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

In [3]:
```
ones_arr = np.ones((5,5),dtype=int)
```

In [5]:
```
ones_arr
```

Out[5]:
```
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 [7]:
```
ones_arr * 255
```

Out[7]:
```
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 [5]:
```
import matplotlib.pyplot as plt
```

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

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

In [11]:
```
lion_img = Image.open(r'C:\Users\rohit\Downloads\pexels-evonics-2564889.jpg')
```

In [13]:
```
lion_img
```

Out[13]:

In [15]:
```
type(lion_img)
```

Out[15]:
```
PIL.JpegImagePlugin.JpegImageFile
```

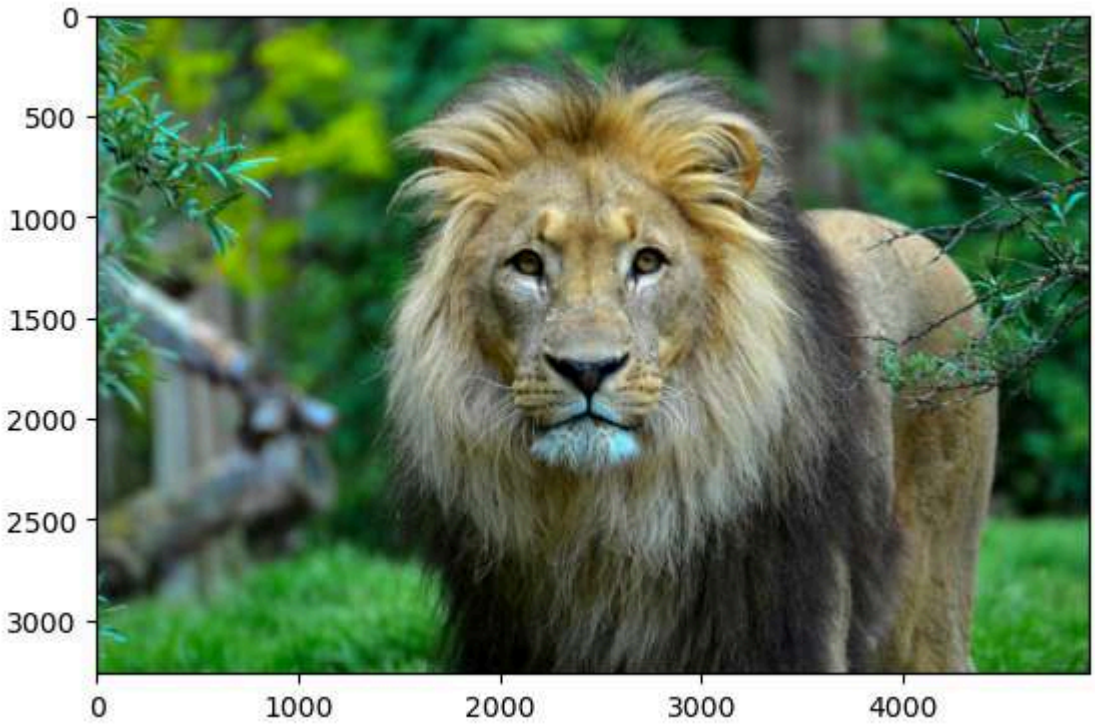
In [17]:
```
lion_arr = np.asarray(lion_img)
lion_arr
```

Out[17]:
```
array([[[ 52, 109,  64],
        [ 56, 113,  68],
        [ 60, 117,  72],
        ...,
        [ 37,  97,  35],
        [ 35,  95,  33],
        [ 34,  94,  32]],

       [[ 55, 112,  67],
        [ 57, 114,  69],
        [ 59, 116,  71],
        ...,
        [ 37,  97,  35],
        [ 36,  96,  34],
        [ 35,  95,  33]],

       [[ 57, 114,  69],
        [ 58, 115,  70],
        [ 58, 114,  69],
        ...,
        [ 38,  98,  36],
        [ 37,  97,  35],
        [ 36,  96,  34]],

       ...,

       [[ 34, 125,   8],
        [ 32, 122,   8],
        [ 30, 118,   8],
        ...,
        [ 21,  84,  29],
        [ 21,  84,  29],
        [ 21,  84,  29]],

       [[ 31, 125,   3],
        [ 31, 122,   3],
        [ 30, 118,   5],
        ...,
        [ 22,  85,  30],
        [ 20,  83,  28],
        [ 19,  82,  27]],

       [[ 30, 124,   0],
        [ 31, 122,   1],
        [ 28, 118,   4],
        ...,
        [ 23,  86,  31],
        [ 20,  83,  28],
        [ 18,  81,  26]]], dtype=uint8)
```

In [19]:
```
type(lion_arr)
```

Out[19]:
```
numpy.ndarray
```

In [23]:
```
plt.imshow(lion_arr)
plt.show()
```



In [25]:
```
lion_arr.shape
```

Out[25]:
```
(3264, 4928, 3)
```

In [27]:
```
lion_red = lion_arr.copy()
```

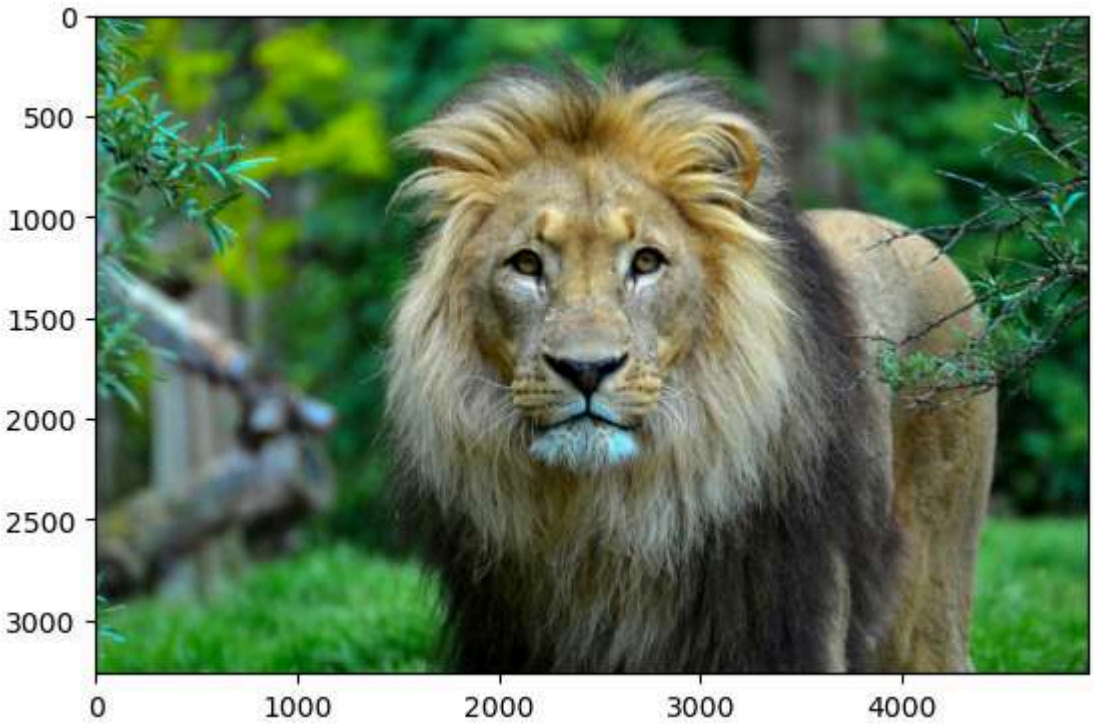
In [29]:
```
lion_red
```

Out[29]:
```
array([[[ 52, 109,  64],
        [ 56, 113,  68],
        [ 60, 117,  72],
        ...,
        [ 37,  97,  35],
        [ 35,  95,  33],
        [ 34,  94,  32]],

       [[ 55, 112,  67],
        [ 57, 114,  69],
        [ 59, 116,  71],
        ...,
        [ 37,  97,  35],
        [ 36,  96,  34],
        [ 35,  95,  33]],

       [[ 57, 114,  69],
        [ 58, 115,  70],
        [ 58, 114,  69],
        ...,
        [ 38,  98,  36],
        [ 37,  97,  35],
        [ 36,  96,  34]],

       ...,

       [[ 34, 125,   8],
        [ 32, 122,   8],
        [ 30, 118,   8],
        ...,
        [ 21,  84,  29],
        [ 21,  84,  29],
        [ 21,  84,  29]],

       [[ 31, 125,   3],
        [ 31, 122,   3],
        [ 30, 118,   5],
        ...,
        [ 22,  85,  30],
        [ 20,  83,  28],
        [ 19,  82,  27]],

       [[ 30, 124,   0],
        [ 31, 122,   1],
        [ 28, 118,   4],
        ...,
        [ 23,  86,  31],
        [ 20,  83,  28],
        [ 18,  81,  26]]], dtype=uint8)
```

In [31]:
```
lion_arr == lion_red
```

Out[31]:
```
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 [33]:
```
plt.imshow(lion_red)
plt.show()
```



In [35]:
```
lion_red.shape
```

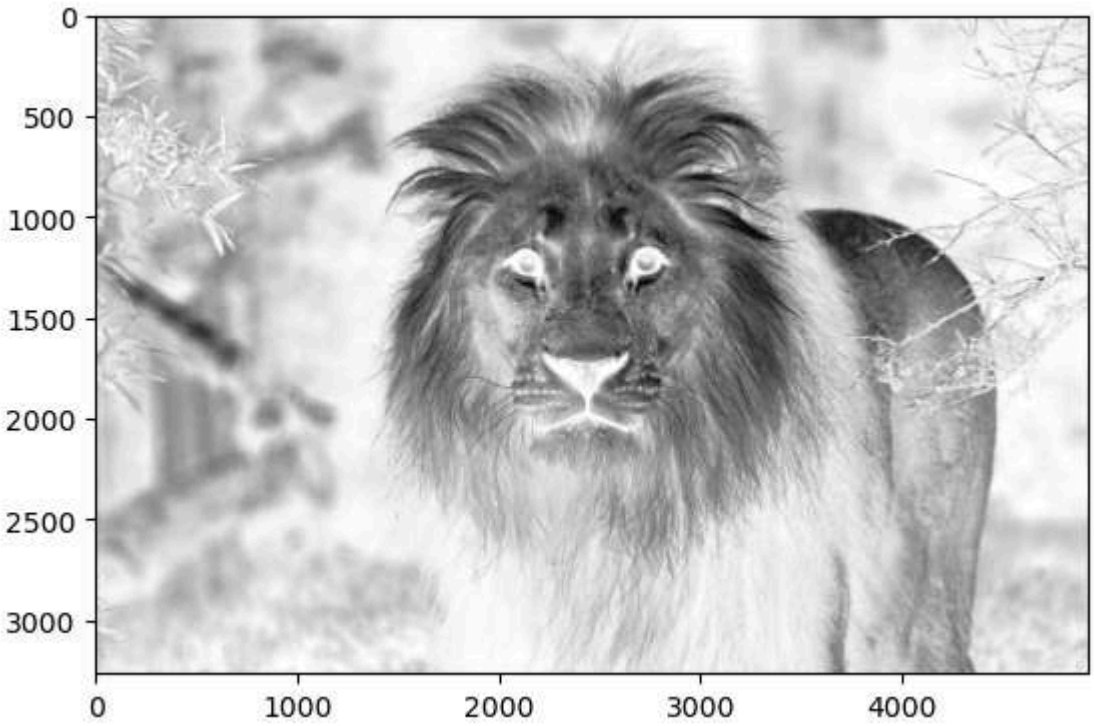
Out[35]: (3264, 4928, 3)

In [41]:
```
plt.imshow(lion_red[:,:,0])
plt.show()
```

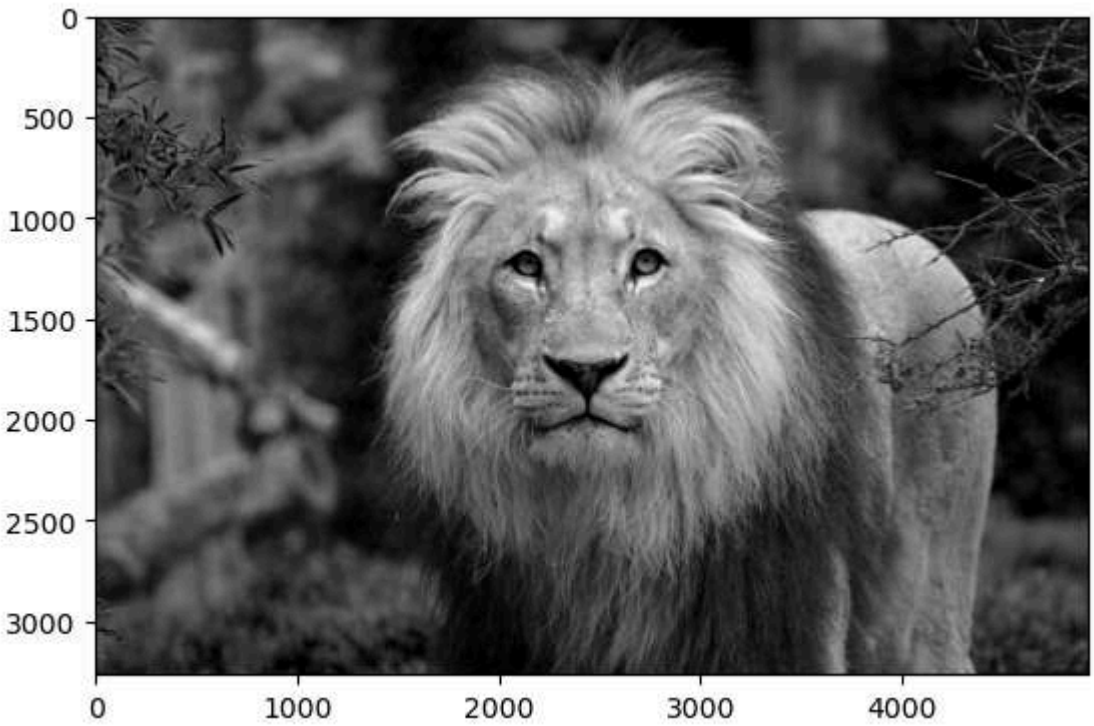
In [43]:
```
lion_red[:,:,0]
```

Out[43]:
```
array([[52, 56, 60, ..., 37, 35, 34],
       [55, 57, 59, ..., 37, 36, 35],
       [57, 58, 58, ..., 38, 37, 36],
       ...,
       [34, 32, 30, ..., 21, 21, 21],
       [31, 31, 30, ..., 22, 20, 19],
       [30, 31, 28, ..., 23, 20, 18]], dtype=uint8)
```

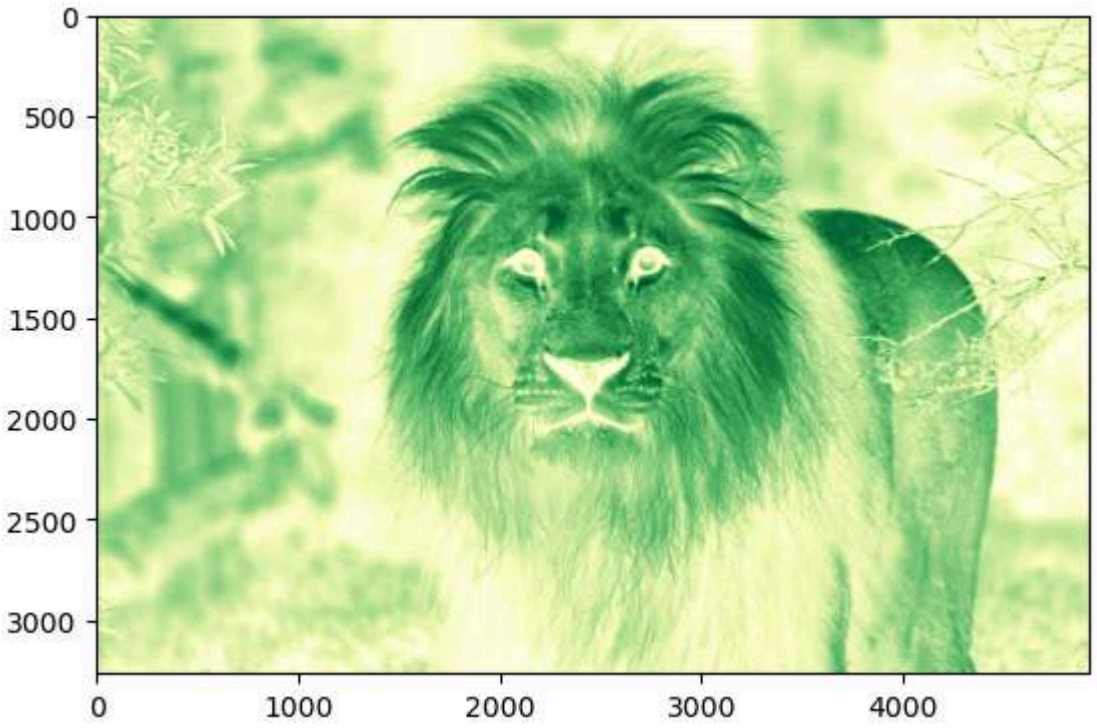
In [47]:
```
plt.imshow(lion_red[:,:,0], cmap='Greys')
plt.show()
```



In [49]:
```
plt.imshow(lion_red[:,:,0], cmap='grey')
plt.show()
```



In [51]:
```
plt.imshow(lion_red[:,:,0], cmap='YlGn')
plt.show()
```



In [55]:
```
lion_red[:,:,0]
```

Out[55]:
```
array([[52, 56, 60, ..., 37, 35, 34],
       [55, 57, 59, ..., 37, 36, 35],
       [57, 58, 58, ..., 38, 37, 36],
       ...,
       [34, 32, 30, ..., 21, 21, 21],
       [31, 31, 30, ..., 22, 20, 19],
       [30, 31, 28, ..., 23, 20, 18]], dtype=uint8)
```

In [57]:
```
lion_red[:,:,1]
```

Out[57]:
```
array([[109, 113, 117, ...,  97,  95,  94],
       [112, 114, 116, ...,  97,  96,  95],
       [114, 115, 114, ...,  98,  97,  96],
       ...,
       [125, 122, 118, ...,  84,  84,  84],
       [125, 122, 118, ...,  85,  83,  82],
       [124, 122, 118, ...,  86,  83,  81]], dtype=uint8)
```

In [61]:
```
lion_red[:,:,2]
```

Out[61]:
```
array([[64, 68, 72, ..., 35, 33, 32],
       [67, 69, 71, ..., 35, 34, 33],
       [69, 70, 69, ..., 36, 35, 34],
       ...,
       [ 8,  8,  8, ..., 29, 29, 29],
       [ 3,  3,  5, ..., 30, 28, 27],
       [ 0,  1,  4, ..., 31, 28, 26]], dtype=uint8)
```

In [65]:
```
lion_red[:,:,1] = 0
```

In [69]:
```
lion_red[:,:,1]
```

Out[69]:
```
array([[0, 0, 0, ..., 0, 0, 0],
       [0, 0, 0, ..., 0, 0, 0],
       [0, 0, 0, ..., 0, 0, 0],
       ...,
       [0, 0, 0, ..., 0, 0, 0],
       [0, 0, 0, ..., 0, 0, 0],
       [0, 0, 0, ..., 0, 0, 0]], dtype=uint8)
```

In [71]:
```
plt.imshow(lion_red)
plt.show()
```

In [73]:
```
lion_red[:,:,2]
```

Out[73]:
```
array([[64, 68, 72, ..., 35, 33, 32],
       [67, 69, 71, ..., 35, 34, 33],
       [69, 70, 69, ..., 36, 35, 34],
       ...,
       [ 8,  8,  8, ..., 29, 29, 29],
       [ 3,  3,  5, ..., 30, 28, 27],
       [ 0,  1,  4, ..., 31, 28, 26]], dtype=uint8)
```

In [75]:
```
lion_red[:,:,2] = 0
```

In [77]:
```
lion_red[:,:,2]
```

Out[77]:
```
array([[0, 0, 0, ..., 0, 0, 0],
       [0, 0, 0, ..., 0, 0, 0],
       [0, 0, 0, ..., 0, 0, 0],
       ...,
       [0, 0, 0, ..., 0, 0, 0],
       [0, 0, 0, ..., 0, 0, 0],
       [0, 0, 0, ..., 0, 0, 0]], dtype=uint8)
```

In [79]:
```
plt.imshow(lion_red)
plt.show()
```

In [81]:
```
lion_arr
```

Out[81]:
```
array([[[ 52, 109,  64],
        [ 56, 113,  68],
        [ 60, 117,  72],
        ...,
        [ 37,  97,  35],
        [ 35,  95,  33],
        [ 34,  94,  32]],

       [[ 55, 112,  67],
        [ 57, 114,  69],
        [ 59, 116,  71],
        ...,
        [ 37,  97,  35],
        [ 36,  96,  34],
        [ 35,  95,  33]],

       [[ 57, 114,  69],
        [ 58, 115,  70],
        [ 58, 114,  69],
        ...,
        [ 38,  98,  36],
        [ 37,  97,  35],
        [ 36,  96,  34]],

       ...,

       [[ 34, 125,   8],
        [ 32, 122,   8],
        [ 30, 118,   8],
        ...,
        [ 21,  84,  29],
        [ 21,  84,  29],
        [ 21,  84,  29]],

       [[ 31, 125,   3],
        [ 31, 122,   3],
        [ 30, 118,   5],
        ...,
        [ 22,  85,  30],
        [ 20,  83,  28],
        [ 19,  82,  27]],

       [[ 30, 124,   0],
        [ 31, 122,   1],
        [ 28, 118,   4],
        ...,
        [ 23,  86,  31],
        [ 20,  83,  28],
        [ 18,  81,  26]]], dtype=uint8)
```

In [83]:
```
lion_red
```

Out[83]:
```
array([[[52,  0,  0],
        [56,  0,  0],
        [60,  0,  0],
        ...,
        [37,  0,  0],
        [35,  0,  0],
        [34,  0,  0]],

       [[55,  0,  0],
        [57,  0,  0],
        [59,  0,  0],
        ...,
        [37,  0,  0],
        [36,  0,  0],
        [35,  0,  0]],

       [[57,  0,  0],
        [58,  0,  0],
        [58,  0,  0],
        ...,
        [38,  0,  0],
        [37,  0,  0],
        [36,  0,  0]],

       ...,

       [[34,  0,  0],
        [32,  0,  0],
        [30,  0,  0],
        ...,
        [21,  0,  0],
        [21,  0,  0],
        [21,  0,  0]],

       [[31,  0,  0],
        [31,  0,  0],
        [30,  0,  0],
        ...,
        [22,  0,  0],
        [20,  0,  0],
        [19,  0,  0]],

       [[30,  0,  0],
        [31,  0,  0],
        [28,  0,  0],
        ...,
        [23,  0,  0],
        [20,  0,  0],
        [18,  0,  0]]], dtype=uint8)
```

In [85]:
```
lion_img
```

Out[85]:

In [87]:
```
arr1 = np.asarray(lion_img)
```

In [89]:
```
arr1
```

Out[89]:
```
array([[[ 52, 109,  64],
        [ 56, 113,  68],
        [ 60, 117,  72],
        ...,
        [ 37,  97,  35],
        [ 35,  95,  33],
        [ 34,  94,  32]],

       [[ 55, 112,  67],
        [ 57, 114,  69],
        [ 59, 116,  71],
        ...,
        [ 37,  97,  35],
        [ 36,  96,  34],
        [ 35,  95,  33]],

       [[ 57, 114,  69],
        [ 58, 115,  70],
        [ 58, 114,  69],
        ...,
        [ 38,  98,  36],
        [ 37,  97,  35],
        [ 36,  96,  34]],

       ...,

       [[ 34, 125,   8],
        [ 32, 122,   8],
        [ 30, 118,   8],
        ...,
        [ 21,  84,  29],
        [ 21,  84,  29],
        [ 21,  84,  29]],

       [[ 31, 125,   3],
        [ 31, 122,   3],
        [ 30, 118,   5],
        ...,
        [ 22,  85,  30],
        [ 20,  83,  28],
        [ 19,  82,  27]],

       [[ 30, 124,   0],
        [ 31, 122,   1],
        [ 28, 118,   4],
        ...,
        [ 23,  86,  31],
        [ 20,  83,  28],
        [ 18,  81,  26]]], dtype=uint8)
```

In [91]:
```
type(arr1)
```

Out[91]:
```
numpy.ndarray
```

In [93]:
```
arr1.shape
```

Out[93]:
```
(3264, 4928, 3)
```

In [95]:
```
plt.imshow(arr1)
plt.show()
```

In [97]:
```
lion_img1  = arr1.copy()
```

In [99]:
```
lion_img1
```

Out[99]:
```
array([[[ 52, 109,  64],
        [ 56, 113,  68],
        [ 60, 117,  72],
        ...,
        [ 37,  97,  35],
        [ 35,  95,  33],
        [ 34,  94,  32]],

       [[ 55, 112,  67],
        [ 57, 114,  69],
        [ 59, 116,  71],
        ...,
        [ 37,  97,  35],
        [ 36,  96,  34],
        [ 35,  95,  33]],

       [[ 57, 114,  69],
        [ 58, 115,  70],
        [ 58, 114,  69],
        ...,
        [ 38,  98,  36],
        [ 37,  97,  35],
        [ 36,  96,  34]],

       ...,

       [[ 34, 125,   8],
        [ 32, 122,   8],
        [ 30, 118,   8],
        ...,
        [ 21,  84,  29],
        [ 21,  84,  29],
        [ 21,  84,  29]],

       [[ 31, 125,   3],
        [ 31, 122,   3],
        [ 30, 118,   5],
        ...,
        [ 22,  85,  30],
        [ 20,  83,  28],
        [ 19,  82,  27]],

       [[ 30, 124,   0],
        [ 31, 122,   1],
        [ 28, 118,   4],
        ...,
        [ 23,  86,  31],
        [ 20,  83,  28],
        [ 18,  81,  26]]], dtype=uint8)
```

In [101…
```
lion_img1[:,:,0] = 0
```

In [103…
```
plt.imshow(lion_img1)
plt.show()
```

In [109…
```
lion_img1[:,:,1] = 0
```

In [111…
```
plt.imshow(lion_img1)
plt.show()
```

In [ ]: