In [3]:
```
'''Convert color image to gray scale'''

import cv2
src = 'rainbow.jpg'
input_image = cv2.imread(src)
cv2.imshow('Original Image', input_image)
cv2.waitKey(0)
cv2.destroyAllWindows()
if input_image is None:
    print('Could not open image: ', input_image)
    exit(0)

#grayscale version of the imput:
gray = cv2.cvtColor(input_image, cv2.COLOR_BGR2GRAY)

#display grayscale version
cv2.imshow('Grayscale Image', gray)

cv2.waitKey(0)
cv2.destroyAllWindows()
```

In [4]:
```
'''Separating BGR and Combininf BGR Channels'''
import cv2
import numpy as np
src = 'rainbow.jpg'
input_image = cv2.imread(src)
if input_image is None:
    print ('Could not load image: ',input_image)
    exit(0)

#Spliting image into RGB channels:
blue, green, red = cv2.split(input_image)
cv2.waitKey(0)
cv2.destroyAllWindows()
cv2.imshow('Green - Gray Scale', green)
cv2.waitKey(0)
cv2.destroyAllWindows()
cv2.imshow('red - Gray Scale', red)
cv2.waitKey(0)
cv2.destroyAllWindows()
```

In [5]:
```
#we create a dummy 3D array
blue_channel = np.zeros(input_image.shape, input_image.dtype)
green_channel = np.zeros(input_image.shape, input_image.dtype)
red_channel = np.zeros(input_image.shape, input_image.dtype)

cv2.mixChannels([blue, green, red], [blue_channel], [0,0])
cv2.mixChannels([blue, green, red], [green_channel], [1,1])
cv2.mixChannels([blue, green, red], [red_channel], [2,2])

cv2.imshow('Blue Channel', blue_channel)
cv2.waitKey(0)
cv2.destroyAllWindows()
cv2.imshow('Green Channel', green_channel)
cv2.waitKey(0)
cv2.destroyAllWindows()
cv2.imshow('Red Channel', red_channel)
```

```
cv2.waitKey(0)
cv2.destroyAllWindows()
```

In [6]:
```
'''Blurring an image'''

import cv2
img=cv2.imread('rainbow.jpg')
cv2.imshow('original image', img)
cv2.waitKey(0)
cv2.destroyAllWindows()
blur_image = cv2.medianBlur(img,13)
cv2.imshow('blur image', blur_image)
cv2.waitKey(0)
cv2.destroyAllWindows()
```

In [ ]:
```

```