

```
import matplotlib.pyplot as plt
from PIL import Image

bird=Image.open(r"/content/bird.jpg")
bird
```



```
type(bird)
```

```
PIL.JpegImagePlugin.JpegImageFile
def __init__(fp: StrOrBytesPath | IO[bytes], filename: str | bytes | None=None) -> None
/usr/local/lib/python3.11/dist-packages/PIL/JpegImagePlugin.py
Base class for image file format handlers.
```

```
import numpy as np
birdarr=np.asarray(bird)
birdarr
```

```
↳ ndarray (432, 768, 3) [hide data]
array([[[50, 68, 42],
       [51, 69, 43],
       [52, 70, 44],
       ...,
       [24, 47,  1],
       [24, 47,  1],
       [24, 47,  1]],

      [[50, 68, 42],
       [50, 68, 42],
       [51, 69, 43],
       ...,
       [25, 49,  1],
       [24, 47,  1],
       [24, 47,  1]],

      [[50, 68, 42],
       [50, 68, 42],
       [49, 67, 41],
       ...,
       [25, 49,  1],
       [24, 48,  0],
       [24, 47,  1]],

      ...,

      [[33, 53,  2],
       [33, 53,  2],
       [33, 53,  2],
       ...,
       [48, 67, 22],
       [48, 67, 21],
       [47, 66, 20]],

      [[33, 53,  2],
       [33, 53,  2],
       [33, 53,  2],
       ...,
       [50, 68, 26],
       [50, 69, 24],
       [49, 68, 23]],

      [[31, 51,  2],
       [31, 51,  0],
       [31, 51,  0],
       ...,
       [49, 70, 27],
       [49, 70, 27],
       [49, 71, 25]]], dtype=uint8)
```

```
type(birdarr)
```

```
↳ numpy.ndarray
```

```
birdarr.shape
```

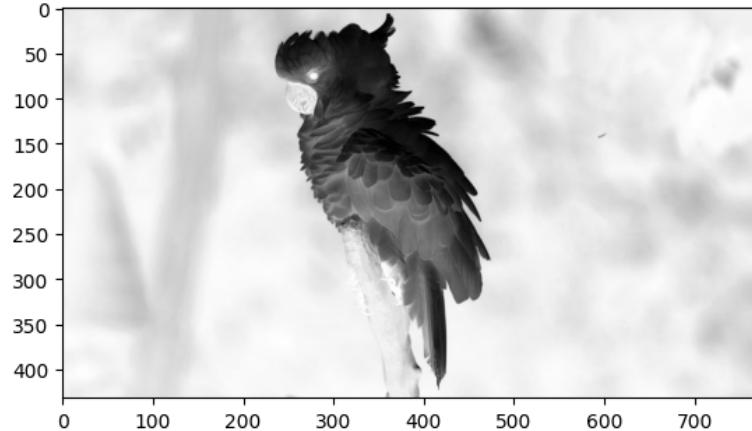
```
↳ (432, 768, 3)
```

```
birdarr=bird_red
```

```
plt.imshow(bird_red[:, :, 0])
bird_red[:, :, 0]
```

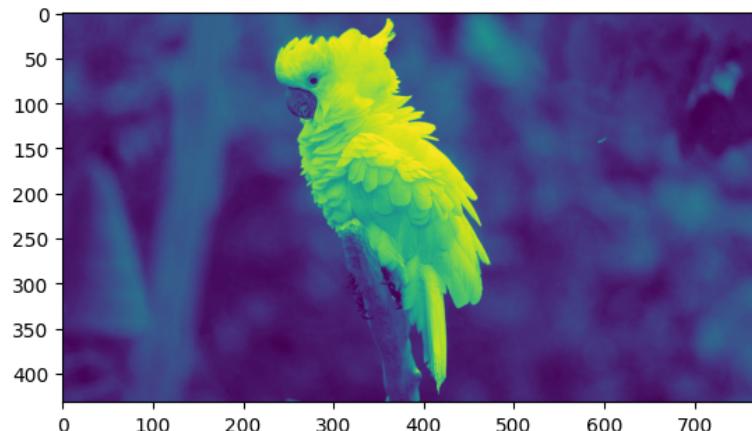
```
plt.imshow(bird_red[:, :, 0], cmap='Greys')
```

```
↳ <matplotlib.image.AxesImage at 0x7d7218487650>
```



```
bird_red=birdarr.copy()  
bird_red  
birdarr=bird_red  
plt.imshow(bird_red[:, :, 0])  
bird_red[:, :, 0]
```

```
↳ ndarray (432, 768) [show data]
```



Start coding or generate with AI.

```
horse=Image.open(r"/content/horse.jpeg")  
horse
```



```
horse_arr=np.asarray(horse)
horse_arr
```

>Show hidden output

```
horse_arr.shape
```

```
horse_red=horse_arr.copy()
horse_red
```

Show hidden output

```
horse_arr==horse_red
```

Show hidden output

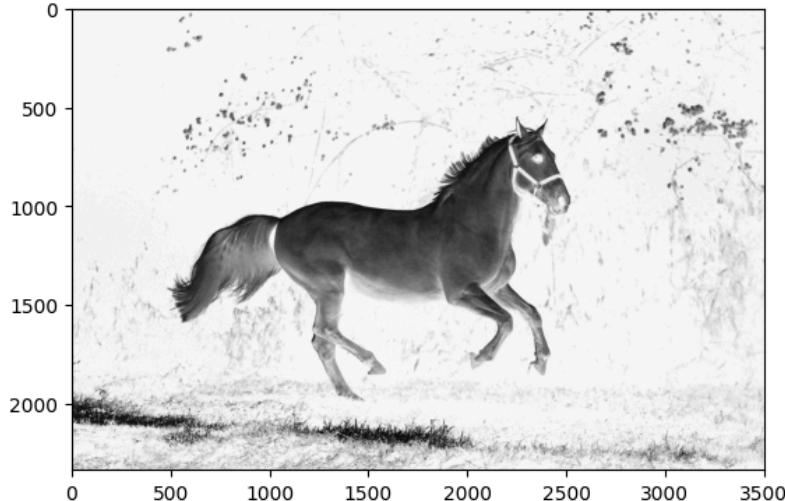
```
plt.imshow(horse_red)
horse_red.shape
```

Show hidden output

```
plt.imshow(horse_red[:, :, 0])
horse_red[:, :, 0]
```

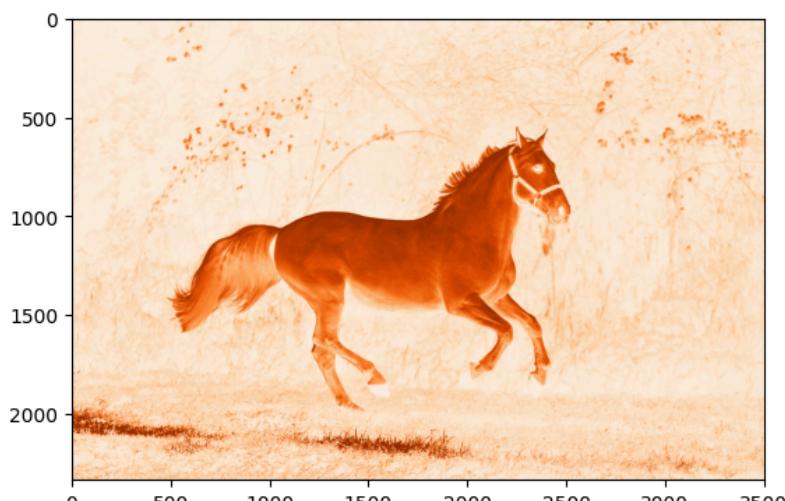
```
plt.imshow(horse_red[:, :, 0], cmap='Greys')
```

```
↳ <matplotlib.image.AxesImage at 0x7d7218538dd0>
```



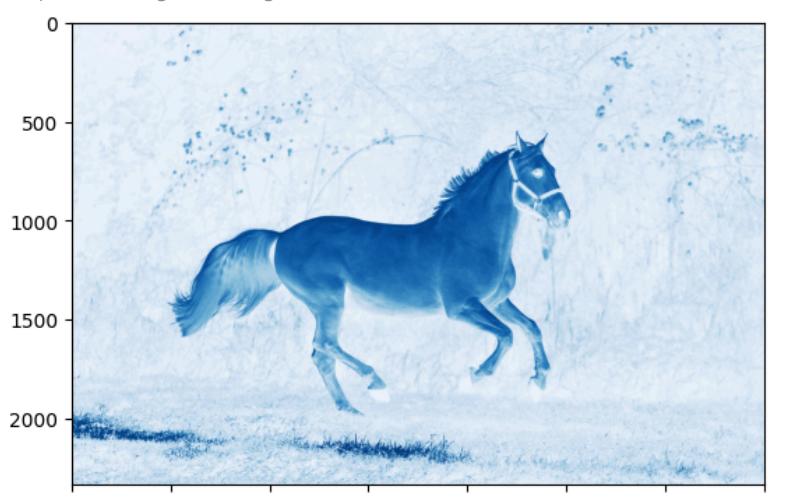
```
plt.imshow(horse_red[:, :, 1], cmap='Oranges')
```

```
↳ <matplotlib.image.AxesImage at 0x7d72141fe6d0>
```



```
plt.imshow(horse_red[:, :, 1], cmap='Blues')
```

```
↳ <matplotlib.image.AxesImage at 0x7d7218259990>
```

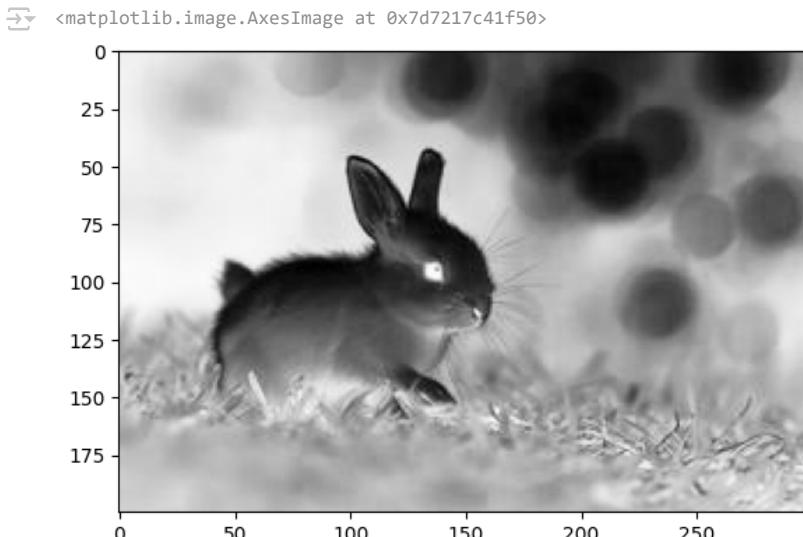


```
rabbit=Image.open(r"/content/rabbit.jpg")
rabbit
rabbit_arr=np.asarray(rabbit)
rabbit_arr
```

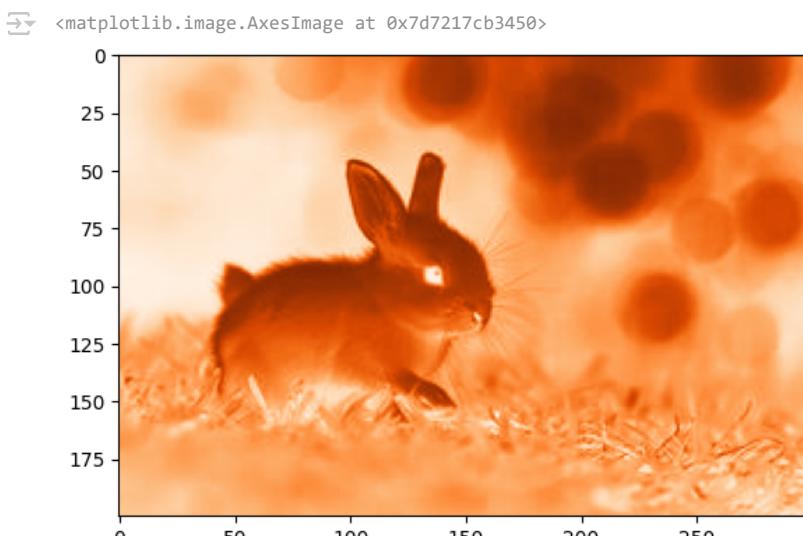


```
rabbit_arr.shape
```

```
rabbit_red=rabbit_arr.copy()  
rabbit_red  
rabbit_arr==rabbit_red  
plt.imshow(rabbit_red)  
rabbit_red.shape  
plt.imshow(rabbit_red[:, :, 0])  
rabbit_red[:, :, 0]  
plt.imshow(rabbit_red[:, :, 0], cmap='Greys')
```

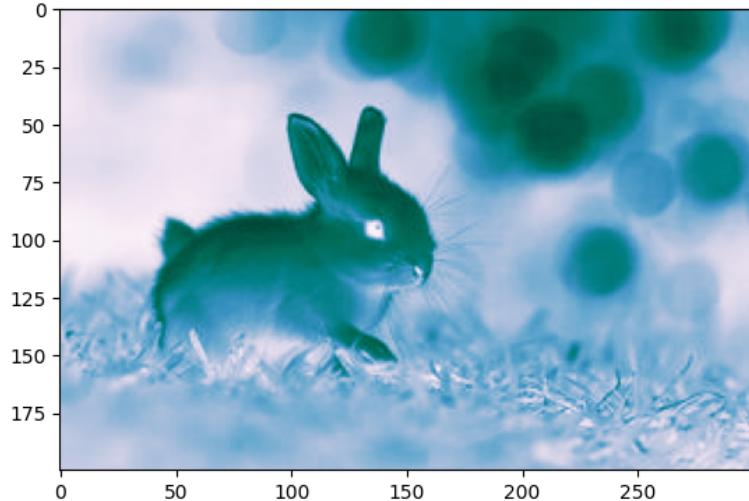


```
rabbit_red=rabbit_arr.copy()  
rabbit_red  
rabbit_arr==rabbit_red  
plt.imshow(rabbit_red)  
rabbit_red.shape  
plt.imshow(rabbit_red[:, :, 0])  
rabbit_red[:, :, 0]  
plt.imshow(rabbit_red[:, :, 0], cmap='Oranges')
```



```
rabbit_red=rabbit_arr.copy()
rabbit_red
rabbit_arr==rabbit_red
plt.imshow(rabbit_red)
rabbit_red.shape
plt.imshow(rabbit_red[:, :, 0])
rabbit_red[:, :, 0]
plt.imshow(rabbit_red[:, :, 0], cmap='PuBuGn')
```

☞ <matplotlib.image.AxesImage at 0x7d7217cde010>



```
tiger=Image.open(r"/content/tiger.jpeg")
tiger
```

☞

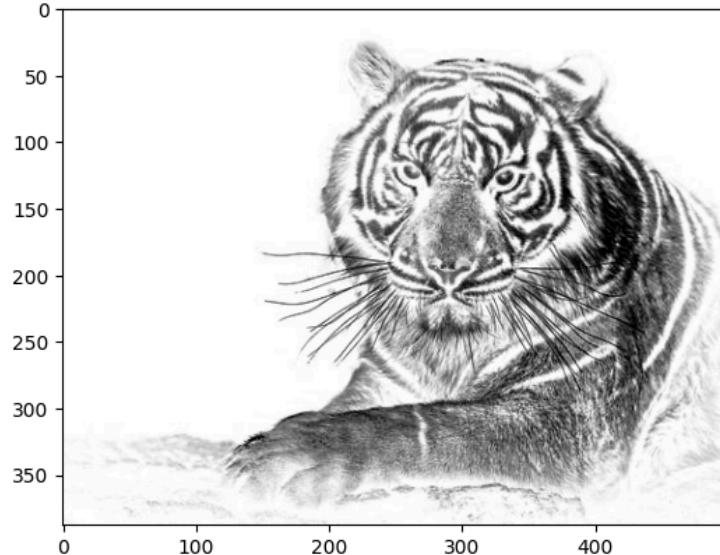


```
tiger_arr=np.asarray(tiger)
tiger_arr
tiger_arr.shape
```

☞ (388, 500, 3)

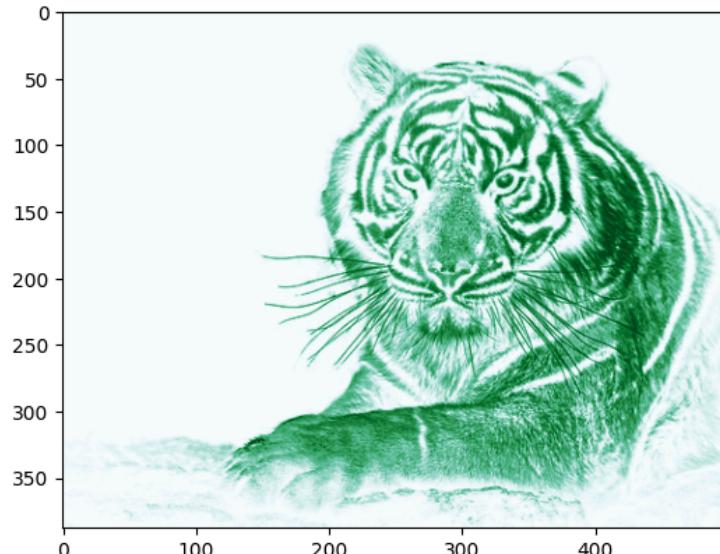
```
tiger_red=tiger_arr.copy()
tiger_red
tiger_arr==tiger_red
plt.imshow(tiger_red)
tiger_red.shape
plt.imshow(tiger_red[:, :, 0])
tiger_red[:, :, 0]
plt.imshow(tiger_red[:, :, 0], cmap='Greys')
```

```
↳ <matplotlib.image.AxesImage at 0x7d7217d13050>
```



```
tiger_red=tiger_arr.copy()  
tiger_red  
tiger_arr==tiger_red  
plt.imshow(tiger_red)  
tiger_red.shape  
plt.imshow(tiger_red[:, :, 0])  
tiger_red[:, :, 0]  
plt.imshow(tiger_red[:, :, 0], cmap='BuGn')
```

```
↳ <matplotlib.image.AxesImage at 0x7d7217b3c610>
```



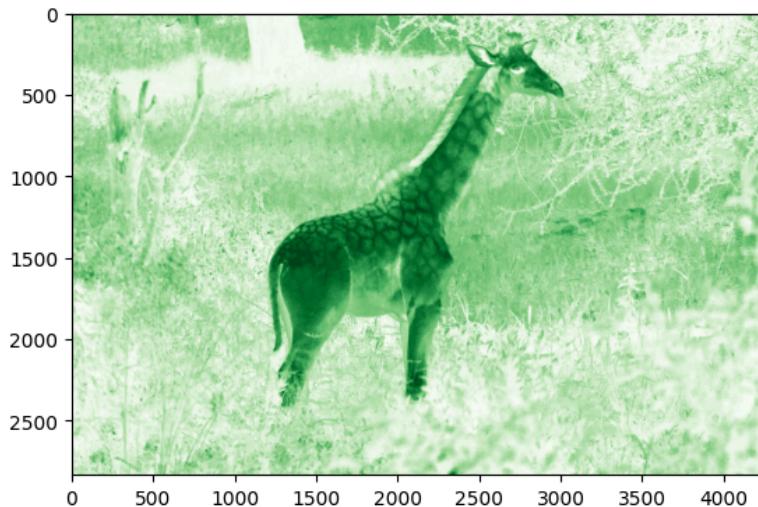
```
plt.imshow(tiger_red[:, :, 0], cmap='RdPu')
```

```
↳ <matplotlib.image.AxesImage at 0x7d7214014fd0>
```



```
giraffe=Image.open(r"/content/giraffe.jpg")
giraffe
giraffe_arr=np.asarray(giraffe)
giraffe_arr
giraffe_arr.shape
giraffe_red=giraffe_arr.copy()
giraffe_red
giraffe_arr==giraffe_red
plt.imshow(giraffe_red)
giraffe_red.shape
plt.imshow(giraffe_red[:, :, 0])
giraffe_red[:, :, 0]
plt.imshow(giraffe_red[:, :, 0], cmap='Greens')
```

```
↳ <matplotlib.image.AxesImage at 0x7d7214190300>
```



```
plt.imshow(giraffe_red[:, :, 0], cmap='OrRd')
```

```
↳ <matplotlib.image.AxesImage at 0x7d7217dfa7d0>
```