Import Libaries

In [1]:
```
import numpy as np
import cv2 as cv
import matplotlib.pyplot as plt
```

Read Image

In [2]:
```
def read_image():
    path = "/media/rifat/STUDY/4-1/LAB/Image_Processing/image/tiger.jpeg
    img = plt.imread(path)
    grayscal = cv.cvtColor(img,cv.COLOR_RGB2GRAY)
    return img, grayscal
```

Opencv Histrogram

In [3]:
```
def hisogram_opencv(img):
    histr = cv.calcHist([img],[0],None,[256],[0,256])
    plt.plot(histr)
    plt.title("Opencv histogram")
    plt.show()

    return histr
```

Manual Histrogram

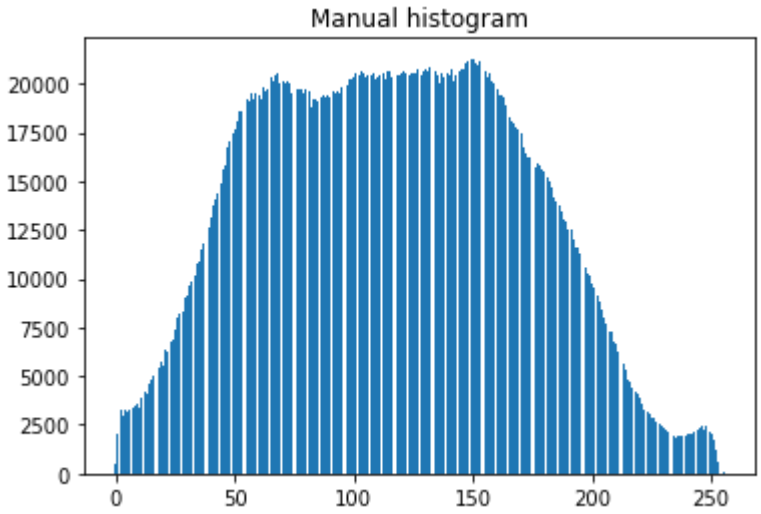
In [4]:
```
def hisogram_manual(img):
    img = np.rint(img)
    img = img.ravel()
    img = img.astype(int)
    cnt = []
    num = []
    for i in range(0,256):
        num.append(i)
        cnt.append(0)
    n = img.size
    for i in range(n):
        cnt[img[i]] += 1

    plt.bar(num,cnt)
    plt.title("Manual histogram")
    plt.show()


    return cnt
```

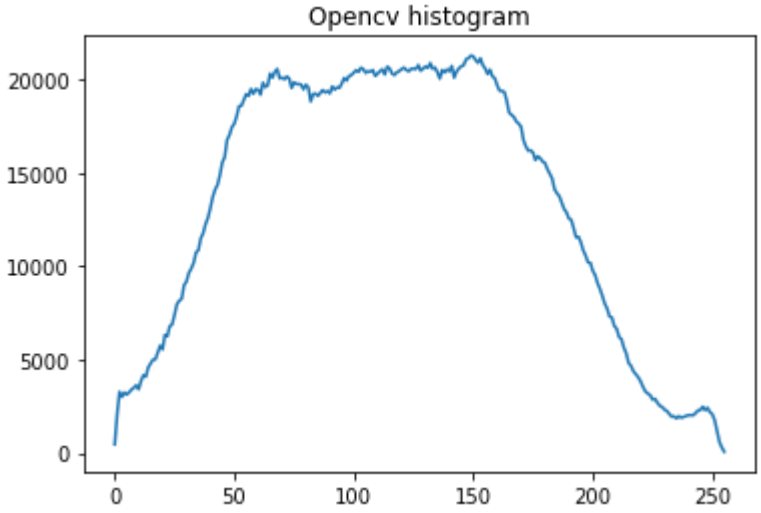
Histrogram Compare

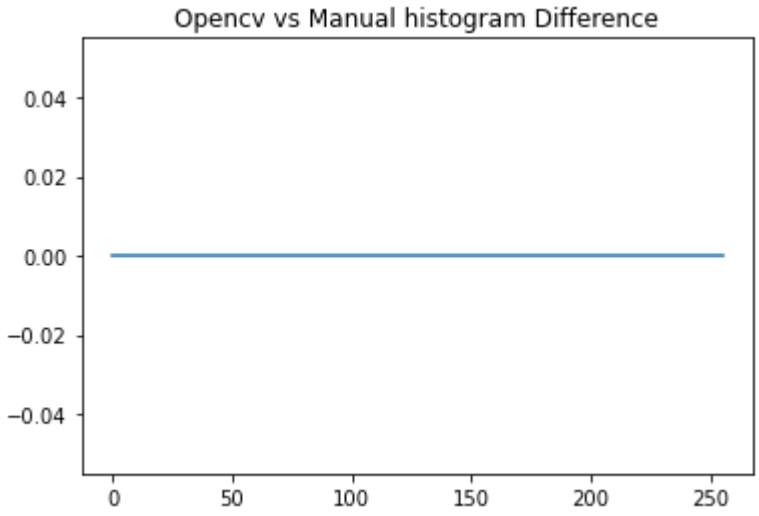
In [9]:
```
def compare(x,y):
    dif = []
    for i in range (0,256):
        c = int(x[i]-y[i])
        dif.append(c)

    plt.plot(dif)
    plt.title("Opencv vs Manual histogram Difference")
    plt.show()
```

In [11]:
```
if __name__ == "__main__":
    img, grayscal = read_image()
    print("Image Shape and Size",grayscal.shape, grayscal.size)
    x = hisogram_manual(grayscal)
    y = hisogram_opencv(grayscal)
    compare(x,y)
```

```
Image Shape and Size (1500, 2292) 3438000
```






Opencv vs Manual histogram Difference
0.04
0.02
0.00
−0.02
−0.04
0
50
100
150
200
250

In [ ]: