

```
In [1]: import numpy as np
```

```
In [2]: ones_arr = np.ones((5,5),dtype=int)
ones_arr
```

```
Out[2]: array([[1, 1, 1, 1, 1],
               [1, 1, 1, 1, 1],
               [1, 1, 1, 1, 1],
               [1, 1, 1, 1, 1],
               [1, 1, 1, 1, 1]])
```

```
In [3]: ones_arr * 255
```

```
Out[3]: array([[255, 255, 255, 255, 255],
               [255, 255, 255, 255, 255],
               [255, 255, 255, 255, 255],
               [255, 255, 255, 255, 255],
               [255, 255, 255, 255, 255]])
```

```
In [4]: import matplotlib.pyplot as plt
```

```
In [5]: import matplotlib
```

```
In [6]: %matplotlib inline
```

```
In [7]: from PIL import Image
```

```
In [8]: lion_image = Image.open(r'C:\Users\UMA SETHA KUMARI\OneDrive\Desktop\LionImage.jpg')
```

```
In [9]: lion_image
```

```
Out[9]:
```



```
In [14]: type(lion_image)
```

```
Out[14]: PIL.JpegImagePlugin.JpegImageFile
```

```
In [36]: lion_arr = np.asarray(lion_image)
lion_arr
```

```

Out[36]: array([[[ 99,  99,  27],
                  [ 97,  97,  25],
                  [ 95,  95,  25],
                  ...,
                  [ 72,  61,  15],
                  [ 73,  62,  16],
                  [ 74,  63,  17]],

                [[ 97,  97,  25],
                  [ 95,  95,  23],
                  [ 93,  93,  23],
                  ...,
                  [ 71,  60,  14],
                  [ 72,  61,  15],
                  [ 73,  62,  16]],

                [[ 95,  95,  23],
                  [ 93,  93,  23],
                  [ 91,  91,  21],
                  ...,
                  [ 68,  57,  12],
                  [ 69,  58,  13],
                  [ 70,  59,  14]],

                ...,

                [[ 82,  89,   0],
                  [ 84,  91,   0],
                  [ 92,  99,   3],
                  ...,
                  [ 91,  91,  17],
                  [105, 107,  32],
                  [114, 118,  42]],

                [[ 97, 104,   9],
                  [ 95, 102,   7],
                  [ 94, 101,   5],
                  ...,
                  [ 79,  79,   5],
                  [ 95,  97,  22],
                  [ 98, 102,  26]],

                [[112, 119,  24],
                  [107, 114,  19],
                  [ 98, 105,   9],
                  ...,
                  [107, 107,  33],
                  [ 84,  86,  11],
                  [ 74,  78,   2]]], dtype=uint8)

```

```
In [38]: type(lion_arr)
```

```
Out[38]: numpy.ndarray
```

```
In [42]: lion_arr.shape
```

Out[42]: (181, 320, 3)

In [44]: `plt.imshow(lion_arr)`

Out[44]: <matplotlib.image.AxesImage at 0x1da61719940>

In [48]: `lion_red = lion_arr.copy()`

In [50]: `lion_red`

```

Out[50]: array([[[ 99,  99,  27],
                  [ 97,  97,  25],
                  [ 95,  95,  25],
                  ...,
                  [ 72,  61,  15],
                  [ 73,  62,  16],
                  [ 74,  63,  17]],

                [[ 97,  97,  25],
                  [ 95,  95,  23],
                  [ 93,  93,  23],
                  ...,
                  [ 71,  60,  14],
                  [ 72,  61,  15],
                  [ 73,  62,  16]],

                [[ 95,  95,  23],
                  [ 93,  93,  23],
                  [ 91,  91,  21],
                  ...,
                  [ 68,  57,  12],
                  [ 69,  58,  13],
                  [ 70,  59,  14]],

                ...,

                [[ 82,  89,   0],
                  [ 84,  91,   0],
                  [ 92,  99,   3],
                  ...,
                  [ 91,  91,  17],
                  [105, 107,  32],
                  [114, 118,  42]],

                [[ 97, 104,   9],
                  [ 95, 102,   7],
                  [ 94, 101,   5],
                  ...,
                  [ 79,  79,   5],
                  [ 95,  97,  22],
                  [ 98, 102,  26]],

                [[112, 119,  24],
                  [107, 114,  19],
                  [ 98, 105,   9],
                  ...,
                  [107, 107,  33],
                  [ 84,  86,  11],
                  [ 74,  78,   2]]], dtype=uint8)

```

```
In [52]: lion_red = lion_arr
```

```
In [54]: lion_red == lion_arr
```

```

Out[54]: array([[ True,  True,  True],
               [ True,  True,  True],
               [ True,  True,  True],
               ...,
               [ True,  True,  True],
               [ True,  True,  True],
               [ True,  True,  True]],

              [[ True,  True,  True],
               [ True,  True,  True],
               [ True,  True,  True],
               ...,
               [ True,  True,  True],
               [ True,  True,  True],
               [ True,  True,  True]],

              [[ True,  True,  True],
               [ True,  True,  True],
               [ True,  True,  True],
               ...,
               [ True,  True,  True],
               [ True,  True,  True],
               [ True,  True,  True]],

              ...,

              [[ True,  True,  True],
               [ True,  True,  True],
               [ True,  True,  True],
               ...,
               [ True,  True,  True],
               [ True,  True,  True],
               [ True,  True,  True]],

              [[ True,  True,  True],
               [ True,  True,  True],
               [ True,  True,  True],
               ...,
               [ True,  True,  True],
               [ True,  True,  True],
               [ True,  True,  True]],

              [[ True,  True,  True],
               [ True,  True,  True],
               [ True,  True,  True],
               ...,
               [ True,  True,  True],
               [ True,  True,  True],
               [ True,  True,  True]]])

```

```
In [56]: plt.imshow(lion_red)
```

```
Out[56]: <matplotlib.image.AxesImage at 0x1da6085b110>
```

```
In [58]: plt.show()
```



```
In [60]: lion_red.shape
```

```
Out[60]: (181, 320, 3)
```

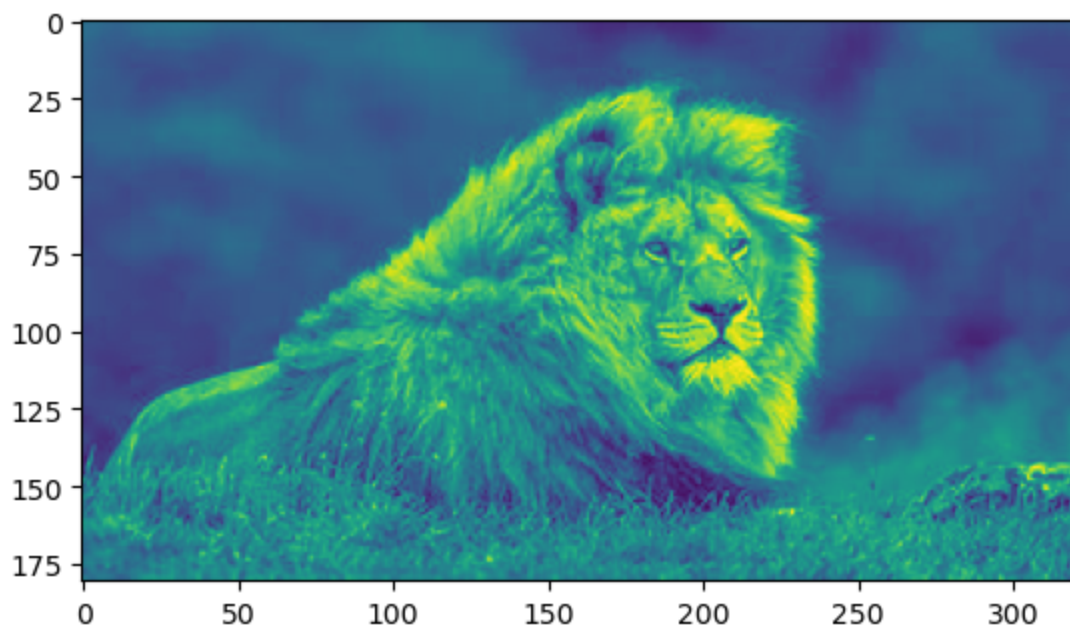
```
In [62]: plt.imshow(lion_red)
```

```
Out[62]: <matplotlib.image.AxesImage at 0x1da60847440>
```

```
In [64]: plt.imshow(lion_red[:, :, 0])
```

```
Out[64]: <matplotlib.image.AxesImage at 0x1da62d315e0>
```

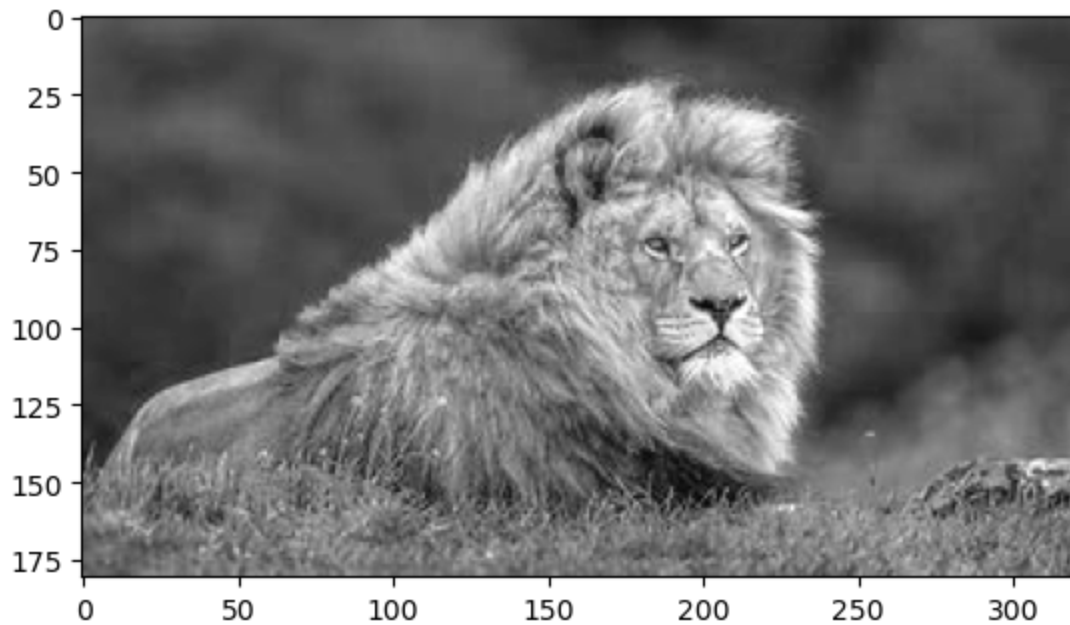
```
In [66]: plt.show()
```



```
In [68]: plt.imshow(lion_red[:, :, 0], cmap='gray')
```

```
Out[68]: <matplotlib.image.AxesImage at 0x1da61718d10>
```

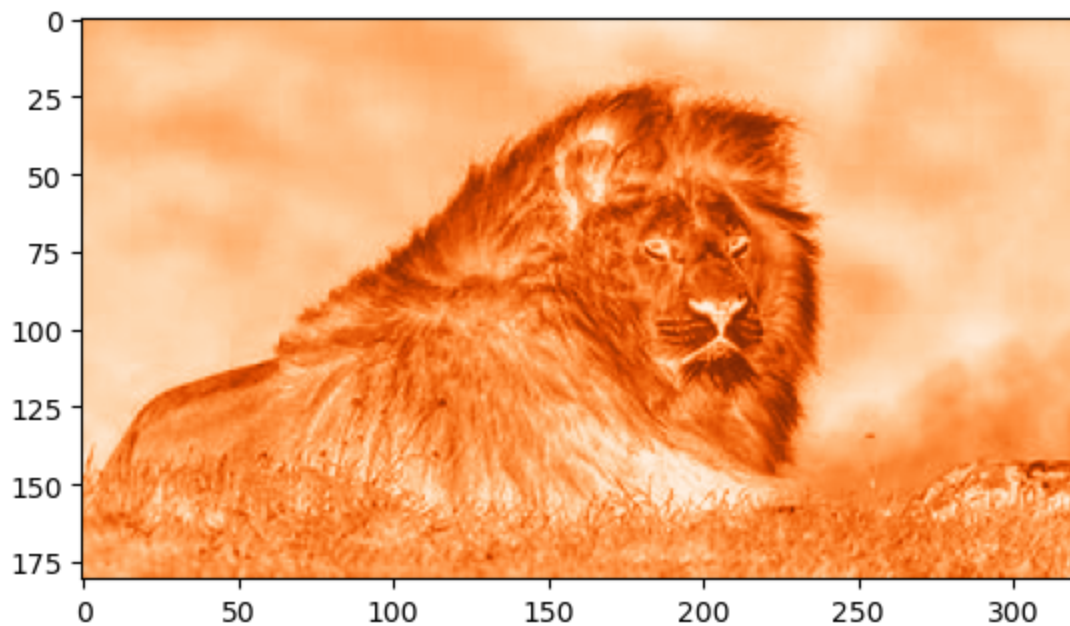
```
In [70]: plt.show()
```



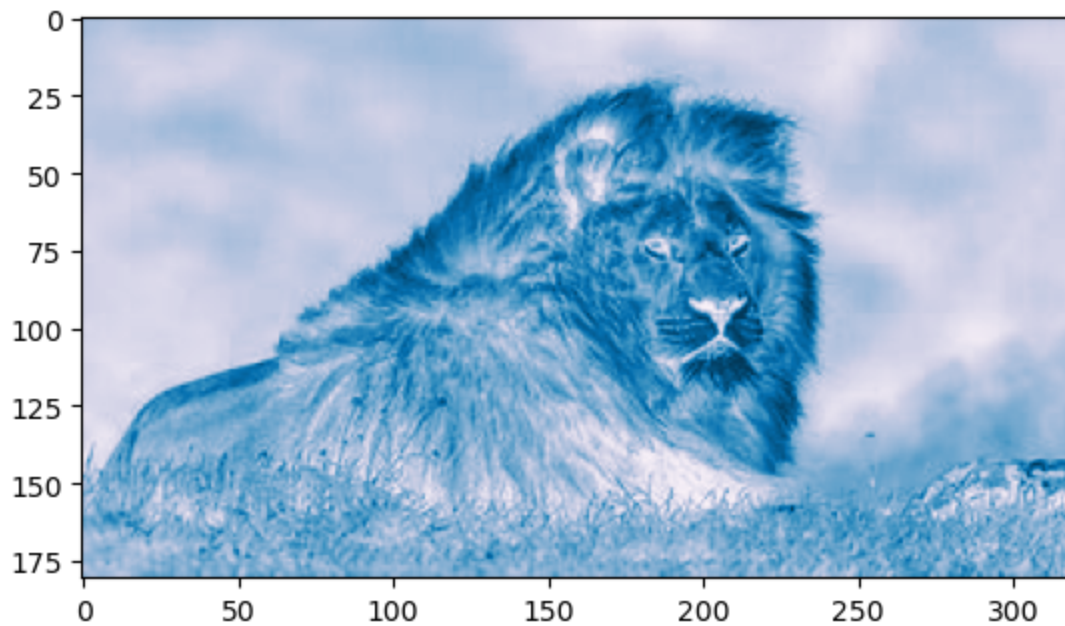
```
In [76]: plt.imshow(lion_red[:, :, 0], cmap='Oranges')
```

```
Out[76]: <matplotlib.image.AxesImage at 0x1da624026f0>
```

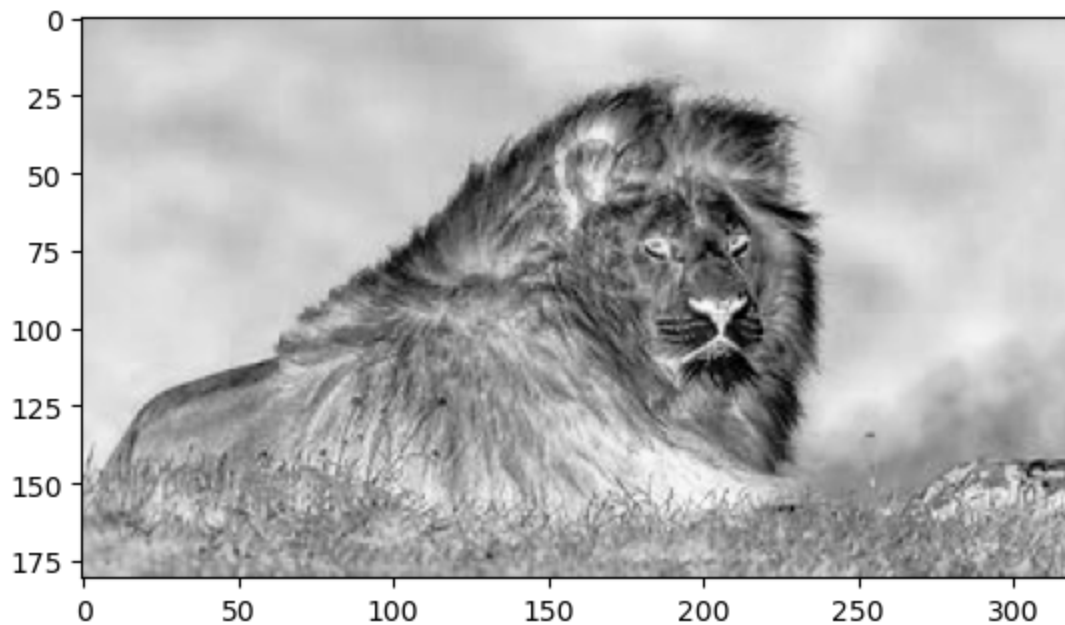
```
In [78]: plt.show()
```



```
In [80]: plt.imshow(lion_red[:, :, 0], cmap='PuBu')  
plt.show()
```



```
In [82]: plt.imshow(lion_red[:, :, 0], cmap='Greys')  
plt.show()
```



```
In [84]: lion_green = lion_red
```

```
In [86]: lion_green
```



```

Out[86]: array([[[ 99,  99,  27],
                  [ 97,  97,  25],
                  [ 95,  95,  25],
                  ...,
                  [ 72,  61,  15],
                  [ 73,  62,  16],
                  [ 74,  63,  17]],

                [[ 97,  97,  25],
                  [ 95,  95,  23],
                  [ 93,  93,  23],
                  ...,
                  [ 71,  60,  14],
                  [ 72,  61,  15],
                  [ 73,  62,  16]],

                [[ 95,  95,  23],
                  [ 93,  93,  23],
                  [ 91,  91,  21],
                  ...,
                  [ 68,  57,  12],
                  [ 69,  58,  13],
                  [ 70,  59,  14]],

                ...,

                [[ 82,  89,   0],
                  [ 84,  91,   0],
                  [ 92,  99,   3],
                  ...,
                  [ 91,  91,  17],
                  [105, 107,  32],
                  [114, 118,  42]],

                [[ 97, 104,   9],
                  [ 95, 102,   7],
                  [ 94, 101,   5],
                  ...,
                  [ 79,  79,   5],
                  [ 95,  97,  22],
                  [ 98, 102,  26]],

                [[112, 119,  24],
                  [107, 114,  19],
                  [ 98, 105,   9],
                  ...,
                  [107, 107,  33],
                  [ 84,  86,  11],
                  [ 74,  78,   2]]], dtype=uint8)

```

```
In [88]: lion_green == lion_red
```

```

Out[88]: array([[ True,  True,  True],
               [ True,  True,  True],
               [ True,  True,  True],
               ...,
               [ True,  True,  True],
               [ True,  True,  True],
               [ True,  True,  True]],

              [[ True,  True,  True],
               [ True,  True,  True],
               [ True,  True,  True],
               ...,
               [ True,  True,  True],
               [ True,  True,  True],
               [ True,  True,  True]],

              [[ True,  True,  True],
               [ True,  True,  True],
               [ True,  True,  True],
               ...,
               [ True,  True,  True],
               [ True,  True,  True],
               [ True,  True,  True]],

              ...,

              [[ True,  True,  True],
               [ True,  True,  True],
               [ True,  True,  True],
               ...,
               [ True,  True,  True],
               [ True,  True,  True],
               [ True,  True,  True]],

              [[ True,  True,  True],
               [ True,  True,  True],
               [ True,  True,  True],
               ...,
               [ True,  True,  True],
               [ True,  True,  True],
               [ True,  True,  True]],

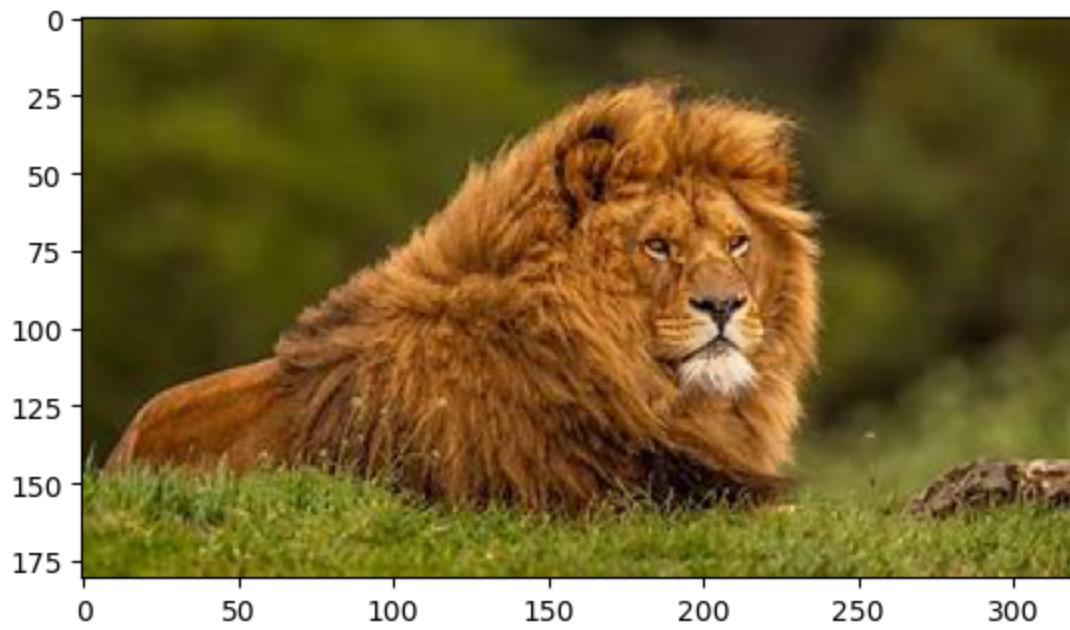
              [[ True,  True,  True],
               [ True,  True,  True],
               [ True,  True,  True],
               ...,
               [ True,  True,  True],
               [ True,  True,  True],
               [ True,  True,  True]]])

```

```
In [90]: plt.imshow(lion_green)
```

```
Out[90]: <matplotlib.image.AxesImage at 0x1da66089130>
```

```
In [94]: plt.show()
```



In []: