```
from google.colab import drive
drive.mount ('/content/drive')
```

```
Drive already mounted at /content/drive; to attempt to forcibly remount, call drive.mount("/content/drive", force_remount=Tr
```

```
import matplotlib.pyplot as plt
import matplotlib.image as mpimg
img_path=("/content/drive/MyDrive/images/gg.jpeg")
img=mpimg.imread(img_path)
plt.imshow(img)
plt.axis("off")
plt.show()
```

```
newimg = img
newimg_shape=newimg.shape
```

```
newimg[0,0,0]
```

```
191
```

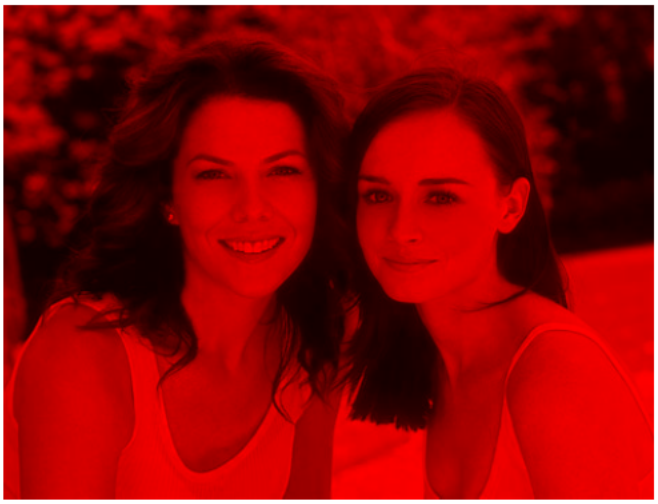
```
newimg[:,:,0]
```

```
array([[191, 184, 170, ...,  49,  52,  56],
       [189, 183, 170, ...,  48,  50,  54],
       [190, 186, 174, ...,  46,  47,  49],
       ...,
       [202, 204, 202, ..., 242, 243, 243],
       [200, 206, 207, ..., 249, 250, 250],
       [201, 208, 210, ..., 250, 251, 251]], dtype=uint8)
```

```
newimg_red= newimg[:,:,0]
newimg_green= newimg[:,:,1]
newimg_blue= newimg[:,:,2]
```

```
import numpy as np
img1= np.zeros(newimg_shape, dtype = np.uint8)
plt.imshow(img1)
plt.axis("off")
plt.show()
```

```
img1[:,:,0]= newimg_red
plt.imshow(img1)
plt.axis("off")
plt.show()
```



```
img1[:,:,2]= newimg_blue
plt.imshow(img1)
plt.axis("off")
plt.show()
```

```
img1[:,:,1]= newimg_green
plt.imshow(img1)
plt.axis("off")
plt.show()
```

```
new2= 0.299*newimg_red + 0.587*newimg_green + 0.114*newimg_blue
plt.imshow(new2, cmap="gray",vmin=0,vmax=255)
plt.axis("off")
plt.show()
```

Summary:

1. Scalars: These are numbers Uint8: Binary number with range 0-255 Real Values: Numerical data type that represents a real number. For example, in Python you can define a real value by using the "float" data type. Matrices: two dimensional array made of rows and columns. Tensors: A scalar/vector/matrix but organized in dimensions. For example: a scalar is a one-dimensional tensor; a vector is a one-dimensional tensor; a matrix is a two-dimensional tensor; a color image is a three-dimensional tensor.
2. This is a dot product of (R,G,B) and their weights (W1,W2,W3). This creates a weighted average of the three layers of the image to create grayscale. You use the ideal weights (0.299,0.587,0.114).
3. Scalar * vector: When you multiply a scalar by a vector, each element of the vector is multiplied by the scalar value. The result is a new vector where each element has been scaled by the scalar factor. Dot product of two vectors: The dot product of two vectors results in an addition expression that results in a singular scalar value.