

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

Exercici 1

```
In [5]: a=np.array([2,4,5,7,9,15,12,4,1,0,11], dtype="int64")
print(a)
print(a.dtype)
```

```
[ 2  4  5  7  9 15 12  4  1  0 11]
int64
```

```
In [7]: print(a.ndim)
print(a.shape)
```

```
1
(11,)
```

Exercici 2

```
In [8]: m=np.average(a)
print(m)
```

```
6.363636363636363
```

```
In [9]: for i in a:
print(i-m)
```

```
-4.363636363636363
-2.3636363636363633
-1.3636363636363633
0.6363636363636367
2.6363636363636367
8.636363636363637
5.636363636363637
-2.3636363636363633
-5.363636363636363
-6.363636363636363
4.636363636363637
```

Exercici 3

```
In [10]: b= np.array([[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]])
print(b)
```

```
[[ 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]]
```

```
In [11]: print(np.max(b))
print(np.amax(b,axis=0))
print(np.amax(b,axis=1))
```

```
30
[26 27 28 29 30]
[ 5 10 15 20 25 30]
```

Exercici 4

```
In [12]: a= np.array([5.0, 2.0, 4.0, 3.1])
b= np.array([1.0, 7.0, 9.2, 0.1])
print(a * b)
```

```
[ 5.   14.   36.8  0.31]
```

```
In [13]: z=7
print(a*z)
```

```
[35.   14.   28.   21.7]
```

```
In [15]: c = np.array([[5.0, 2.0],[4.0,3.1]])
d = np.array([[2.0, 1.0],[2.0,4.7]])
print(c+d)
```

```
[[7.  3. ]
 [6.  7.8]]
```

```
In [16]: e=[3],[4]
print(c*e)
```

```
[[15.    6. ]
 [16.   12.4]]
```

Exercici 5

```
In [18]: print(c[0,0]+c[1,1])
```

```
8.1
```

Indexació:suma fila 0 columna 0 i fila 1 columna1

Exercici 6

```
In [19]: mas= np.array([[5, 2, 4, 3, 8, 12],[12,14,21,34,9,16]])
print(mas)
```

```
[[ 5  2  4  3  8 12]
 [12 14 21 34  9 16]]
```

```
In [23]: mas_b= [i%4 == 0 for i in mas]
mas_c=np.array(mas_b, dtype=bool)
print(mas_c)
```

```
[[False False  True False  True  True]
 [ True False False False False  True]]
```

Exercici 7

```
In [24]: print(mas[mas_c.astype(bool)])
```

```
[ 4  8 12 12 16]
```

Exercici 8

```
In [25]: import matplotlib.pyplot as plt
```

```
In [26]: import matplotlib.image as mpimg
```

```
In [27]: %matplotlib inline
```

```
In [28]: img = mpimg.imread(r"C:\Users\CCOC\OneDrive\Imágenes\i.jpg")
```

```
In [29]: print(img)
```

```
[[[ 81 141  77]
 [118 170 104]
 [123 164  98]
 ...
 [ 75  88  35]
 [ 57  77  26]
 [ 88 116  67]]

 [[ 99 158  94]
 [ 93 144  78]
 [124 163  98]
 ...
 [ 61  71  21]
 [ 52  70  20]
 [ 59  85  38]]

 [[111 163 101]
 [ 92 136  73]
 [124 159  95]
 ...
 [ 72  80  33]
 [ 78  91  45]
 [ 74  96  50]]

 ...

 [[  8  10   7]
 [ 14  16  15]
 [ 11  11  11]
 ...
 [  4  4   4]
 [  4  4   4]
 [  3  3   3]]

 [[ 10  12   9]
 [  0  1   0]
 [ 10  10  10]
 ...
 [  3  3   3]
 [  3  3   3]
 [  2  2   2]]

 [[  2  4   1]
 [ 15  17  16]
 [ 26  26  26]
 ...
 [  2  2   2]
 [  3  3   3]
 [  1  1   1]]]
```

```
In [30]: imgplot = plt.imshow(img)
```



```
In [31]: img2=img.copy()
```

```
In [32]: print(img2.shape)
```

```
(176, 286, 3)
```

```
In [33]: img2[:, :,1]=0
```

```
In [34]: plt.title("Color verd eliminat")
plt.imshow(img2)
```

Out[34]: <matplotlib.image.AxesImage at 0x2948327a280>



```
In [35]: mpimg.imsave("Eliminat verd.png",img2)
```

```
In [ ]:
```