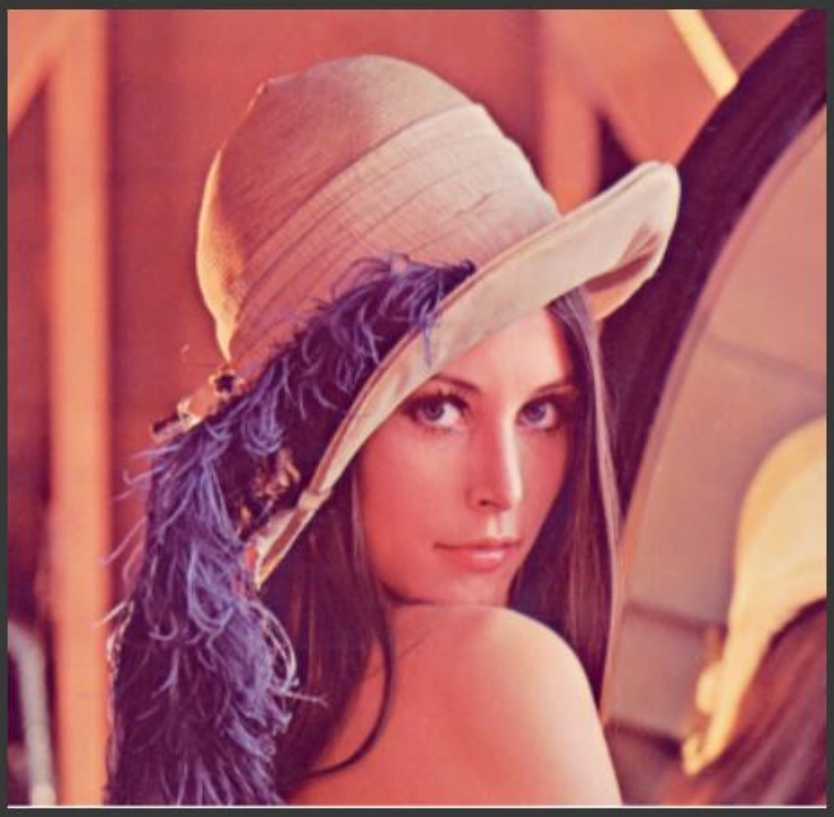
Worksheet 1

```
print("Format: ", colored_image.format)
print("Mode: ", colored_image.mode)
print("Size: ", colored_image.size)
```

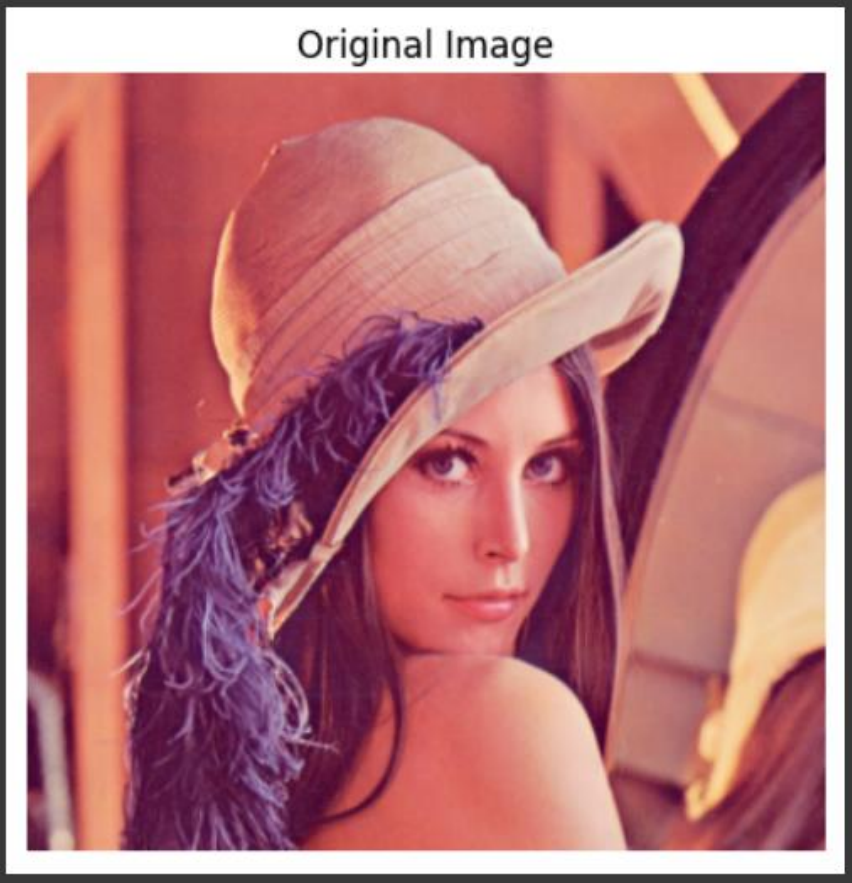
```
Format:  PNG
Mode:  RGBA
Size:  (366, 357)
```

0s

```
colored_image = colored_image.convert("RGB")
display(colored_image)
```

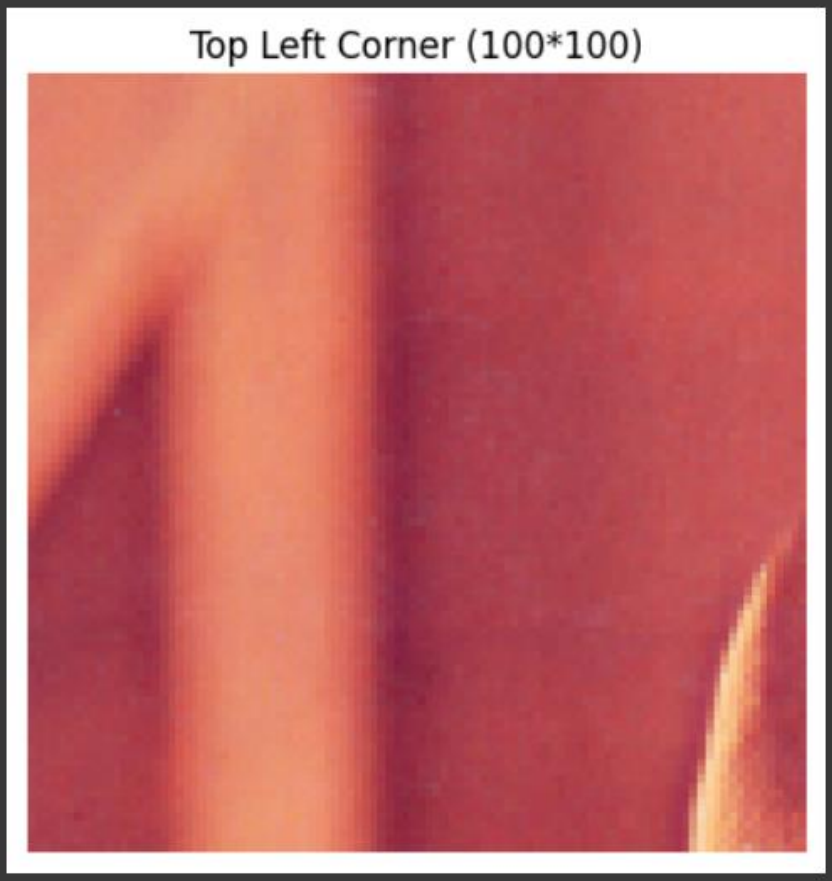


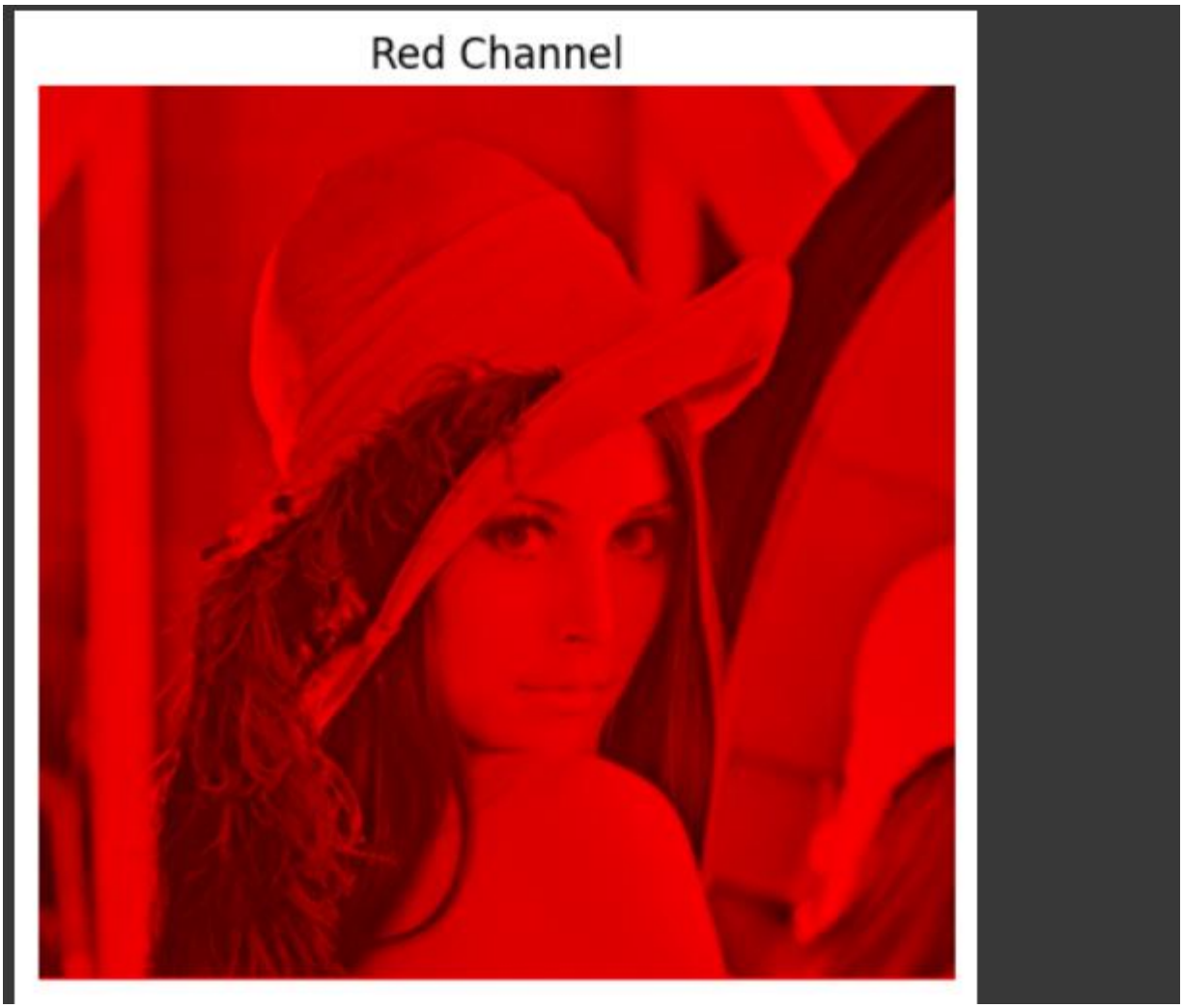
```
[75] image_array = np.array(colored_image)
     plt.imshow(image_array)
     plt.axis("off")
     plt.title("Original Image")
     plt.show()
```



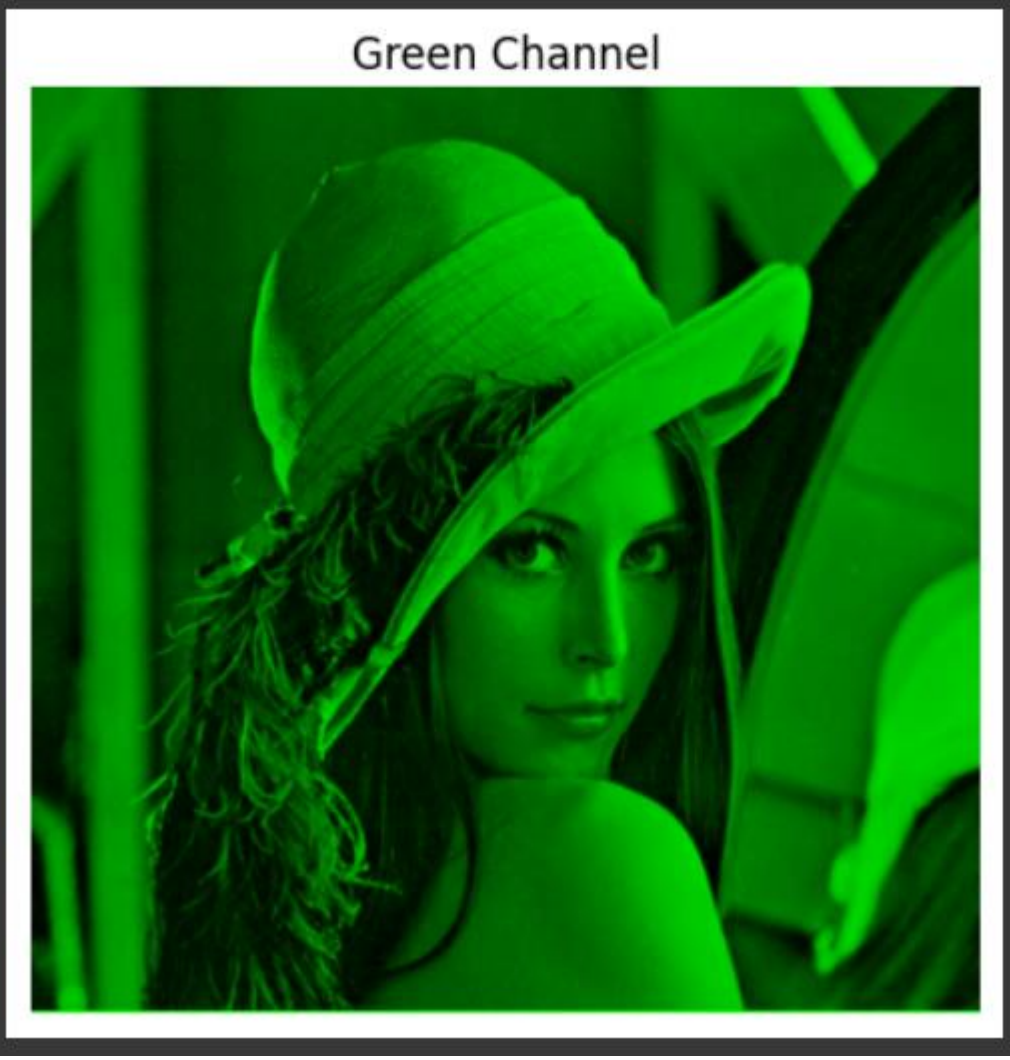
```
top_left = image_array[:100, :100]

plt.axis("off")
plt.title("Top Left Corner (100*100)")
plt.imshow(top_left)
plt.show()
```




Red Channel

```
plt.imshow(green_channel)
plt.show()
```

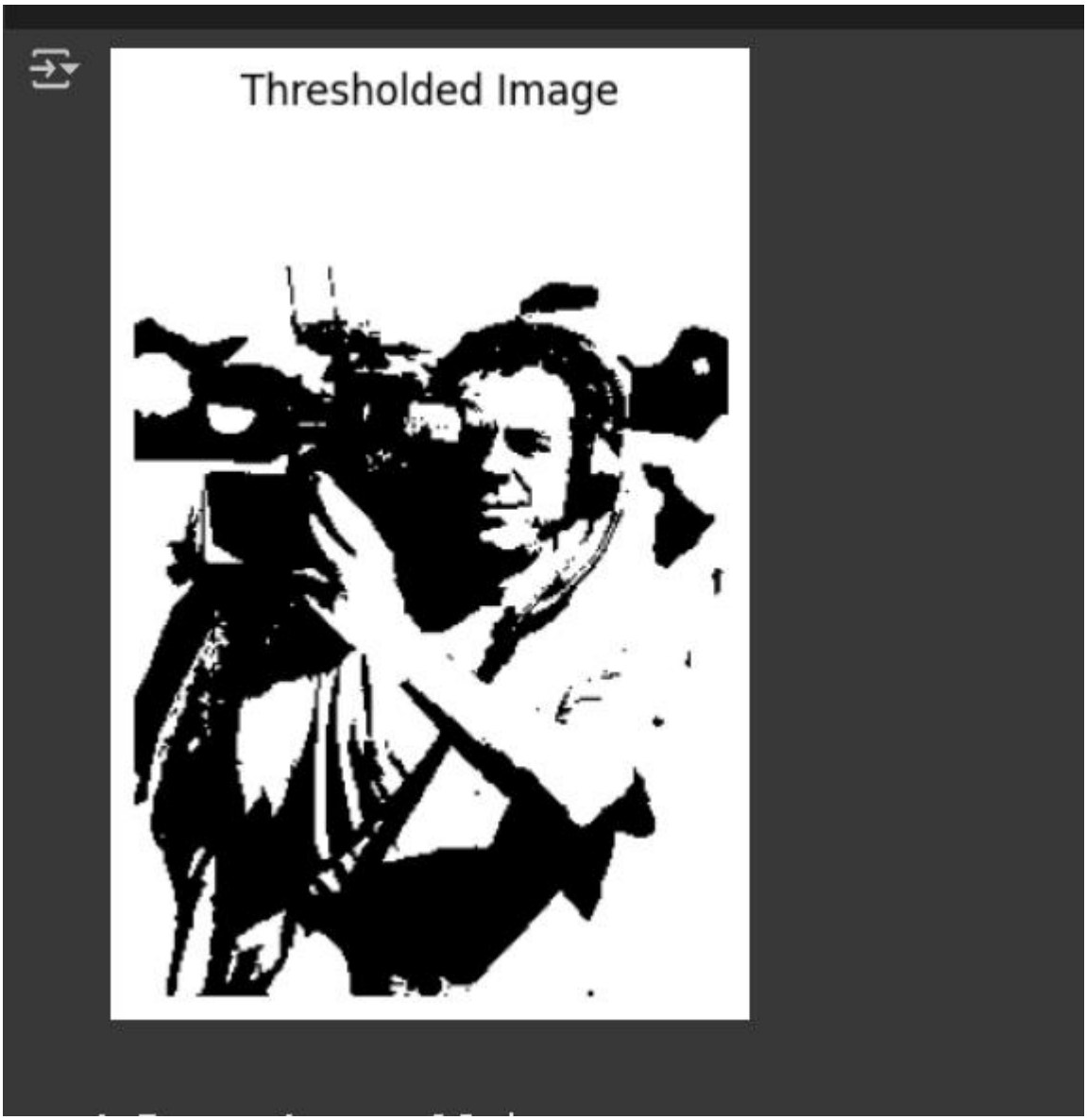


Blue Channel

Top 100 * 100 to 210 - Modified Image

Original Grayscale Image

Middle 150 * 150 pixels


Thresholded Image

Rotated Image Clockwise 90 deg

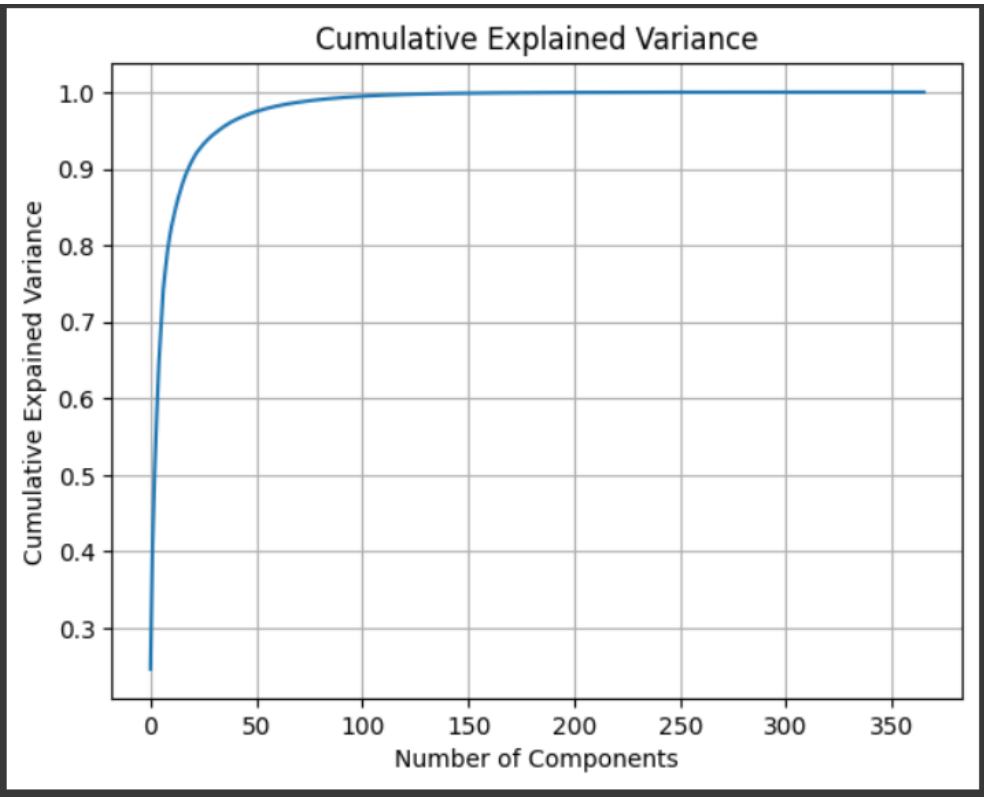
Grayscale to RGB

```
(357, 366)
```

```
array([[ 61.34173669,  62.17647059,  62.83473389, ..., -82.04761905,
         -83.96638655, -87.30252101],
        [ 63.34173669,  61.17647059,  62.83473389, ..., -84.04761905,
         -83.96638655, -85.30252101],
        [ 61.34173669,  65.17647059,  61.83473389, ..., -81.04761905,
         -82.96638655, -87.30252101],
        ...,
        [-46.65826331, -45.82352941, -42.16526611, ..., -44.04761905,
         -32.96638655, -31.30252101],
        [-44.65826331, -42.82352941, -42.16526611, ..., -39.04761905,
         -28.96638655, -31.30252101],
        [161.34173669, 161.17647059, 160.83473389, ..., 123.95238095,
         124.03361345, 123.69747899]])
```

```
array([[1482.61322507, 1444.75413087, 1404.48079344, ..., -477.00334403,
        -463.70533944, -416.64351808],
       [1444.75413087, 1430.68506279, 1399.06857237, ..., -546.38764045,
        -531.51999339, -485.93803701],
       [1404.48079344, 1399.06857237, 1391.50350927, ..., -581.36182451,
        -565.21914833, -521.85069871],
       ...,
       [-477.00334403, -546.38764045, -581.36182451, ..., 3069.65783842,
        3039.86677368, 3007.1540931 ],
       [-463.70533944, -531.51999339, -565.21914833, ..., 3039.86677368,
        3036.6898782 , 3021.25177037],
       [-416.64351808, -485.93803701, -521.85069871, ..., 3007.1540931 ,
        3021.25177037, 3034.25092059]])
```

```
(366, 366)
```



Original Image

10 Components Image

20 Components Image

50 Components Image

50 Components Image

100 Components Image

100 Components Image

150 Components Image

150 Components Image