

In [1]:

```
%matplotlib inline
from IPython.display import display, Math, Latex
import cv2
import random
import numpy as np
import matplotlib.pyplot as plt
import requests
from PIL import Image
from io import BytesIO

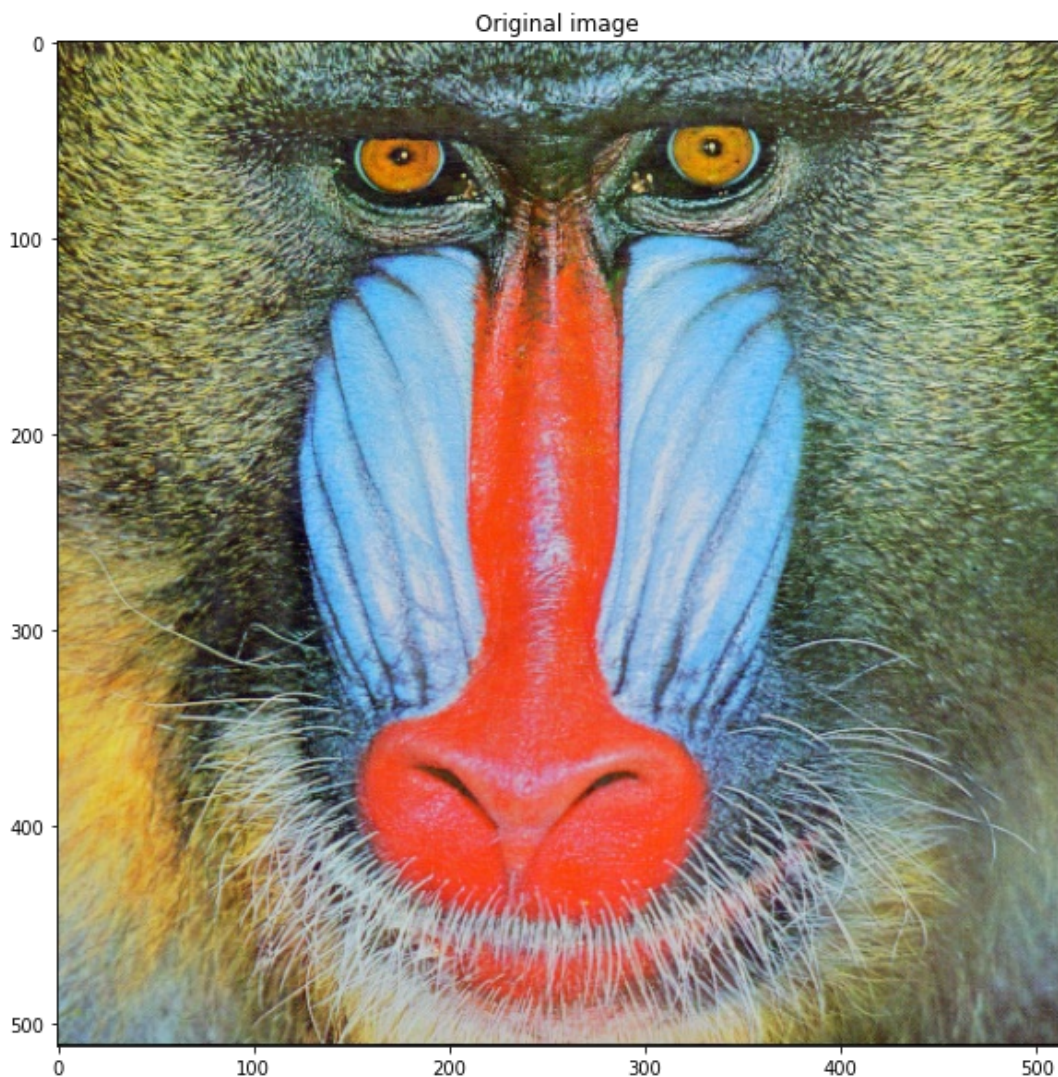
url = 'https://i.pinimg.com/originals/62/d9/95/62d995e13a183d457d284fecb8c3f0e1.png'
response = requests.get(url)
input_img = Image.open(BytesIO(response.content))

# display the image
figsize = (10,10)
plt.figure(figsize=figsize)

plt.imshow(input_img, cmap='gray', vmin=0, vmax=255)
plt.title("Original image")
```

Out[1]:

Text(0.5, 1.0, 'Original image')



In [3]:

```
def rgb2ycbcr(im):
    xform = np.array([[.299, .587, .114], [-.1687, -.3313, .5], [.5, -.4187, -.0813]])
    ycbcr = im.dot(xform.T)
    ycbcr[:, :, [1, 2]] += 128
    return np.uint8(ycbcr)

def ycbcr2rgb(im):
    xform = np.array([[1, 0, 1.402], [1, -0.34414, -.71414], [1, 1.772, 0]])
    rgb = im.astype(np.float)
    rgb[:, :, [1, 2]] -= 128
    return np.uint8(rgb.dot(xform.T))
```

In [6]:

```
# Convert RGB image to YCbCr image
input_img = np.asarray(input_img)
output_image = rgb2ycbcr(input_img)

# display the image
figsize = (10,10)
plt.figure(figsize=figsize)

plt.imshow(output_image, cmap='gray', vmin=0, vmax=255)
plt.title("YCbCr Image")
```

Out[6]:

Text(0.5, 1.0, 'HSI Image')

