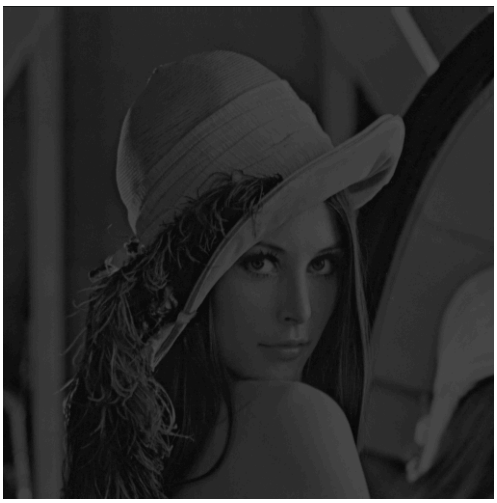
(a) Original image and its histogram

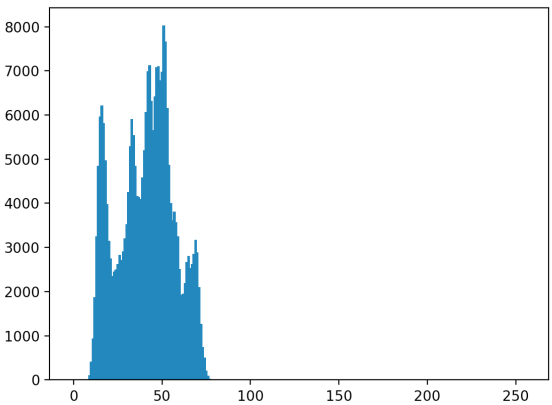
```
def make_histogram(img):
    res = np.zeros(256)
    for i in range(img.shape[0]):
        for j in range(img.shape[1]):
            res[int(img[i][j])] += 1
    plt.bar(range(len(res)), res, width = 2)
    plt.show()
```



(b) Image with intensity divided by 3 and its histogram

```
img2 = img1 / 3
cv2.imwrite('devided_by_3.bmp', img2)
make_histogram(img2)
```





(c) Image after applying histogram equalization to (b) and its histogram

```python
def equalize(img):
    ret = np.zeros(img.shape)
    cnt = np.zeros(256)
    equ = np.zeros(256)
    for i in range(img.shape[0]):
        for j in range(img.shape[1]):
            cnt[int(img[i, j])] += 1
    cdf = 0
    for i in range(256):
        cdf += cnt[i]
        equ[i] = (255 * cdf) // (512 ** 2)
    for i in range(img.shape[0]):
        for j in range(img.shape[1]):
            ret[i, j] = equ[int(img[i, j])]
    return ret
```