```
import numpy as np
```

```
my_list=[1,2,3,4,5]
my_list
```

```
[1, 2, 3, 4, 5]
```

```
arr=np.array([2,3,4,5,6,7,8])
arr
```

```
array([2, 3, 4, 5, 6, 7, 8])
```

```
type(arr)
```

```
numpy.ndarray
```

```
one_darray=np.arange(0,10)
one_darray.reshape(2,2)
```

```
---------------------------------------------------------------------------
ValueError                                Traceback (most recent call last)
<ipython-input-6-e6af96c1e779> in <cell line: 2>()
      1 one_darray=np.arange(0,10)
----> 2 one_darray.reshape(2,2)

ValueError: cannot reshape array of size 10 into shape (2,2)
```

SEARCH STACK OVERFLOW

```
one_darray.reshape(5,2)
```

```
array([[0, 1],
       [2, 3],
       [4, 5],
       [6, 7],
       [8, 9]])
```

```
np.arange(0,15,2)
# 2 is step-size ( 2-1 ) is the skipping
```

```
array([ 0,  2,  4,  6,  8, 10, 12, 14])
```

```
np.zeros((2,2))
```

```
array([[0., 0.],
       [0., 0.]])
```

```
np.ones((2,2))
```

```
array([[1., 1.],
       [1., 1.]])
```

```
np.random.seed(101)
arr=np.random.randint(0,100,10)
arr
```

```
array([95, 11, 81, 70, 63, 87, 75,  9, 77, 40])
```

```
# np.random.seed(101)
arr=np.random.randint(0,100,10)
arr
```

```
array([ 4, 63, 40, 60, 92, 64,  5, 12, 93, 40])
```

```
np.random.seed(35)
arr=np.random.randint(0,100,10)
arr
```

```
array([73, 15, 55, 33, 63, 64, 11, 11, 56, 72])
```

```
arr.min()
```

```
11
```

```
arr.max()
```

```
73
```

```
arr.mean()
```

```
45.3
```

```
arr.argmin()
```

```
6
```

```
arr.argmax()
```

```
0
```

```
arr
```

```
array([73, 15, 55, 33, 63, 64, 11, 11, 56, 72])
```

INDEXING AND SLICING

```
a=np.arange(0,90).reshape(10,9)
a
```

```
array([[ 0,  1,  2,  3,  4,  5,  6,  7,  8],
       [ 9, 10, 11, 12, 13, 14, 15, 16, 17],
       [18, 19, 20, 21, 22, 23, 24, 25, 26],
       [27, 28, 29, 30, 31, 32, 33, 34, 35],
       [36, 37, 38, 39, 40, 41, 42, 43, 44],
       [45, 46, 47, 48, 49, 50, 51, 52, 53],
       [54, 55, 56, 57, 58, 59, 60, 61, 62],
       [63, 64, 65, 66, 67, 68, 69, 70, 71],
       [72, 73, 74, 75, 76, 77, 78, 79, 80],
       [81, 82, 83, 84, 85, 86, 87, 88, 89]])
```

```
a[2,3]
```

```
21
```

```
row=2
column=3
a[row,column]
```

```
21
```

```
# SLICING
# from 2nd row till 5th row - 1 ( n-1)th row
a[2:5]
```

```
array([[18, 19, 20, 21, 22, 23, 24, 25, 26],
       [27, 28, 29, 30, 31, 32, 33, 34, 35],
       [36, 37, 38, 39, 40, 41, 42, 43, 44]])
```

```
a[5:,8]
```

```
array([53, 62, 71, 80, 89])
```

```
a[5,:]
```

```
array([45, 46, 47, 48, 49, 50, 51, 52, 53])
```

```
a[0:3,0:3]
```

```
array([[ 0,  1,  2],
       [ 9, 10, 11],
       [18, 19, 20]])
```

```
import matplotlib.pyplot as plt
from PIL import Image
pic=Image.open('/content/randomimage.jpeg')
pic
```

```
pic_arr=np.asarray(pic)
pic_arr.shape
#height (177)
#width (284)
#channel (3)
```

```
(177, 284, 3)
```

```
pic1=Image.open('/content/grayscaleimg.jpg')
pic1
```

```
pic_arr=np.asarray(pic1)
pic_arr.shape
#height (530)
#width (350)
#channel (3)
```

```
(530, 350, 3)
```

```
pic_arr.max()
```

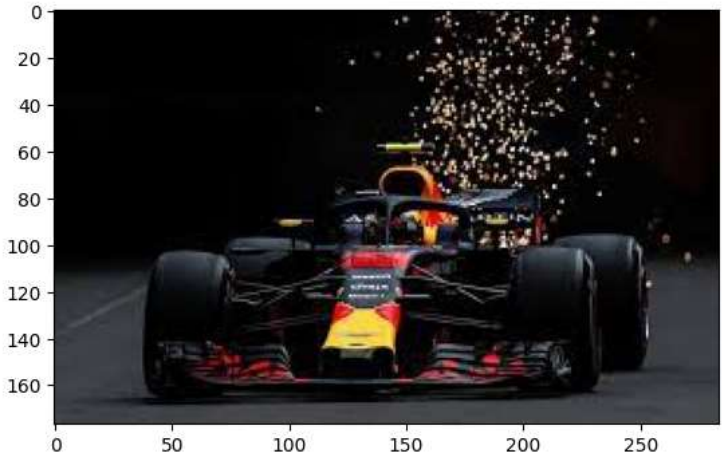
```
224
```

```
plt.imshow(pic1)
```

```
<matplotlib.image.AxesImage at 0x7882bc7adf90>
```


```
plt.imshow(pic)
```

```
<matplotlib.image.AxesImage at 0x7882bc399990>
```



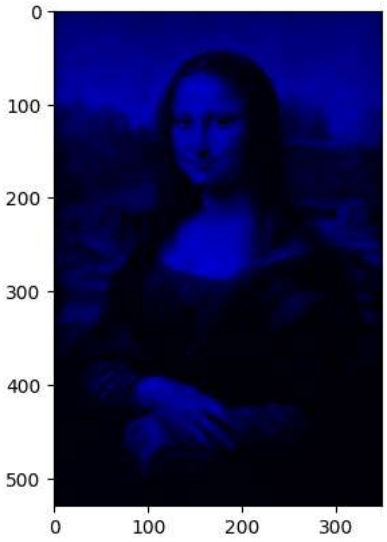
DAY 2

```
pic_red=pic_arr.copy()
```

```
pic_red[:, :, 0]= 0
 # zero out contribution form grenn
pic_red[:, :, 1]= 0
 # zero out contribution from blue
```

```
plt.imshow(pic_red)
```

```
<matplotlib.image.AxesImage at 0x788287cc7640>
```




```
# day 2 new notebook
```