

```
In [60]: import numpy as np
```

```
In [62]: ones_arr = np.ones((5,5))
```

```
In [64]: ones_arr
```

```
Out[64]: 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 [66]: ones_arr = np.ones((5,5), dtype=int)
```

```
In [68]: ones_arr
```

```
Out[68]: 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 [70]: ones_arr * 255
```

```
Out[70]: 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 [72]: ones_arr
```

```
Out[72]: 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 [74]: import matplotlib.pyplot as plt
```

```
In [76]: %matplotlib inline
```

```
In [78]: from PIL import Image
```

```
In [80]: india_image = Image.open(r"E:\numpy docs\india.jpg")
```

```
In [82]: india_image
```

Out[82]:

In [84]: `type(india_image)`Out[84]: `PIL.JpegImagePlugin.JpegImageFile`In [86]: `india_arr = np.asarray(india_image)`
`india_arr`

```

Out[86]: array([[ 25,  31,  21],
               [ 25,  31,  21],
               [ 25,  31,  21],
               ...,
               [   0,   1,   3],
               [   0,   1,   3],
               [   0,   1,   3]],

            [[ 25,  31,  21],
             [ 25,  31,  21],
             [ 25,  31,  21],
             ...,
             [ 10,  12,  11],
             [ 10,  12,  11],
             [ 10,  12,  11]],

            [[ 25,  31,  21],
             [ 25,  31,  21],
             [ 25,  31,  21],
             ...,
             [ 29,  34,  28],
             [ 29,  34,  28],
             [ 29,  34,  28]],

            ...,

            [[161, 193, 117],
             [157, 189, 113],
             [157, 189, 113],
             ...,
             [ 80,  82, 130],
             [ 81,  83, 131],
             [ 82,  84, 132]],

            [[154, 188, 111],
             [150, 184, 107],
             [149, 183, 106],
             ...,
             [ 83,  86, 139],
             [ 82,  85, 138],
             [ 81,  84, 137]],

            [[146, 182, 108],
             [142, 178, 104],
             [141, 177, 103],
             ...,
             [ 81,  86, 141],
             [ 76,  81, 136],
             [ 72,  77, 132]]], dtype=uint8)

```

```
In [88]: type(india_arr)
```

```
Out[88]: numpy.ndarray
```

```
In [90]: india_arr.shape
```

```
Out[90]: (408, 612, 3)
```

```
In [92]: plt.imshow(india_arr)  
plt.show()
```



```
In [93]: india_red = india_arr.copy()
```

```
In [96]: india_red
```

```

Out[96]: array([[ 25,  31,  21],
                [ 25,  31,  21],
                [ 25,  31,  21],
                ...,
                [   0,   1,   3],
                [   0,   1,   3],
                [   0,   1,   3]],

               [[ 25,  31,  21],
                [ 25,  31,  21],
                [ 25,  31,  21],
                ...,
                [ 10,  12,  11],
                [ 10,  12,  11],
                [ 10,  12,  11]],

               [[ 25,  31,  21],
                [ 25,  31,  21],
                [ 25,  31,  21],
                ...,
                [ 29,  34,  28],
                [ 29,  34,  28],
                [ 29,  34,  28]],

               ...,

               [[161, 193, 117],
                [157, 189, 113],
                [157, 189, 113],
                ...,
                [ 80,  82, 130],
                [ 81,  83, 131],
                [ 82,  84, 132]],

               [[154, 188, 111],
                [150, 184, 107],
                [149, 183, 106],
                ...,
                [ 83,  86, 139],
                [ 82,  85, 138],
                [ 81,  84, 137]],

               [[146, 182, 108],
                [142, 178, 104],
                [141, 177, 103],
                ...,
                [ 81,  86, 141],
                [ 76,  81, 136],
                [ 72,  77, 132]]], dtype=uint8)

```

```
In [98]: india_red == india_arr
```

```

Out[98]: 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]])

```

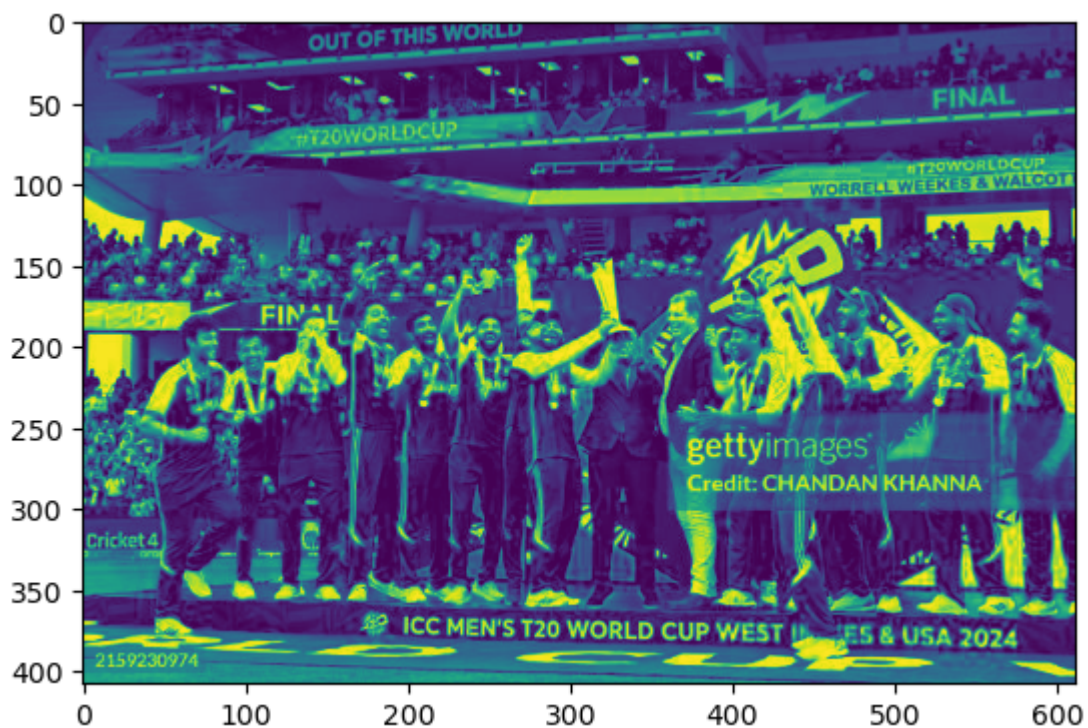
```

In [100... plt.imshow(india_red)
            plt.show()

```




```
In [102... plt.imshow(india_red[:, :, 0])
plt.show()
```



```
In [104... (india_red[:, :, 0])
```

```
Out[104... array([[ 25,  25,  25, ...,  0,  0,  0],
        [ 25,  25,  25, ..., 10, 10, 10],
        [ 25,  25,  25, ..., 29, 29, 29],
        ...,
        [161, 157, 157, ..., 80, 81, 82],
        [154, 150, 149, ..., 83, 82, 81],
        [146, 142, 141, ..., 81, 76, 72]], dtype=uint8)
```

```
In [106... plt.imshow(india_red[:, :, 0], cmap = ('grey'))  
plt.show()
```



```
In [112... plt.imshow(india_red[:, :, 2], cmap=('grey'))  
plt.show()
```



In []:

In []:

In []: