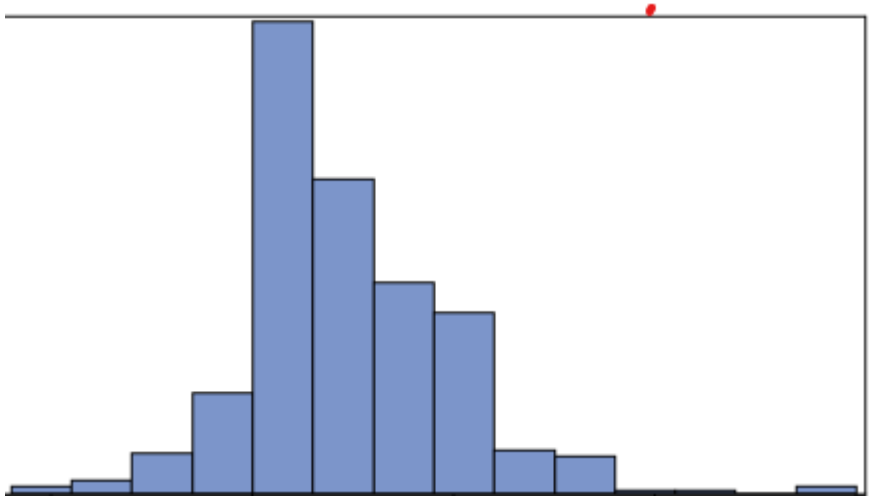
OpenCV

화소 처리-히스토그램

목차

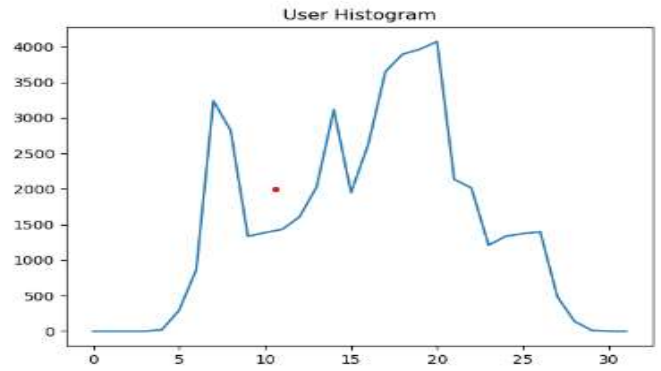
히스토그램?

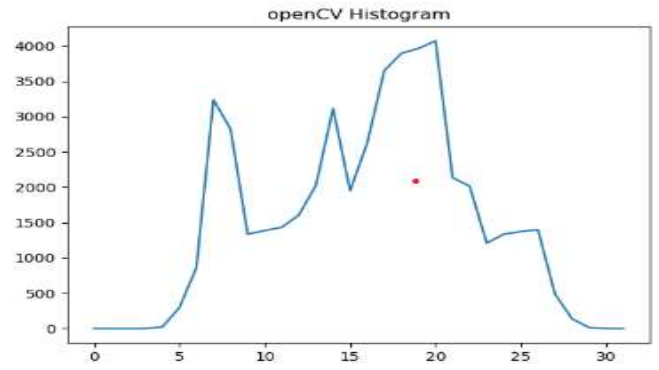
- 어떤 데이터가 얼마나 많은지를 나타내는 도수 분포표를 그래프로 나타낸 것

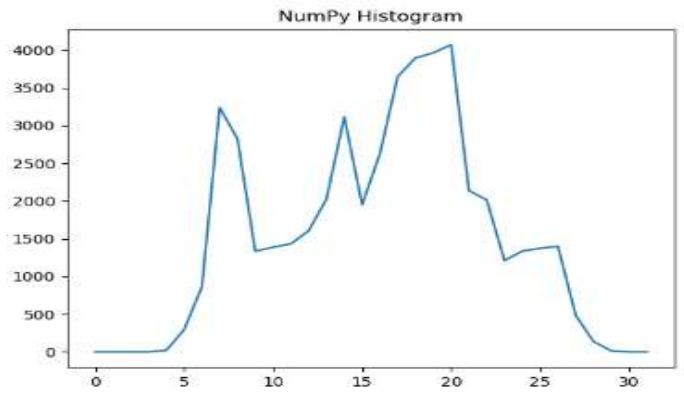


히스토그램 계산

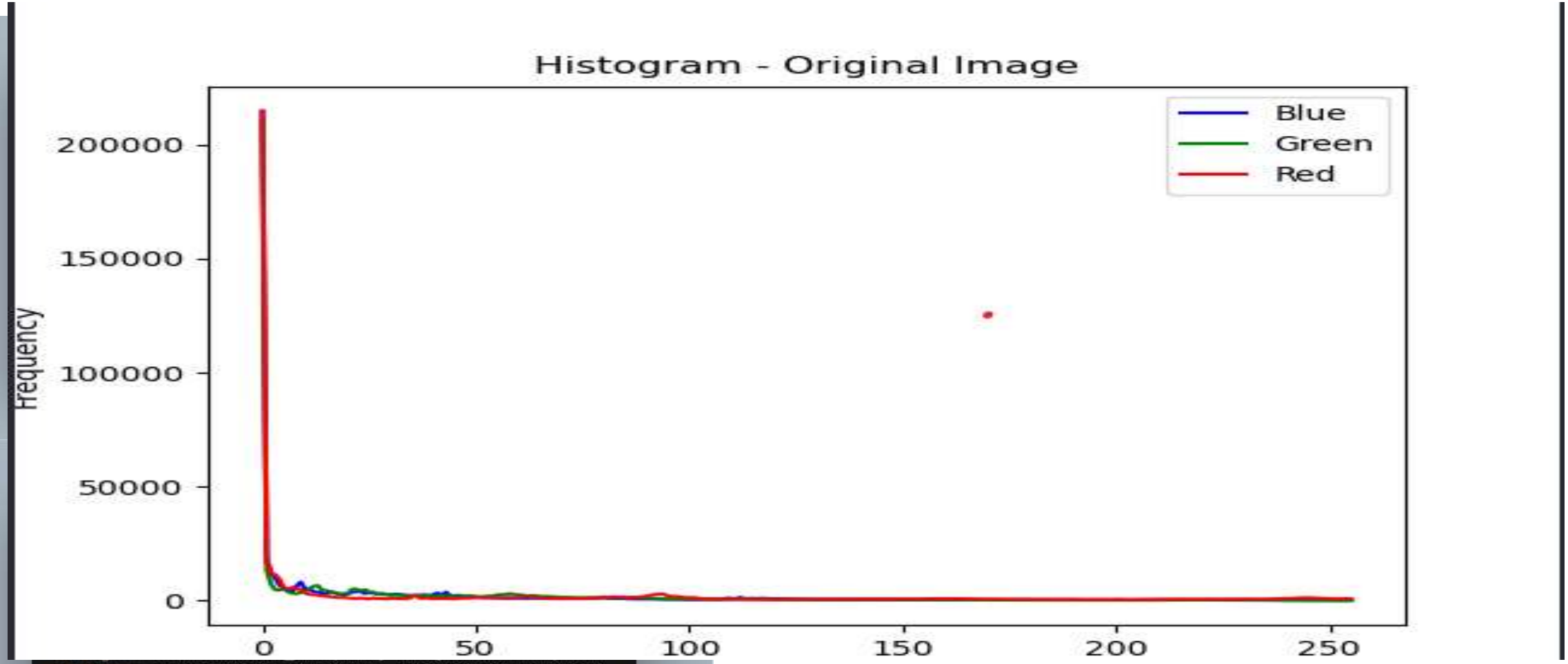
```python
def calc_histo(image, hsize, ranges=[0, 256]):
    hist = np.zeros((hsize, 1), np.float32)
    gap = ranges[1] / hsize

    for i in range(image.shape[0]):
        for j in range(image.shape[1]):
            idx = int(image.item(i,j) / gap)
            hist[idx] += 1
    return hist

image = cv2.imread('Lenna.png', cv2.IMREAD_GRAYSCALE)
if image is None: raise Exception('Image cannot be read')

hsize, ranges = [32], [0, 256]
gap = ranges[1]/hsize[0] # 8
ranges_gap  = np.arange(0, ranges[1]+1, gap)

hist1 = calc_histo(image, hsize[0], ranges)
hist2 = cv2.calcHist([image], [0], None, hsize, ranges)
hist3, bins = np.histogram(image, ranges_gap )

plt.plot(hist1)
plt.title(' User Histogram')
plt.show()

plt.plot(hist2)
plt.title(' openCV Histogram')
plt.show()

plt.plot(hist3)
plt.title(' NumPy Histogram')
plt.show()
```







색상 히스토그램




```
orange = cv2.cvtColor(orange, cv2.COLOR_HSV2BGR)

cv2.imshow("orange", orange)
cv2.waitKey()
cv2.destroyAllWindows()
```

← Result