In [1]:

```
import cv2
import numpy as np
from matplotlib import pyplot as plt
```

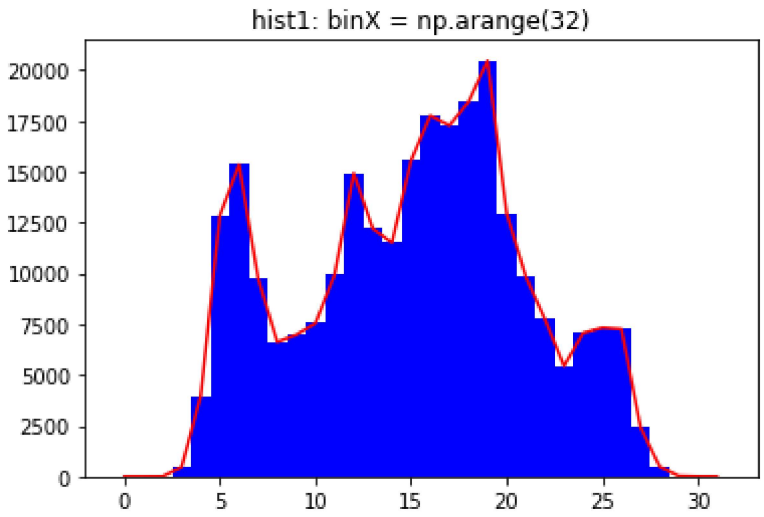
In [2]:

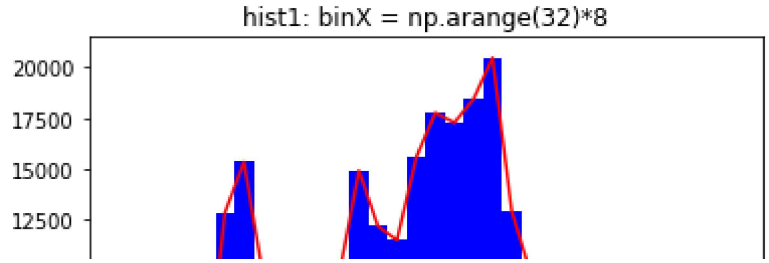
```
src = np.array([[0, 0, 0, 0],
                [1, 1, 3, 5],
                [6, 1, 1, 3],
                [4, 3, 1, 7]
                ], dtype=np.uint8)

hist1 = cv2.calcHist(images=[src], channels=[0], mask=None,
                     histSize=[4], ranges=[0, 8])
print('hist1 = ', hist1)

hist2 = cv2.calcHist(images=[src], channels=[0], mask=None,
                     histSize=[4], ranges=[0, 4])
print('hist2 = ', hist2)
```

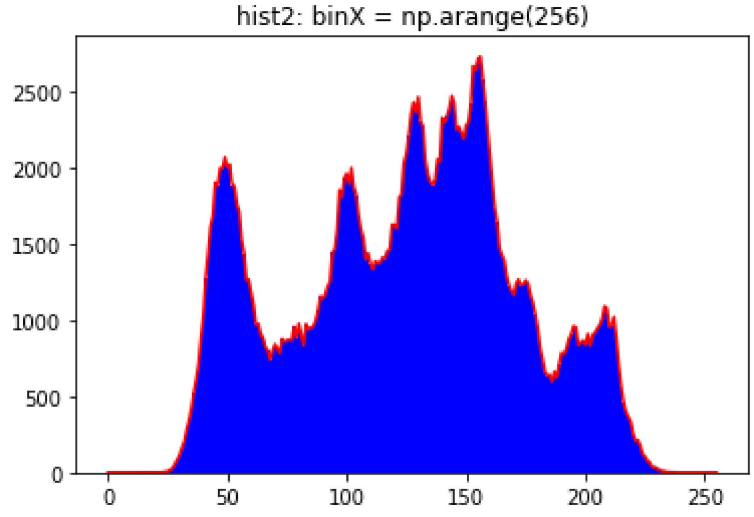
```
hist1 =  [[9.]
 [3.]
 [2.]
 [2.]]
hist2 =  [[4.]
 [5.]
 [0.]
 [3.]]
```

In [3]:

```
src = cv2.imread('./data/lena.jpg', cv2.IMREAD_GRAYSCALE)

hist1 = cv2.calcHist(images=[src], channels=[0], mask=None,
                     histSize=[32], ranges=[0, 256])
hist2 = cv2.calcHist(images=[src], channels=[0], mask=None,
                     histSize=[256], ranges=[0, 256])


#1
hist1 = hist1.flatten()
hist2 = hist2.flatten()

#2
plt.title('hist1: binX = np.arange(32)')
plt.plot(hist1, color='r')
binX = np.arange(32)
plt.bar(binX, hist1, width=1, color='b')
plt.show()

#3
plt.title('hist1: binX = np.arange(32)*8')
binX = np.arange(32)*8
plt.plot(binX, hist1, color='r')
plt.bar(binX, hist1, width=8, color='b')
plt.show()

#4
plt.title('hist2: binX = np.arange(256)')
plt.plot(hist2, color='r')
binX = np.arange(256)
plt.bar(binX, hist2, width=1, color='b')
plt.show()
```

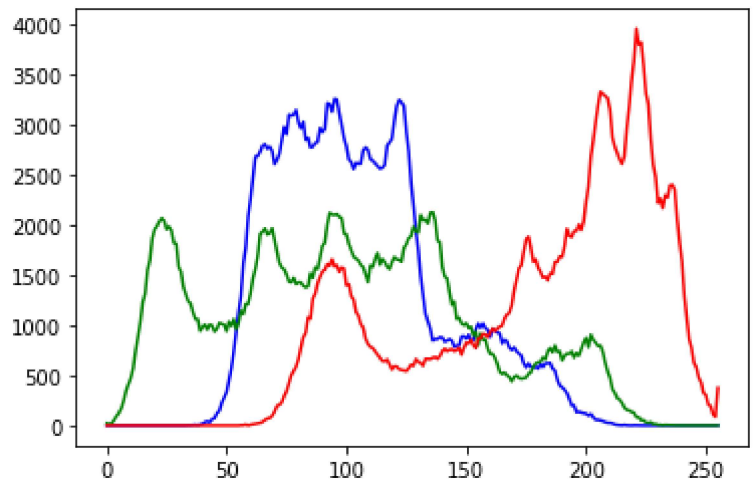






In [4]:

```
src = cv2.imread('./data/lena.jpg')
histColor = ('b', 'g', 'r')
for i in range(3):
    hist = cv2.calcHist(images=[src], channels=[i], mask=None,
                        histSize=[256], ranges=[0, 256])
    plt.plot(hist, color = histColor[i])
plt.show()
```



In [ ]: