

```
In [12]: import numpy as np
```

```
In [13]: ones_arr = np.ones((5,5))
ones_arr
```

```
Out[13]: 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 [14]: ones_arr = np.ones((5,5) ,dtype = int)
ones_arr
```

```
Out[14]: 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 [15]: zeros_arr = np.zeros((3,3) , dtype = int)
zeros_arr
```

```
Out[15]: array([[0, 0, 0],
 [0, 0, 0],
 [0, 0, 0]])
```

```
In [16]: ones_arr
```

```
Out[16]: 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 [17]: ones_arr * 255
```

```
Out[17]: 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 [18]: zeros_arr
```

```
Out[18]: array([[0, 0, 0],
 [0, 0, 0],
 [0, 0, 0]])
```

```
In [19]: ones_arr
```

```
Out[19]: 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]])
```

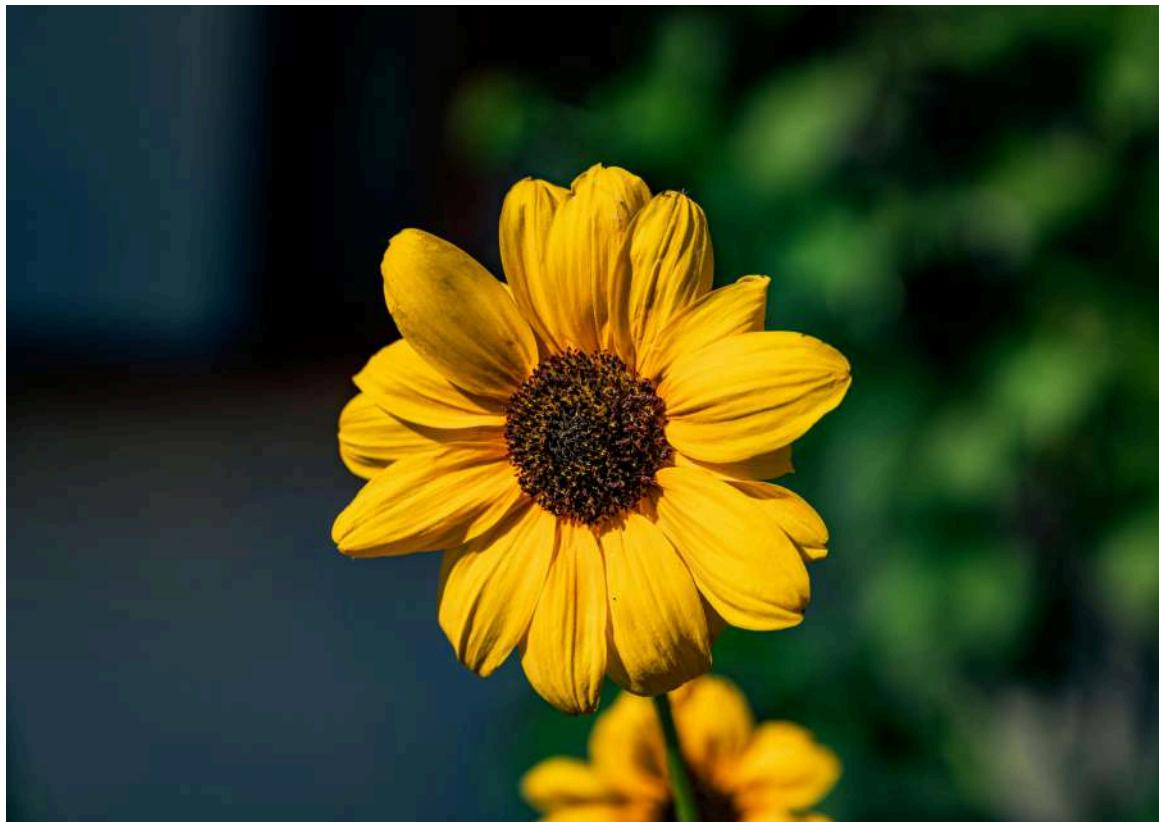
```
In [20]: import matplotlib.pyplot as plt
```

```
In [21]: %matplotlib inline
```

```
In [22]: from PIL import Image #python imaging library
```

```
In [23]: Flower_img = Image.open(r'C:\Users\ankus\Downloads\Flower.jpg')  
Flower_img
```

```
Out[23]:
```



```
In [24]: Hibiscus_img = Image.open(r'C:\Users\ankus\Downloads\Hibiscus.webp')  
Hibiscus_img
```

```
Out[24]:
```



```
In [25]: type(Flower_img)
```

```
Out[25]: PIL.JpegImagePlugin.JpegImageFile
```

```
In [26]: Flower_arr = np.asarray(Flower_img)
Flower_arr
```

```
Out[26]: array([[[16, 45, 59],
   [20, 49, 63],
   [22, 51, 65],
   ...,
   [39, 86, 18],
   [40, 87, 19],
   [40, 87, 19]],

  [[14, 43, 57],
   [17, 46, 60],
   [20, 49, 63],
   ...,
   [39, 86, 18],
   [41, 88, 20],
   [41, 88, 20]],

  [[11, 40, 54],
   [14, 43, 57],
   [17, 46, 60],
   ...,
   [38, 85, 17],
   [46, 93, 25],
   [46, 93, 25]],

  ...,

  [[ 0, 30, 32],
   [ 0, 29, 31],
   [ 0, 29, 31],
   ...,
   [ 7, 57, 22],
   [ 4, 54, 19],
   [ 6, 56, 21]],

  [[ 2, 33, 35],
   [ 1, 32, 34],
   [ 0, 31, 33],
   ...,
   [ 6, 56, 21],
   [10, 60, 25],
   [12, 62, 27]],

  [[ 5, 36, 38],
   [ 4, 35, 37],
   [ 2, 33, 35],
   ...,
   [ 4, 54, 19],
   [13, 63, 28],
   [15, 65, 30]]], dtype=uint8)
```

```
In [27]: type(Flower_arr)
```

```
Out[27]: numpy.ndarray
```

```
In [28]: Flower_arr.shape
```

```
Out[28]: (4032, 5674, 3)
```

```
In [33]: plt.imshow(Flower_arr)  
plt.show()
```



```
In [30]: Flower_red = Flower_arr.copy()  
Flower_red
```

```
Out[30]: array([[[16, 45, 59],  
                 [20, 49, 63],  
                 [22, 51, 65],  
                 ...,  
                 [39, 86, 18],  
                 [40, 87, 19],  
                 [40, 87, 19]],  
  
                [[14, 43, 57],  
                 [17, 46, 60],  
                 [20, 49, 63],  
                 ...,  
                 [39, 86, 18],  
                 [41, 88, 20],  
                 [41, 88, 20]],  
  
                [[11, 40, 54],  
                 [14, 43, 57],  
                 [17, 46, 60],  
                 ...,  
                 [38, 85, 17],  
                 [46, 93, 25],  
                 [46, 93, 25]],  
  
                ...,  
  
                [[ 0, 30, 32],  
                 [ 0, 29, 31],  
                 [ 0, 29, 31],  
                 ...,  
                 [ 7, 57, 22],  
                 [ 4, 54, 19],  
                 [ 6, 56, 21]],  
  
                [[ 2, 33, 35],  
                 [ 1, 32, 34],  
                 [ 0, 31, 33],  
                 ...,  
                 [ 6, 56, 21],  
                 [10, 60, 25],  
                 [12, 62, 27]],  
  
                [[ 5, 36, 38],  
                 [ 4, 35, 37],  
                 [ 2, 33, 35],  
                 ...,  
                 [ 4, 54, 19],  
                 [13, 63, 28],  
                 [15, 65, 30]]], dtype=uint8)
```

```
In [31]: Flower_arr == Flower_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]],

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

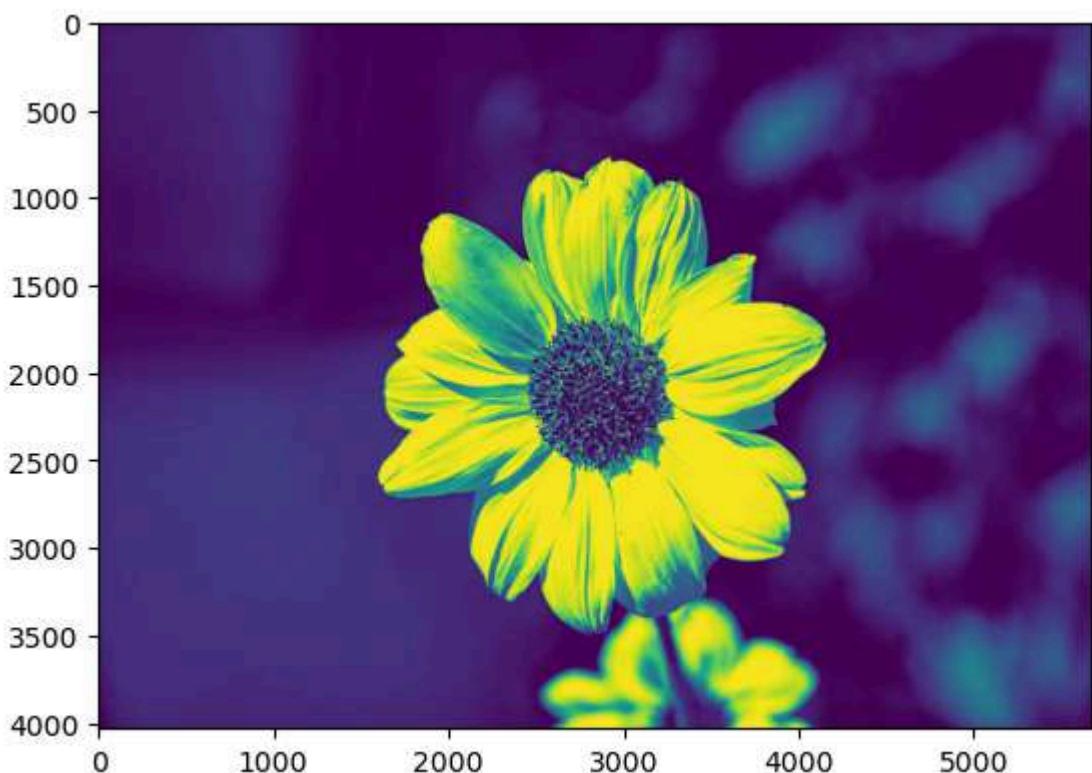
```
In [35]: plt.imshow(Flower_red)
plt.show()
```



```
In [36]: Flower_red.shape
```

```
Out[36]: (4032, 5674, 3)
```

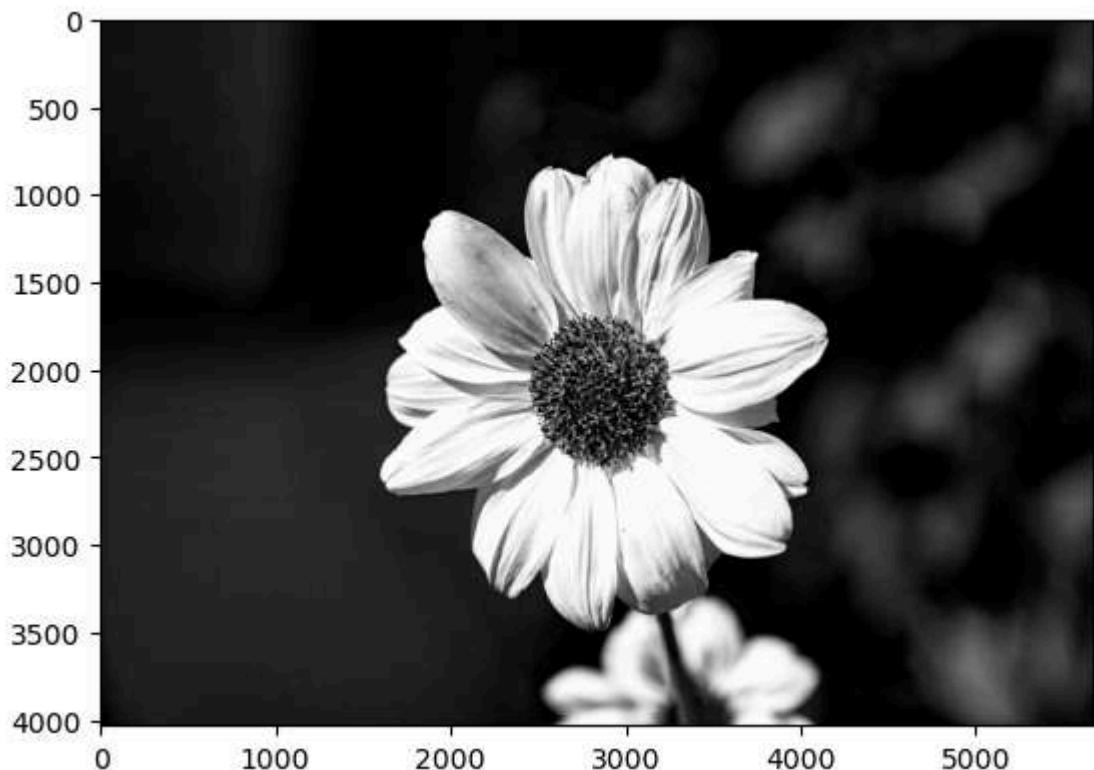
```
In [40]: plt.imshow(Flower_red[:, :, 0])      # R G B  
plt.show()
```



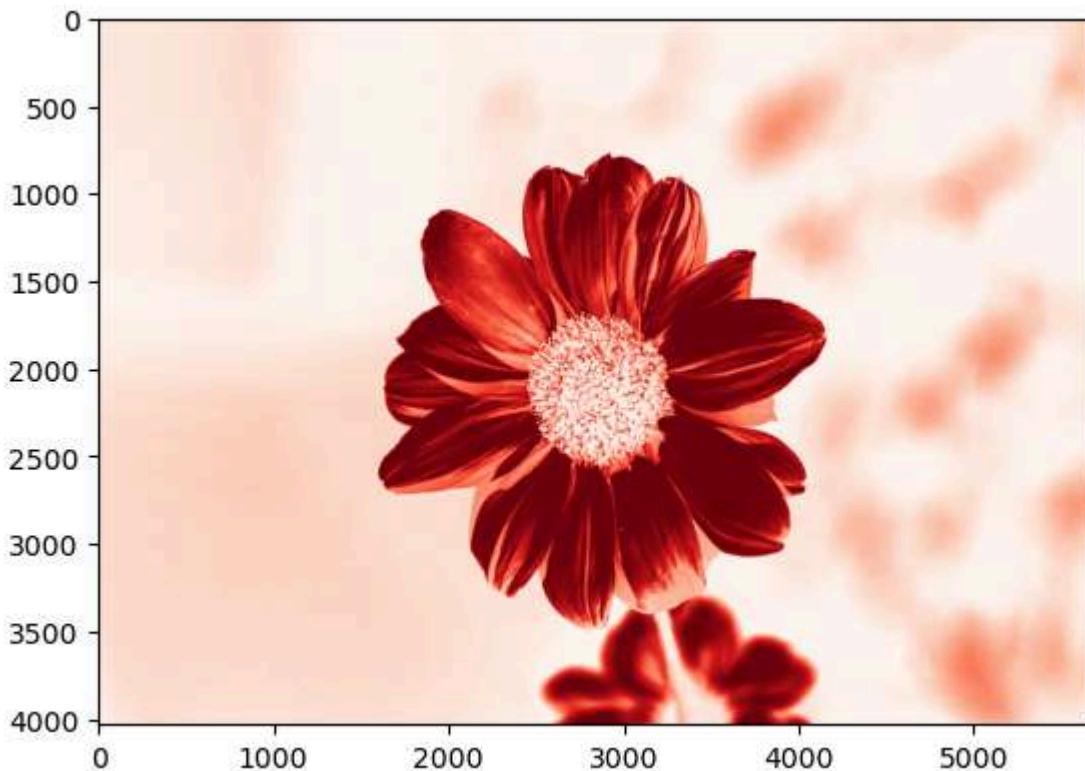
```
In [41]: Flower_red[:, :, 0]
```

```
Out[41]: array([[16, 20, 22, ..., 39, 40, 40],  
   [14, 17, 20, ..., 39, 41, 41],  
   [11, 14, 17, ..., 38, 46, 46],  
   ...,  
   [ 0,  0,  0, ...,  7,  4,  6],  
   [ 2,  1,  0, ...,  6, 10, 12],  
   [ 5,  4,  2, ...,  4, 13, 15]], dtype=uint8)
```

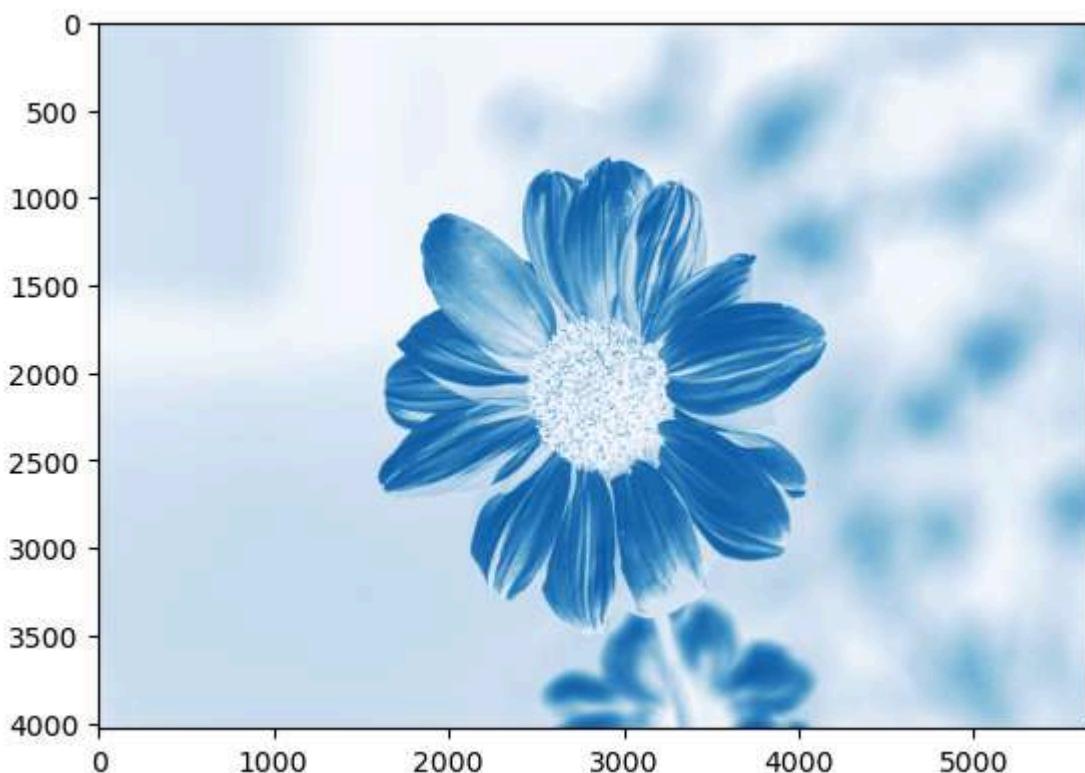
```
In [43]: plt.imshow(Flower_red[:, :, 0], cmap = 'gray')  
plt.show()
```



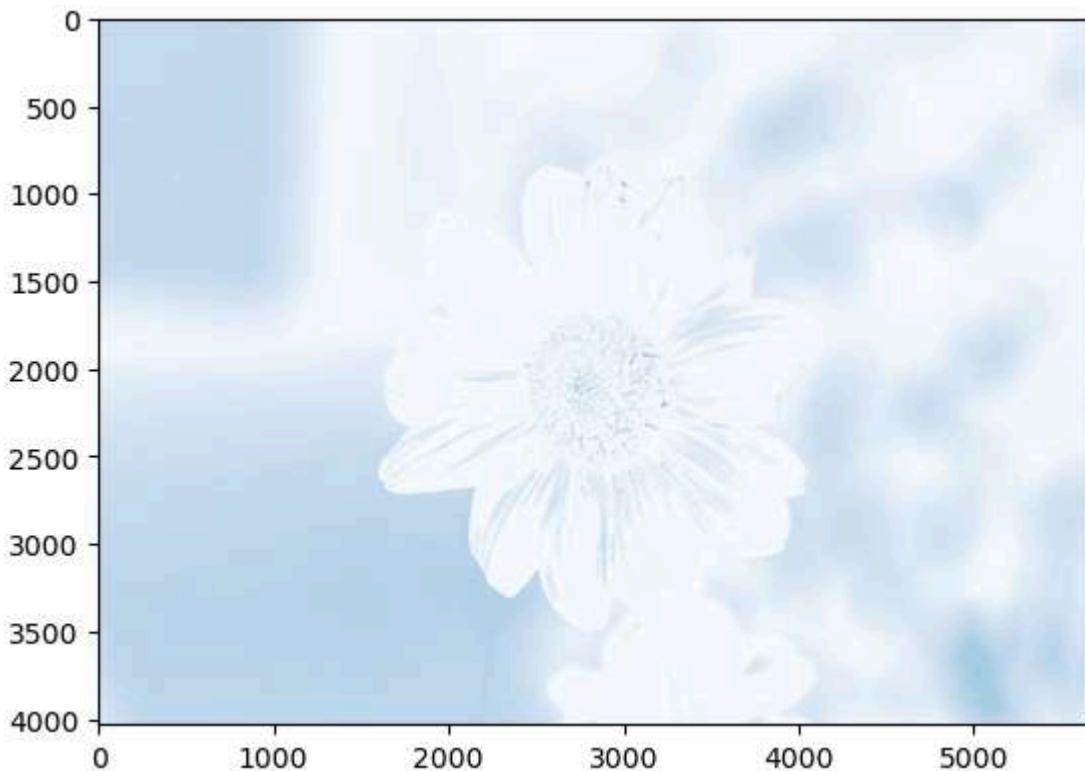
```
In [46]: plt.imshow(Flower_red[:, :, 0], cmap = 'Reds')  
plt.show()
```



```
In [47]: plt.imshow(Flower_red[:, :, 1], cmap = 'Blues')  
plt.show()
```



```
In [49]: plt.imshow(Flower_red[:, :, 2], cmap = 'Blues')  
plt.show()
```



```
In [50]: Flower_red[:, :, 0]
```

```
Out[50]: array([[16, 20, 22, ..., 39, 40, 40],
 [14, 17, 20, ..., 39, 41, 41],
 [11, 14, 17, ..., 38, 46, 46],
 ...,
 [ 0,  0,  0, ...,  7,  4,  6],
 [ 2,  1,  0, ...,  6, 10, 12],
 [ 5,  4,  2, ...,  4, 13, 15]], dtype=uint8)
```

```
In [51]: Flower_red[:, :, 1]
```

```
Out[51]: array([[45, 49, 51, ..., 86, 87, 87],
 [43, 46, 49, ..., 86, 88, 88],
 [40, 43, 46, ..., 85, 93, 93],
 ...,
 [30, 29, 29, ..., 57, 54, 56],
 [33, 32, 31, ..., 56, 60, 62],
 [36, 35, 33, ..., 54, 63, 65]], dtype=uint8)
```

```
In [52]: Flower_red[:, :, 2]
```

```
Out[52]: array([[59, 63, 65, ..., 18, 19, 19],
 [57, 60, 63, ..., 18, 20, 20],
 [54, 57, 60, ..., 17, 25, 25],
 ...,
 [32, 31, 31, ..., 22, 19, 21],
 [35, 34, 33, ..., 21, 25, 27],
 [38, 37, 35, ..., 19, 28, 30]], dtype=uint8)
```

```
In [55]: Flower_red[:, :, 1] = 0
Flower_red[:, :, 1]
```

```
Out[55]: 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 [56]: plt.imshow(Flower_red)  
plt.show()
```



```
In [57]: Flower_red[:, :, 2] = 0  
Flower_red[:, :, 2]
```

```
Out[57]: 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 [58]: plt.imshow(Flower_red)  
plt.show()
```

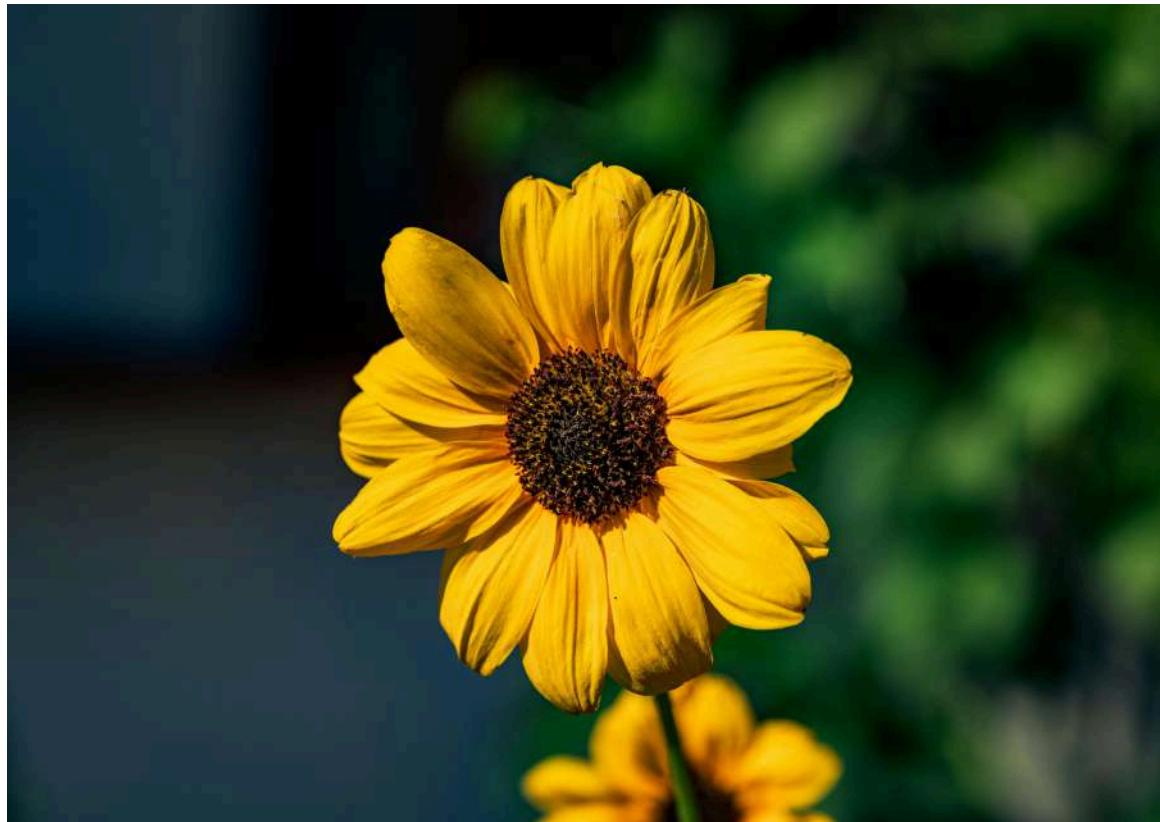


```
In [60]: Flower_arr
```

```
Out[60]: array([[[16, 45, 59],  
                 [20, 49, 63],  
                 [22, 51, 65],  
                 ...,  
                 [39, 86, 18],  
                 [40, 87, 19],  
                 [40, 87, 19]],  
  
                [[14, 43, 57],  
                 [17, 46, 60],  
                 [20, 49, 63],  
                 ...,  
                 [39, 86, 18],  
                 [41, 88, 20],  
                 [41, 88, 20]],  
  
                [[11, 40, 54],  
                 [14, 43, 57],  
                 [17, 46, 60],  
                 ...,  
                 [38, 85, 17],  
                 [46, 93, 25],  
                 [46, 93, 25]],  
  
                ...,  
  
                [[ 0, 30, 32],  
                 [ 0, 29, 31],  
                 [ 0, 29, 31],  
                 ...,  
                 [ 7, 57, 22],  
                 [ 4, 54, 19],  
                 [ 6, 56, 21]],  
  
                [[ 2, 33, 35],  
                 [ 1, 32, 34],  
                 [ 0, 31, 33],  
                 ...,  
                 [ 6, 56, 21],  
                 [10, 60, 25],  
                 [12, 62, 27]],  
  
                [[ 5, 36, 38],  
                 [ 4, 35, 37],  
                 [ 2, 33, 35],  
                 ...,  
                 [ 4, 54, 19],  
                 [13, 63, 28],  
                 [15, 65, 30]]], dtype=uint8)
```

```
In [61]: Flower_img
```

Out[61]:

In [62]: `arr1 = np.asarray(Flower_img)`In [63]: `type(arr1)`Out[63]: `numpy.ndarray`In [64]: `arr1.shape`Out[64]: `(4032, 5674, 3)`In [66]: `plt.imshow(arr1)
plt.show()`



```
In [67]: Flower_img1 = arr1.copy()
```

```
In [68]: Flower_img1[:, :, 0] = 0
```

```
In [69]: plt.imshow(Flower_img1)  
plt.show()
```

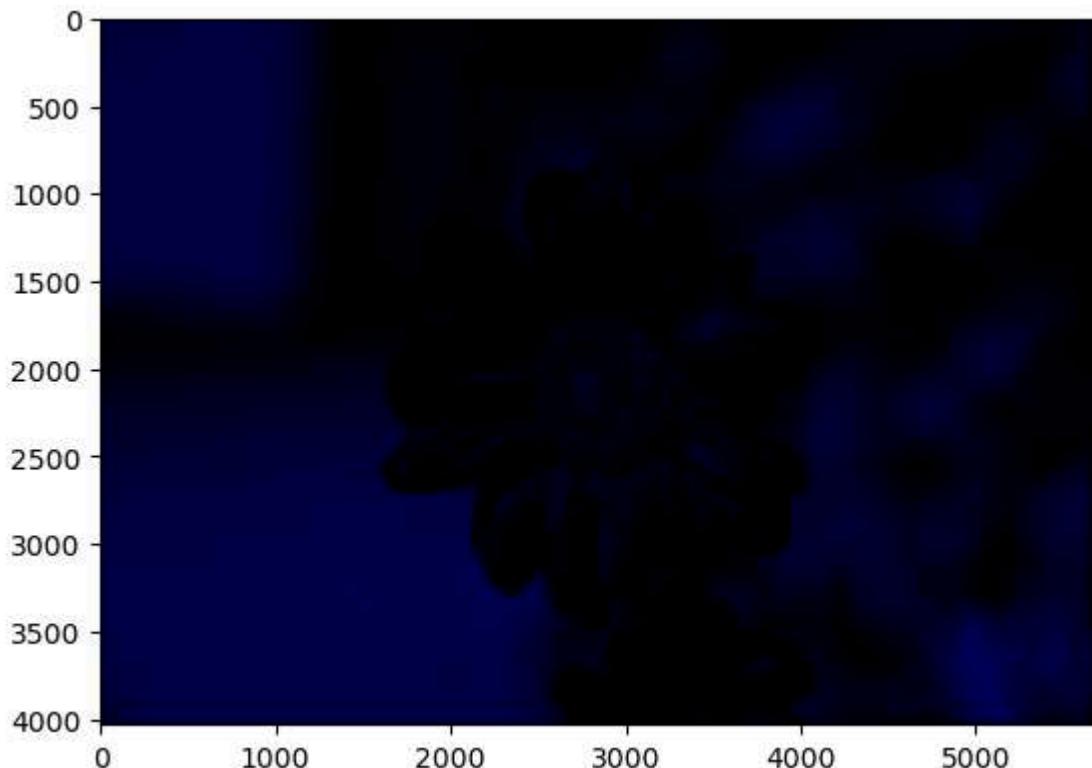


```
In [70]: Flower_img1[:, :, 1]
```

```
Out[70]: array([[45, 49, 51, ..., 86, 87, 87],  
   [43, 46, 49, ..., 86, 88, 88],  
   [40, 43, 46, ..., 85, 93, 93],  
   ...,  
   [30, 29, 29, ..., 57, 54, 56],  
   [33, 32, 31, ..., 56, 60, 62],  
   [36, 35, 33, ..., 54, 63, 65]], dtype=uint8)
```

```
In [71]: Flower_img1[:, :, 1] = 0
```

```
In [72]: plt.imshow(Flower_img1)  
plt.show()
```



```
In [ ]:
```