

```
pip install pillow
```

```
Requirement already satisfied: pillow in  
/usr/local/lib/python3.11/dist-packages (11.1.0)
```

```
from PIL import Image  
# display image in colab  
image_colored = Image . open ("Lenna_(test_image).png")  
display ( image_colored )
```



```
import numpy as np  
image_array_colored = np . array ( image_colored )
```

```
top_left_corner = image_array_colored[:100, :100]
display (Image.fromarray(top_left_corner))
```



```
red_channel = image_array_colored[:, :, 0]
print (red_channel)
display(red_channel)
green_channel = image_array_colored[:, :, 1]
print (green_channel)
display(green_channel)
blue_channel = image_array_colored[:, :, 2]
print (blue_channel)
display(blue_channel)

[[226 226 223 ... 230 221 200]
 [226 226 223 ... 230 221 200]
 [226 226 223 ... 230 221 200]
 ...
 [ 84  84  92 ... 173 172 177]
 [ 82  82  96 ... 179 181 185]
 [ 82  82  96 ... 179 181 185]]

array([[226, 226, 223, ..., 230, 221, 200],
       [226, 226, 223, ..., 230, 221, 200],
       [226, 226, 223, ..., 230, 221, 200],
       ...,
       [ 84,  84,  92, ..., 173, 172, 177],
       [ 82,  82,  96, ..., 179, 181, 185],
       [ 82,  82,  96, ..., 179, 181, 185]], dtype=uint8)

[[137 137 137 ... 148 130  99]
 [137 137 137 ... 148 130  99]
 [137 137 137 ... 148 130  99]
 ...
 [ 18  18  27 ...  73  68  62]
 [ 22  22  32 ...  70  71  74]
 [ 22  22  32 ...  70  71  74]]

array([[137, 137, 137, ..., 148, 130,  99],
       [137, 137, 137, ..., 148, 130,  99],
       [137, 137, 137, ..., 148, 130,  99],
```

```

        ...,
        [ 18,  18,  27, ...,  73,  68,  62],
        [ 22,  22,  32, ...,  70,  71,  74],
        [ 22,  22,  32, ...,  70,  71,  74]], dtype=uint8)

[[125 125 133 ... 122 110  90]
 [125 125 133 ... 122 110  90]
 [125 125 133 ... 122 110  90]
 ...
 [ 60  60  58 ...  84  76  79]
 [ 57  57  62 ...  79  81  81]
 [ 57  57  62 ...  79  81  81]]

array([[125, 125, 133, ..., 122, 110,  90],
       [125, 125, 133, ..., 122, 110,  90],
       [125, 125, 133, ..., 122, 110,  90],
       ...,
       [ 60,  60,  58, ...,  84,  76,  79],
       [ 57,  57,  62, ...,  79,  81,  81],
       [ 57,  57,  62, ...,  79,  81,  81]], dtype=uint8)

image_array_colored[:100, :100] = 210
display(Image.fromarray(image_array_colored))

```

