In [2]:
```python
import cv2
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
```

```
In [26]:  img = cv2.imread('2_1.bmp')
          cv2.imshow('Lena', img)
          cv2.waitKey(0)
          cv2.destroyAllWindows()

          datatype = img.dtype
          img_max = np.amax(img)
          print("The max is", img_max)
          img_min = np.amin(img)
          print("The min is", img_min)
          print(img.shape)

          count = np.zeros(256)

          for i in range(0, 512, 1):
              for j in range(0, 512, 1):
                  value = img[i, j]
                  count[value] = count[value] + 1

          plt.title('Histogram of Pixel Values')
          plt.bar(np.arange(0,256,1), count)
          plt.show()

          pdfValues = count / (512 * 512)
          plt.title('Probability Distribution Function of Pixel Values')
          plt.bar(np.arange(0,256,1), pdfValues)
          plt.show()

          cdfValues = np.cumsum(pdfValues)
          plt.title('Cumulative Distribution Function of Pixel Values')
          plt.plot(np.arange(0,256,1), cdfValues)
          plt.show()
```
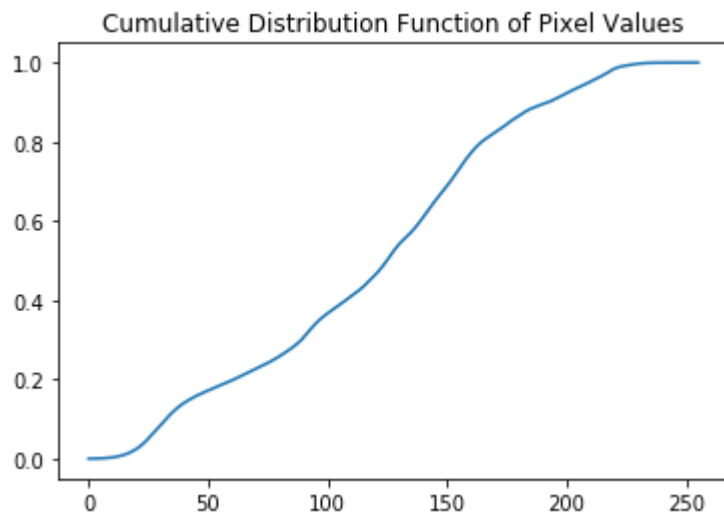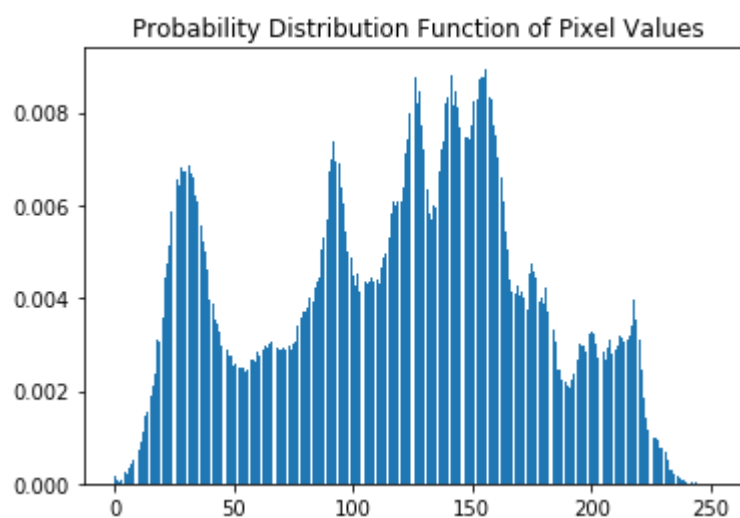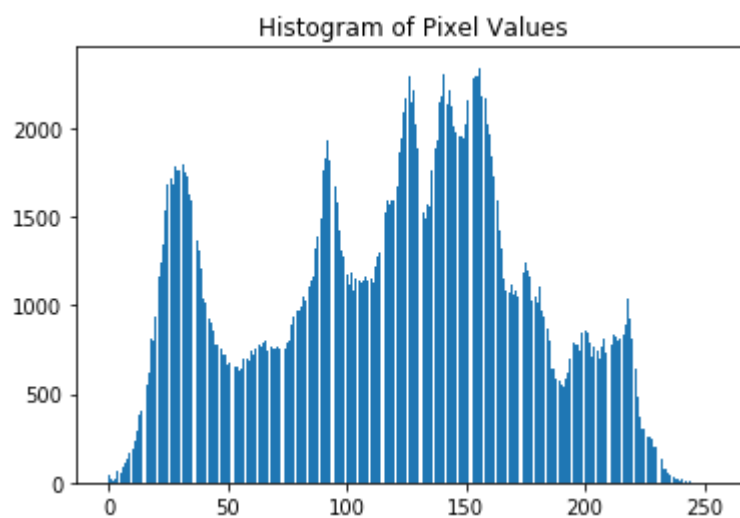
```
The max is 255
The min is 0
(512, 512, 3)
```

Histogram of Pixel Values

Probability Distribution Function of Pixel Values

Cumulative Distribution Function of Pixel Values

In [ ]:

In [ ]: