

Numpy

Image to Array using Numpy

Changing colours and performing some operations on Image using PIL and matplotlib

```
import numpy as np
import matplotlib.pyplot as plt

ones_arr = np.ones((5,5))

ones_arr
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.]])

ones_arr = np.ones((5,5),dtype=int)

ones_arr
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]])

zeros_arr=np.zeros((3,3),dtype=int)

zeros_arr
array([[0, 0, 0],
       [0, 0, 0],
       [0, 0, 0]])

ones_arr
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]])

ones_arr*255
```

```
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]])

zeros_arr
array([[0, 0, 0],
       [0, 0, 0],
       [0, 0, 0]])

import matplotlib.pyplot as plt

%matplotlib inline
# all the picture keep inside
# PIL : python Imaging Library

from PIL import Image

nature_img = Image.open(r'C:\Users\Dhanwantari Devre\Pictures\
wallpapers\img1.jpg')

nature_img
```



```
#quote_img = Image.open(r'C:\Users\Dhanwantari Devre\Pictures\
wallpapers\quote.jpg')
#quote_img
```

```
type(nature_img)
```

```
PIL.JpegImagePlugin.JpegImageFile
```

```
nature_arr=np.asarray(nature_img)
nature_arr
```

```
array([[ [112,  88,  64],
         [112,  88,  64],
         [112,  88,  64],
         ...,
         [ 86,  62,  36],
         [ 86,  62,  36],
         [ 86,  62,  36]]],
```

```
      [[112,  88,  64],
       [112,  88,  64],
       [112,  88,  64],
       ...,
       [ 86,  62,  36],
       [ 86,  62,  36],
       [ 86,  62,  36]]],
```

```
      [[112,  88,  64],
       [112,  88,  64],
       [112,  88,  64],
       ...,
       [ 86,  62,  36],
       [ 86,  62,  36],
       [ 86,  62,  36]]],
```

```
      ...,
```

```
      [[ 67,  50,  32],
       [ 63,  46,  28],
       [ 61,  44,  26],
       ...,
       [ 99,  72,  42],
       [101,  74,  44],
       [100,  73,  43]]],
```

```
      [[ 64,  47,  29],
       [ 63,  46,  28],
       [ 64,  47,  29],
       ...,
       [ 99,  72,  42],
       [101,  74,  44],
```

```

        [100, 73, 43]],
        [[ 61, 44, 26],
         [ 63, 46, 28],
         [ 67, 50, 32],
         ...,
         [ 98, 71, 41],
         [100, 73, 43],
         [ 98, 71, 41]]], dtype=uint8)

type(nature_arr)
numpy.ndarray
nature_arr.shape
(2400, 3840, 3)
plt.imshow(nature_arr)
<matplotlib.image.AxesImage at 0x22734883fb0>
plt.show()

```

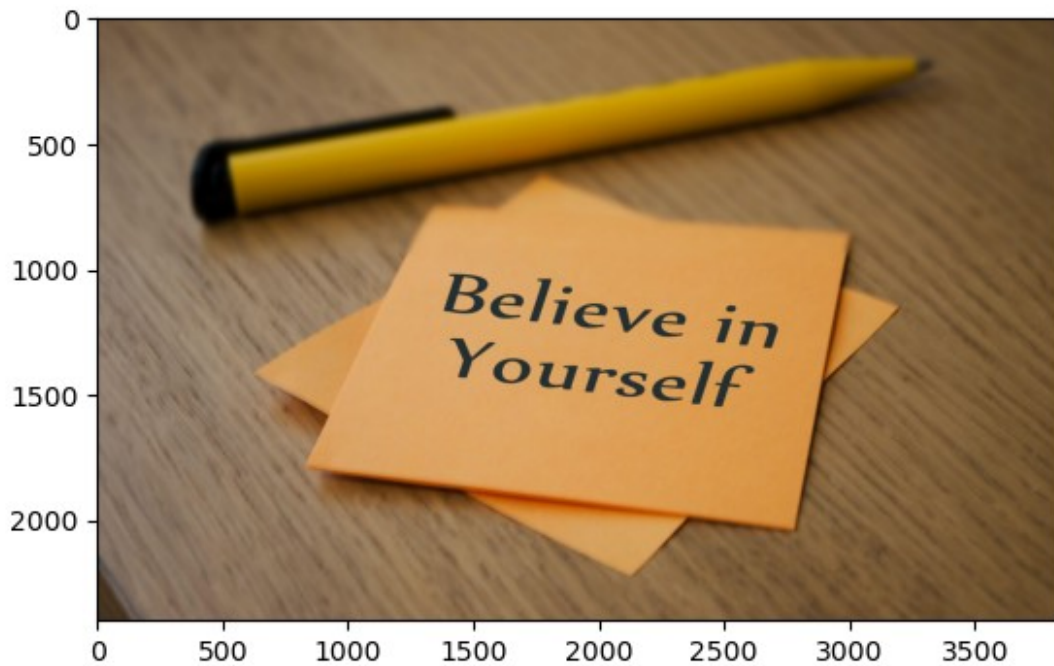


```

nature_red=nature_arr.copy()
nature_red = nature_arr
plt.imshow(nature_red)

```

```
<matplotlib.image.AxesImage at 0x227347d5700>  
plt.show()
```



```
nature_arr==nature_red  
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]]])

```

nature_arr

```

array([[[112,  88,  64],
        [112,  88,  64],
        [112,  88,  64],
        ...,
        [ 86,  62,  36],
        [ 86,  62,  36],
        [ 86,  62,  36]],
       [[112,  88,  64],
        [112,  88,  64],
        [112,  88,  64],
        ...,
        [ 86,  62,  36],
        [ 86,  62,  36],
        [ 86,  62,  36]],
       [[112,  88,  64],
        [112,  88,  64],
        [112,  88,  64],
        ...,

```

```

        [ 86,  62,  36],
        [ 86,  62,  36],
        [ 86,  62,  36]],
    ...,
    [[ 67,  50,  32],
     [ 63,  46,  28],
     [ 61,  44,  26],
     ...,
     [ 99,  72,  42],
     [101,  74,  44],
     [100,  73,  43]],

    [[ 64,  47,  29],
     [ 63,  46,  28],
     [ 64,  47,  29],
     ...,
     [ 99,  72,  42],
     [101,  74,  44],
     [100,  73,  43]],

    [[ 61,  44,  26],
     [ 63,  46,  28],
     [ 67,  50,  32],
     ...,
     [ 98,  71,  41],
     [100,  73,  43],
     [ 98,  71,  41]]], dtype=uint8)

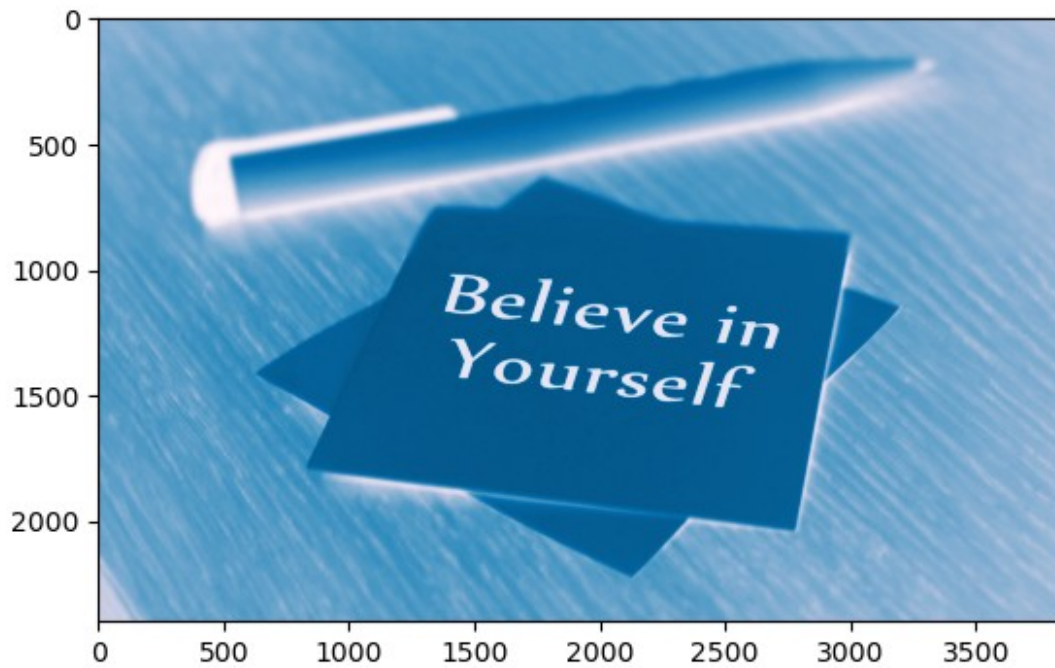
type(nature_arr)
numpy.ndarray
nature_arr.shape
(2400, 3840, 3)
nature_red.shape
(2400, 3840, 3)
plt.imshow(nature_red[:, :, 0])
<matplotlib.image.AxesImage at 0x22734883740>
plt.show()

```

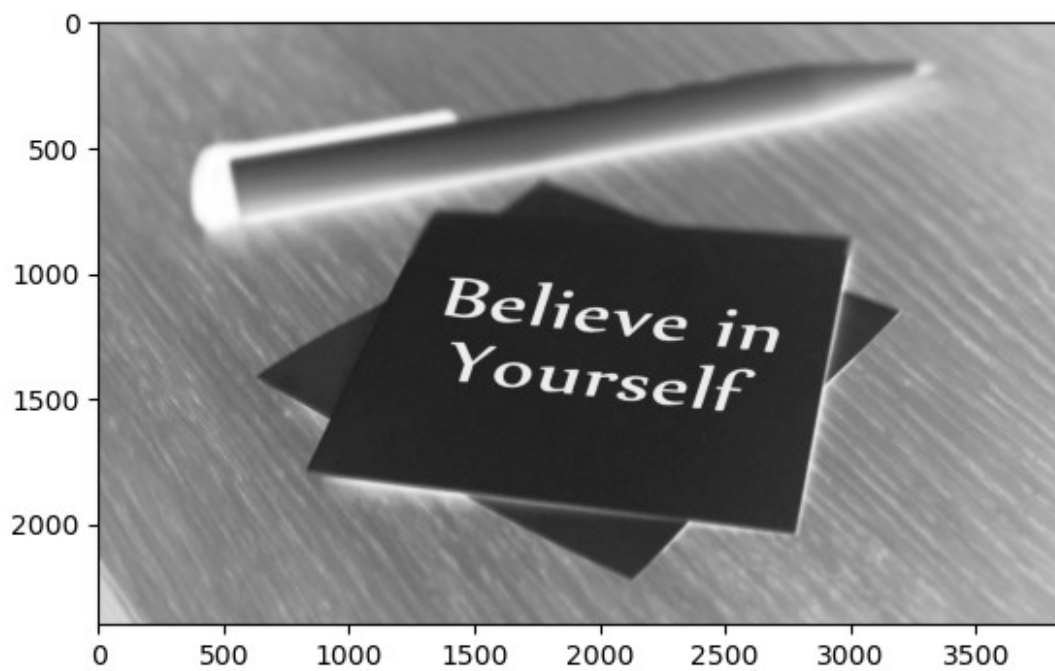


```
nature_red[:, :, 0]
array([[112, 112, 112, ..., 86, 86, 86],
       [112, 112, 112, ..., 86, 86, 86],
       [112, 112, 112, ..., 86, 86, 86],
       ...,
       [ 67,  63,  61, ..., 99, 101, 100],
       [ 64,  63,  64, ..., 99, 101, 100],
       [ 61,  63,  67, ..., 98, 100, 98]], dtype=uint8)

plt.imshow(nature_red[:, :, 0], cmap='PuBu')
<matplotlib.image.AxesImage at 0x2272a720c50>
plt.show()
```

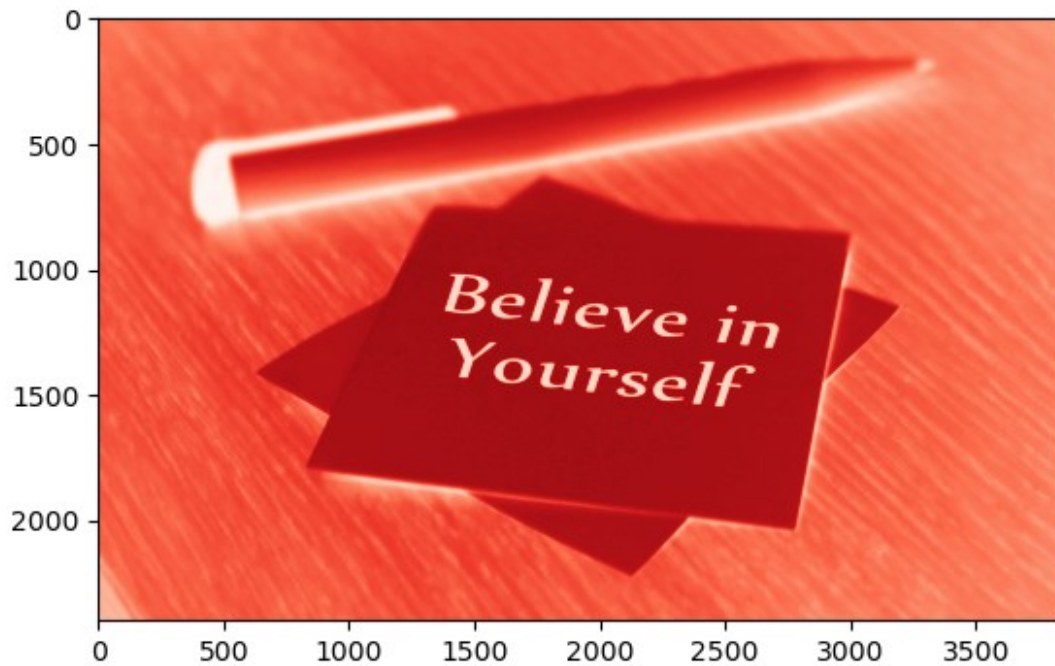



```
plt.imshow(nature_red[:, :, 0], cmap='Grays')  
<matplotlib.image.AxesImage at 0x2273f2830b0>  
plt.show()
```

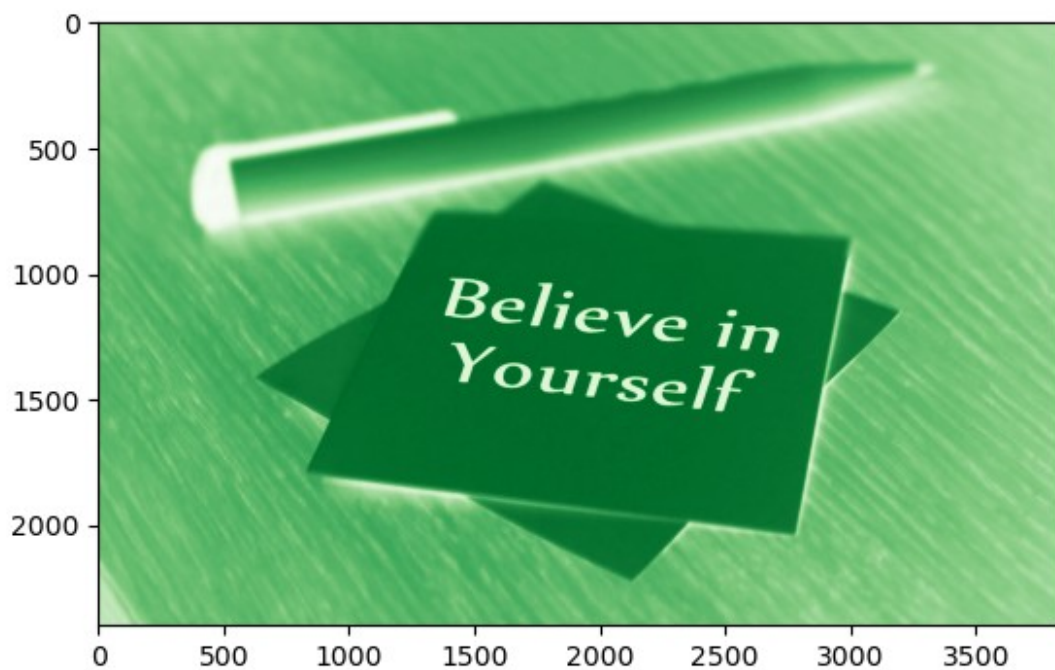


```
plt.imshow(nature_red[:, :, 0], cmap='Reds')
```

```
<matplotlib.image.AxesImage at 0x22743d58170>  
plt.show()
```



```
plt.imshow(nature_red[:, :, 0], cmap='Greens')  
<matplotlib.image.AxesImage at 0x22743cbab40>  
plt.show()
```



```
len(nature_red)
```

```
2400
```