

## Tasks

**1 - Load a color image and visualize each channel separately. Eg: 'baboon.png', 'chips.png', 'rgbcube\_kbkg.png'**

**2 - Convert Between color spaces and Visualize each channel separately.**

NTSC (BGR2YCrCb)  
HSV (BGR2HSV)  
CMYK

In [8]:

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

In [9]:

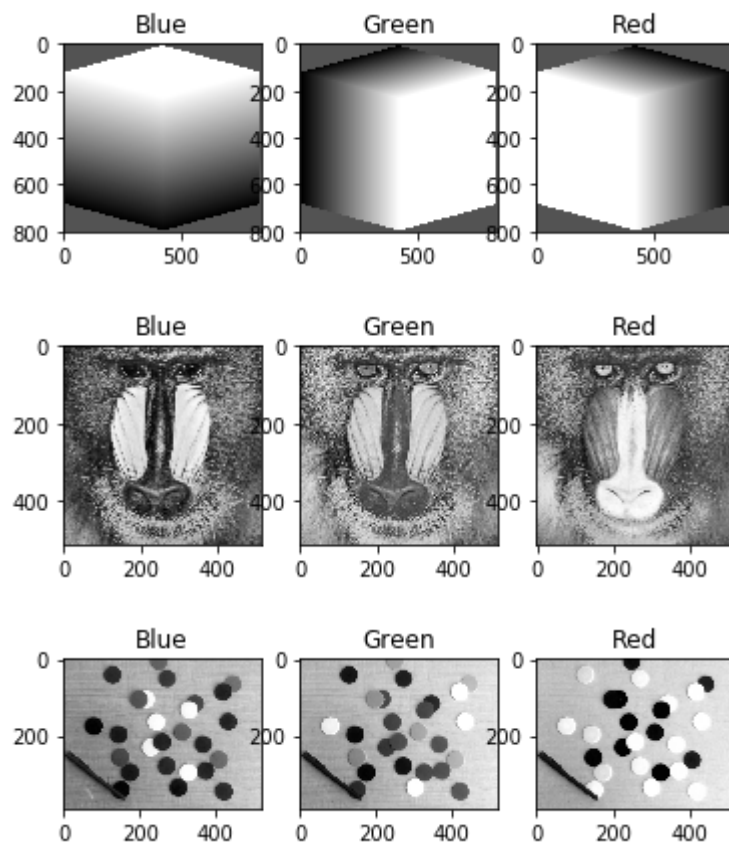
```
def visualizeChannels(img, colors):
    for i, col in enumerate(colors):
        plt.subplot(1, len(colors), i+1)
        plt.title(col)
        plt.imshow(img[:, :, i], cmap='gray')
    plt.show()

def bgr_to_cmyk(img):
    b, g, r = cv2.split(img)
    C = 255 - r
    M = 255 - g
    Y = 255 - b
    K = np.minimum(C, M, Y)
    return cv2.merge((C, M, Y, K))
```

## Task 1

In [10]:

```
PATH = '../..db/'  
listimgs = ['rgbcube_kBKG.png', 'baboon.png', 'chips.png']  
for curr in listimgs:  
    currImg = cv2.imread(PATH + curr, cv2.IMREAD_COLOR)  
    colors = ['Blue', 'Green', 'Red']  
    visualizeChannels(currImg, colors)
```



## Task 2

In [11]:

```
listimgs = ['rgbcube_kBKG.png', 'baboon.png', 'chips.png']
for curr in listimgs:

    imgBGR = cv2.imread(PATH + curr, cv2.IMREAD_COLOR)
    BGR = ['Blue', 'Green', 'Red']
    visualizeChannels(imgBGR, BGR)

    imgHSV = cv2.cvtColor(imgBGR, cv2.COLOR_BGR2HSV)
    HSV = ['Hue', 'Sat', 'Br']
    visualizeChannels(imgHSV, HSV)

    imgNTSC = cv2.cvtColor(imgBGR, cv2.COLOR_BGR2HSV)
    NTSC = ['Y', 'Cr', 'Cb']
    visualizeChannels(imgNTSC, NTSC)

    imgCMYK = bgr_to_cmyk(imgBGR)
    CMYK = ['Cyan', 'Magenta', 'Yellow', 'Black']
    visualizeChannels(imgCMYK, CMYK)
```

