

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

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

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

```
Out[5]: array([[1., 1., 1.],  
               [1., 1., 1.],  
               [1., 1., 1.]])
```

```
In [7]: ones_arr = np.ones((5,5),dtype = int)
```

```
In [9]: ones_arr
```

```
Out[9]: 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 [11]: ones_arr * 255
```

```
Out[11]: 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 [13]: 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 [15]: import matplotlib.pyplot as plt
```

```
In [17]: %matplotlib inline
```

```
In [19]: from PIL import Image # python imaging library
```

```
In [23]: flower_img = Image.open(r'C:\Users\kavya\OneDrive\Desktop\flowerimage.webp')
```

```
In [25]: flower_img
```

Out[25]:

In [27]: `type(flower_img)`Out[27]: `PIL.WebPImagePlugin.WebPImageFile`In [29]: `flower_arr = np.asarray(flower_img)`  
`flower_arr`

```
Out[29]: array([[[ 31,  42,  18],
   [ 31,  42,  18],
   [ 31,  42,  18],
   ...,
   [208,  97, 219],
   [204,  93, 214],
   [200,  89, 211]],

   [[ 31,  42,  18],
   [ 31,  42,  18],
   [ 31,  42,  18],
   ...,
   [210,  97, 219],
   [205,  92, 214],
   [202,  88, 211]],

   [[ 31,  42,  18],
   [ 31,  42,  18],
   [ 31,  42,  18],
   ...,
   [211,  96, 219],
   [207,  91, 214],
   [203,  88, 211]],

   ...,

   [[ 32,  54,    6],
   [ 31,  53,    4],
   [ 31,  53,    4],
   ...,
   [ 74,  93,  32],
   [ 68,  94,  31],
   [ 65,  94,  30]],

   [[ 34,  55,    7],
   [ 32,  54,    6],
   [ 32,  54,    6],
   ...,
   [ 77,  91,  32],
   [ 71,  93,  31],
   [ 67,  93,  30]],

   [[ 34,  55,    7],
   [ 32,  54,    6],
   [ 32,  54,    6],
   ...,
   [ 82,  91,  31],
   [ 76,  93,  30],
   [ 71,  93,  29]]], dtype=uint8)
```

```
In [31]: type(flower_arr)
```

```
Out[31]: numpy.ndarray
```

```
In [33]: plt.imshow(flower_arr)
```

```
Out[33]: <matplotlib.image.AxesImage at 0x1dfda877ad0>
```



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

```
Out[35]: (1365, 2048, 3)
```

```
In [53]: flower_red = flower_arr.copy()
```

```
In [55]: flower_red
```

```
Out[55]: array([[[ 31,  42,  18],
   [ 31,  42,  18],
   [ 31,  42,  18],
   ...,
   [208,  97, 219],
   [204,  93, 214],
   [200,  89, 211]],

   [[ 31,  42,  18],
   [ 31,  42,  18],
   [ 31,  42,  18],
   ...,
   [210,  97, 219],
   [205,  92, 214],
   [202,  88, 211]],

   [[ 31,  42,  18],
   [ 31,  42,  18],
   [ 31,  42,  18],
   ...,
   [211,  96, 219],
   [207,  91, 214],
   [203,  88, 211]],

   ...,

   [[ 32,  54,    6],
   [ 31,  53,    4],
   [ 31,  53,    4],
   ...,
   [ 74,  93,  32],
   [ 68,  94,  31],
   [ 65,  94,  30]],

   [[ 34,  55,    7],
   [ 32,  54,    6],
   [ 32,  54,    6],
   ...,
   [ 77,  91,  32],
   [ 71,  93,  31],
   [ 67,  93,  30]],

   [[ 34,  55,    7],
   [ 32,  54,    6],
   [ 32,  54,    6],
   ...,
   [ 82,  91,  31],
   [ 76,  93,  30],
   [ 71,  93,  29]]], dtype=uint8)
```

```
In [57]: flower_arr == flower_red
```

```
Out[57]: 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 [45]: plt.imshow(flower_arr)
```

```
Out[45]: <matplotlib.image.AxesImage at 0x1dfda9ca000>
```



```
In [59]: plt.imshow(flower_red)
```

```
Out[59]: <matplotlib.image.AxesImage at 0x1dfe08cd3a0>
```

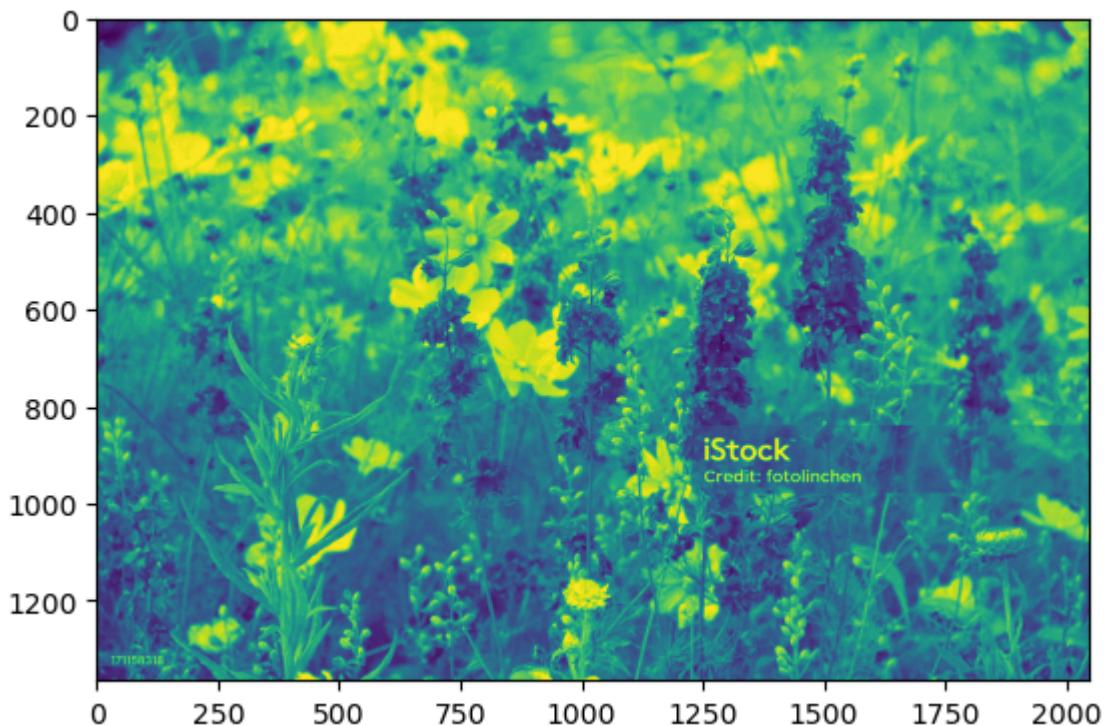


```
In [61]: flower_red.shape
```

```
Out[61]: (1365, 2048, 3)
```

```
In [63]: plt.imshow(flower_red[:, :, 0]) # R G B colours
```

```
Out[63]: <matplotlib.image.AxesImage at 0x1dfe08cd1f0>
```

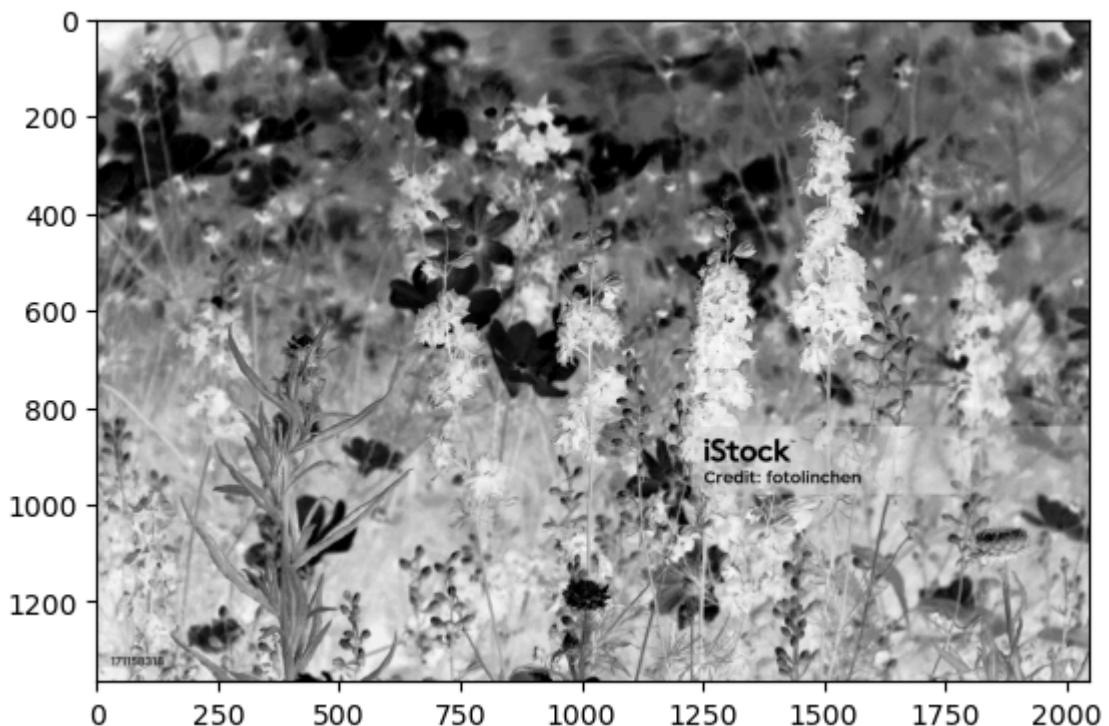


```
In [65]: flower_red[:, :, 0]
```

```
Out[65]: array([[ 31,  31,  31, ..., 208, 204, 200],  
   [ 31,  31,  31, ..., 210, 205, 202],  
   [ 31,  31,  31, ..., 211, 207, 203],  
   ...,  
   [ 32,  31,  31, ..., 74,  68,  65],  
   [ 34,  32,  32, ..., 77,  71,  67],  
   [ 34,  32,  32, ..., 82,  76,  71]], dtype=uint8)
```

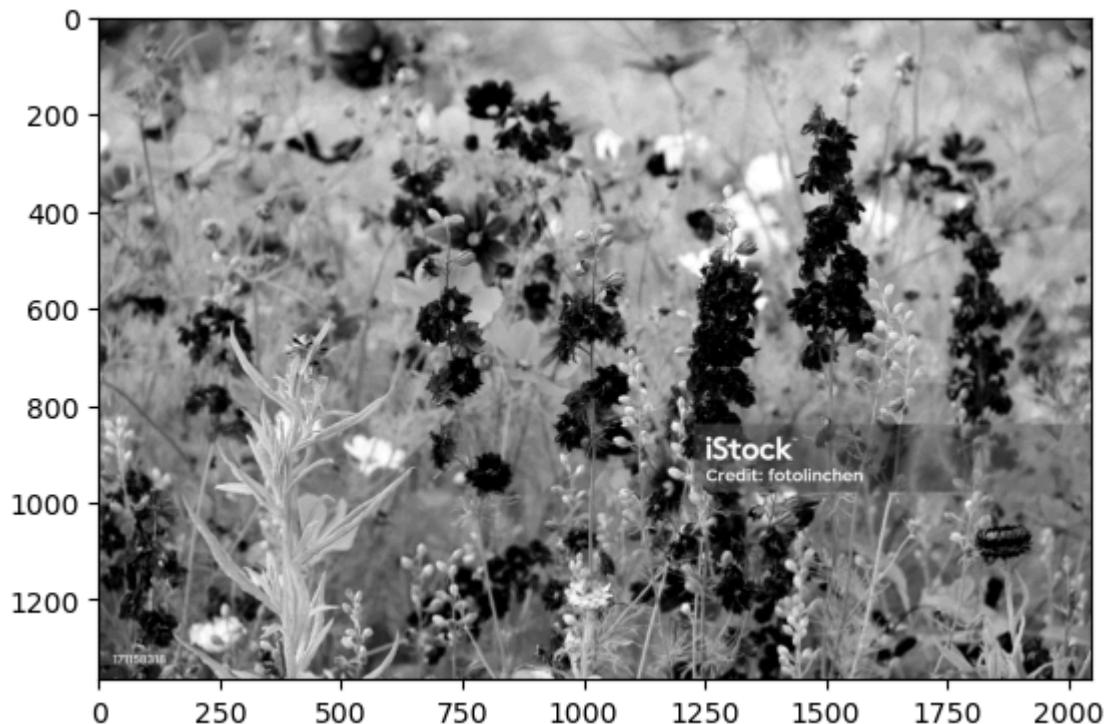
```
In [67]: plt.imshow(flower_red[:, :, 0], cmap='Greys')
```

```
Out[67]: <matplotlib.image.AxesImage at 0x1dfda9ca510>
```



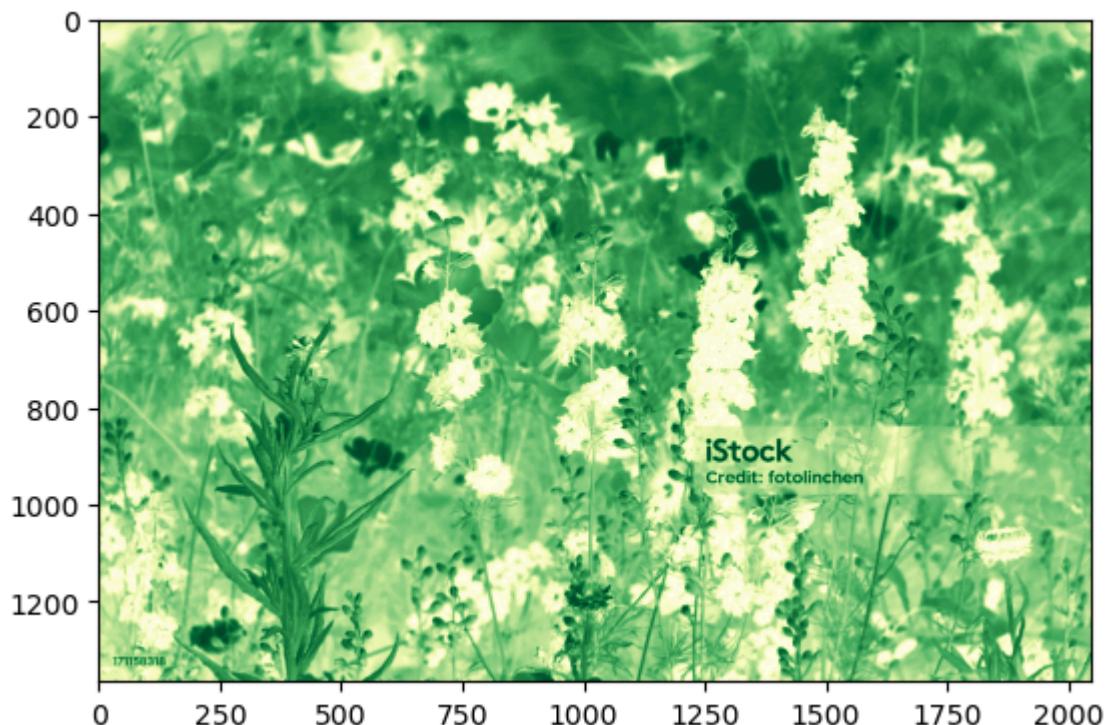
```
In [71]: plt.imshow(flower_red[:, :, 1], cmap='grey')
```

Out[71]: <matplotlib.image.AxesImage at 0x1dfe6663410>



```
In [73]: plt.imshow(flower_red[:, :, 1], cmap='YlGn')
```

Out[73]: <matplotlib.image.AxesImage at 0x1dfe66891f0>



```
In [77]: flower_red[:, :, 0]
```

```
Out[77]: array([[ 31,  31,  31, ..., 208, 204, 200],  
                 [ 31,  31,  31, ..., 210, 205, 202],  
                 [ 31,  31,  31, ..., 211, 207, 203],  
                 ...,  
                 [ 32,  31,  31, ..., 74,  68,  65],  
                 [ 34,  32,  32, ..., 77,  71,  67],  
                 [ 34,  32,  32, ..., 82,  76,  71]], dtype=uint8)
```

```
In [79]: flower_red[:, :, 1]
```

```
Out[79]: array([[42, 42, 42, ..., 97, 93, 89],  
                  [42, 42, 42, ..., 97, 92, 88],  
                  [42, 42, 42, ..., 96, 91, 88],  
                  ...,  
                  [54, 53, 53, ..., 93, 94, 94],  
                  [55, 54, 54, ..., 91, 93, 93],  
                  [55, 54, 54, ..., 91, 93, 93]], dtype=uint8)
```

```
In [81]: flower_red[:, :, 2]
```

```
Out[81]: array([[ 18,  18,  18, ..., 219, 214, 211],  
                  [ 18,  18,  18, ..., 219, 214, 211],  
                  [ 18,  18,  18, ..., 219, 214, 211],  
                  ...,  
                  [ 6,   4,   4, ..., 32,  31,  30],  
                  [ 7,   6,   6, ..., 32,  31,  30],  
                  [ 7,   6,   6, ..., 31,  30,  29]], dtype=uint8)
```

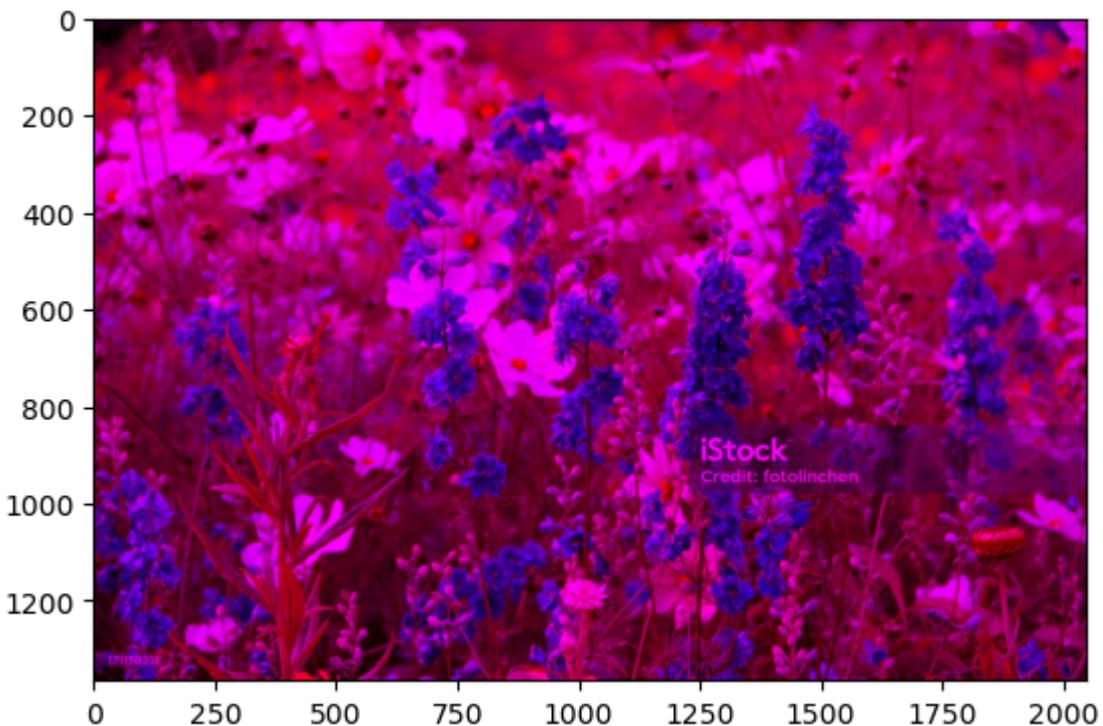
```
In [83]: flower_red[:, :, 1] = 0
```

```
In [85]: flower_red[:, :, 1]
```

```
Out[85]: 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 [87]: plt.imshow(flower_red)
```

```
Out[87]: <matplotlib.image.AxesImage at 0x1dfe6ae69c0>
```



```
In [89]: flower_red[:, :, 2]
```

```
Out[89]: array([[ 18,  18,  18, ..., 219, 214, 211],  
                 [ 18,  18,  18, ..., 219, 214, 211],  
                 [ 18,  18,  18, ..., 219, 214, 211],  
                 ...,  
                 [  6,   4,   4, ...,  32,  31,  30],  
                 [  7,   6,   6, ...,  32,  31,  30],  
                 [  7,   6,   6, ...,  31,  30,  29]], dtype=uint8)
```

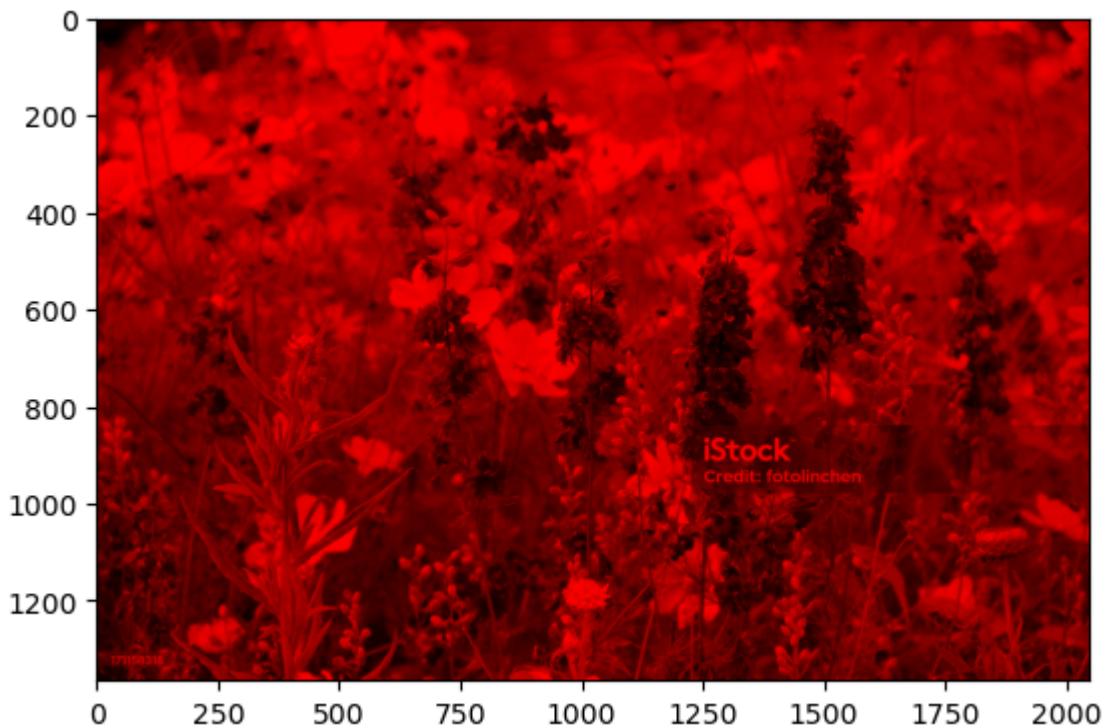
```
In [91]: flower_red[:, :, 2] = 0
```

```
In [93]: flower_red[:, :, 2]
```

```
Out[93]: 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 [95]: plt.imshow(flower_red)
```

```
Out[95]: <matplotlib.image.AxesImage at 0x1dfe76afb60>
```



```
In [97]: flower_arr
```

```
Out[97]: array([[[ 31,  42,  18],
   [ 31,  42,  18],
   [ 31,  42,  18],
   ...,
   [208,  97, 219],
   [204,  93, 214],
   [200,  89, 211]],

   [[ 31,  42,  18],
   [ 31,  42,  18],
   [ 31,  42,  18],
   ...,
   [210,  97, 219],
   [205,  92, 214],
   [202,  88, 211]],

   [[ 31,  42,  18],
   [ 31,  42,  18],
   [ 31,  42,  18],
   ...,
   [211,  96, 219],
   [207,  91, 214],
   [203,  88, 211]],

   ...,

   [[ 32,  54,    6],
   [ 31,  53,    4],
   [ 31,  53,    4],
   ...,
   [ 74,  93,  32],
   [ 68,  94,  31],
   [ 65,  94,  30]],

   [[ 34,  55,    7],
   [ 32,  54,    6],
   [ 32,  54,    6],
   ...,
   [ 77,  91,  32],
   [ 71,  93,  31],
   [ 67,  93,  30]],

   [[ 34,  55,    7],
   [ 32,  54,    6],
   [ 32,  54,    6],
   ...,
   [ 82,  91,  31],
   [ 76,  93,  30],
   [ 71,  93,  29]]], dtype=uint8)
```

```
In [99]: flower_red
```

```
Out[99]: array([[[ 31,    0,    0],
   [ 31,    0,    0],
   [ 31,    0,    0],
   ...,
   [208,    0,    0],
   [204,    0,    0],
   [200,    0,    0]],

   [[ 31,    0,    0],
   [ 31,    0,    0],
   [ 31,    0,    0],
   ...,
   [210,    0,    0],
   [205,    0,    0],
   [202,    0,    0]],

   [[ 31,    0,    0],
   [ 31,    0,    0],
   [ 31,    0,    0],
   ...,
   [211,    0,    0],
   [207,    0,    0],
   [203,    0,    0]],

   ...,

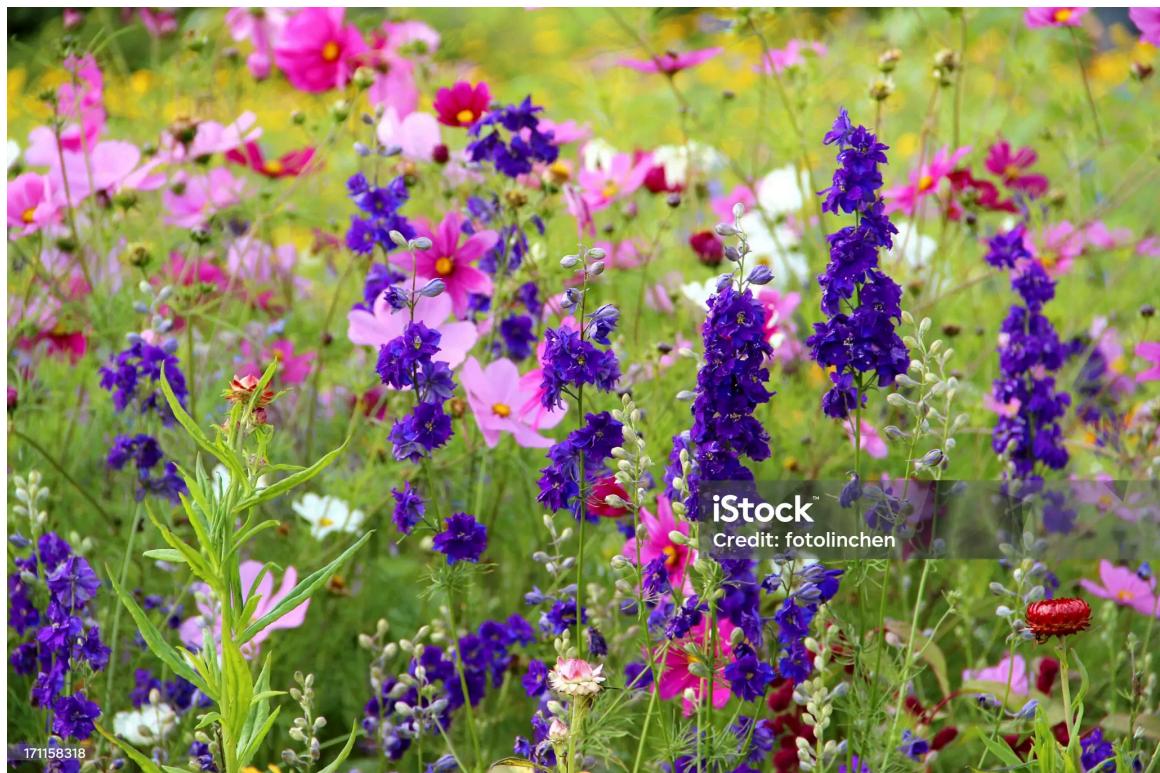
   [[ 32,    0,    0],
   [ 31,    0,    0],
   [ 31,    0,    0],
   ...,
   [ 74,    0,    0],
   [ 68,    0,    0],
   [ 65,    0,    0]],

   [[ 34,    0,    0],
   [ 32,    0,    0],
   [ 32,    0,    0],
   ...,
   [ 77,    0,    0],
   [ 71,    0,    0],
   [ 67,    0,    0]],

   [[ 34,    0,    0],
   [ 32,    0,    0],
   [ 32,    0,    0],
   ...,
   [ 82,    0,    0],
   [ 76,    0,    0],
   [ 71,    0,    0]]], dtype=uint8)
```

```
In [101... flower_img
```

Out[101...]



In [103...]: arr1 = np.asarray(flower\_img)

In [105...]: type(arr1)

Out[105...]: numpy.ndarray

In [107...]: arr1.shape

Out[107...]: (1365, 2048, 3)

In [109...]: plt.imshow(arr1)

Out[109...]: &lt;matplotlib.image.AxesImage at 0x1dfe7713f50&gt;

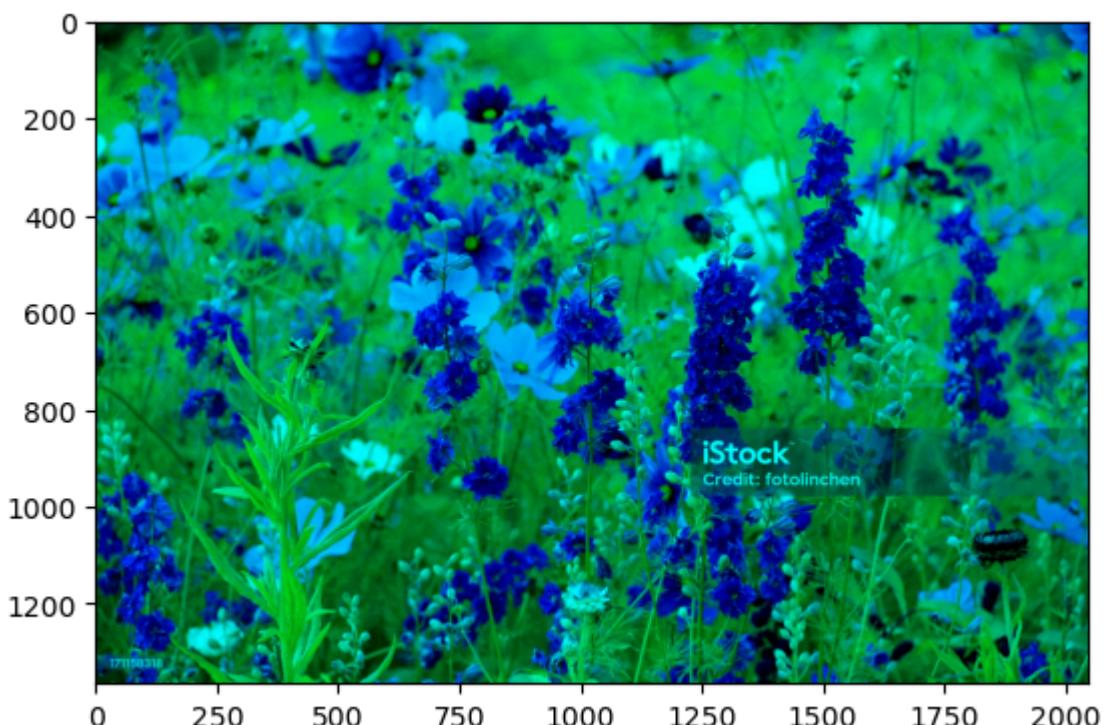


```
In [111... flower_img1 = arr1.copy()
```

```
In [113... flower_img1[:, :, 0] = 0
```

```
In [115... plt.imshow(flower_img1)
```

```
Out[115... <matplotlib.image.AxesImage at 0x1dfe9f96420>
```



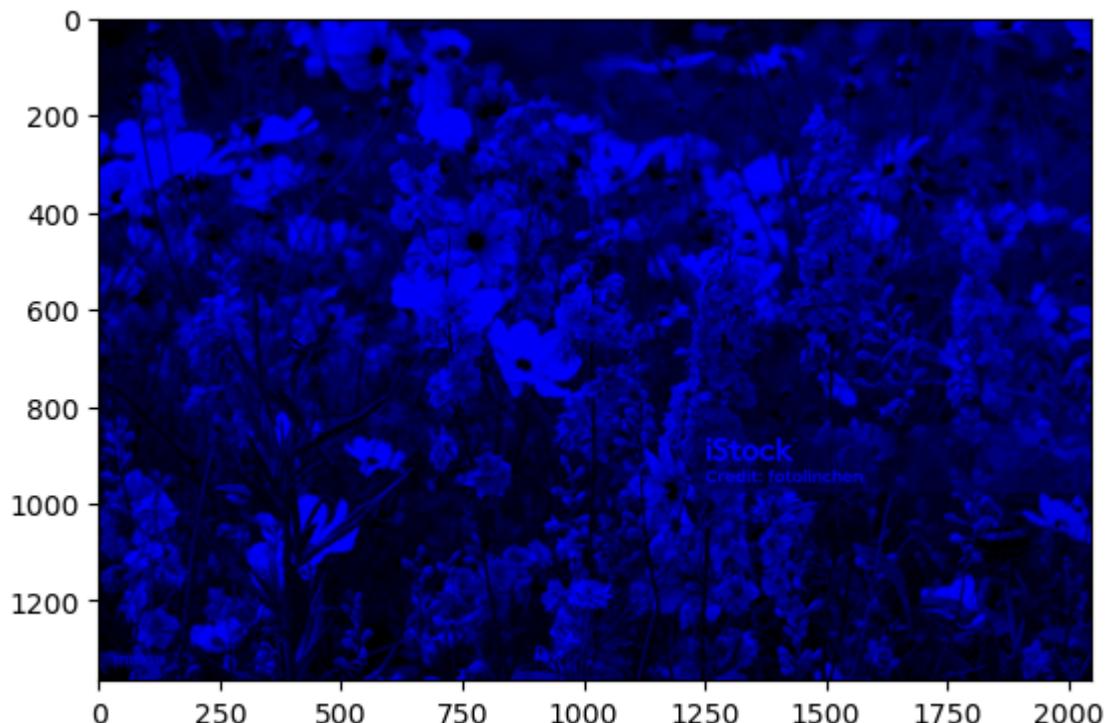
```
In [117... flower_img1[:, :, 1]
```

```
Out[117]: array([[42, 42, 42, ..., 97, 93, 89],  
   [42, 42, 42, ..., 97, 92, 88],  
   [42, 42, 42, ..., 96, 91, 88],  
   ...,  
   [54, 53, 53, ..., 93, 94, 94],  
   [55, 54, 54, ..., 91, 93, 93],  
   [55, 54, 54, ..., 91, 93, 93]], dtype=uint8)
```

```
In [119]: flower_img1[:, :, 1] = 0
```

```
In [121]: plt.imshow(flower_img1)
```

```
Out[121]: <matplotlib.image.AxesImage at 0x1dfe776a4e0>
```



## practicile 1 is completed

```
In [ ]:
```