

# Numpy [1]

## 1. Into the environment

```
cd /Users/marsdon.mac/Documents/code/py/numpy/  
- conda activate NumpyTest
```

## 2. Some basic rules:

```
import numpy as np  
dataa=np.array([1,2,3,4])  
datab=np.array([1,2,3,4],[4,5,6,7])  
datac=np.zeros(shape=(5,3))  
datad=np.ones(shape=(5,3))  
datae=np.empty(shape=(5,3))  
dataf=np.arange(10,12,2)# go 10 to 16 and step=2  
datag=np.linspace(1,10,20)# 1 to 10 in 20 blocks  
dateh=np.random.rand(3,4)  
data=np.random.randint(2,5,size=(4,5))
```

you can also change the shape of array into different in the steps:

```
import numpy as np  
data1=[1,2,3,4,5]  
data2=[1,2,3,4,5]  
data=np.array([data1,data2])  
print(data.shape)  
data=data.reshape((5,2))  
print(data.T)
```

## 3. Display

1. `ndim` = dimension
2. `shape` = ndim in all the directions
3. `size` = the total Num
4. `dtype` = the type

## 4. Actions

1. `mean` :
  - `mindle=np.mean(data)`

```
mean(arr,axis=None, dtype=None, out =None) #axis-whole \ type-float 64 \ save as Name
```
2. `median`
  - `middle=np.median(data)`

```
median(arr,axis=None, out=None)
```

### Ignore (`arr, axis=None, dtype=None, out=None`)

3. `std` # standard deviation
4. `var` #  $std^2$
5. `min`
6. `max`
7. `sum`
8. `prod` #  $\prod_{i=1}^n a_i$

## 5. Section

1. One dimension

```
import numpy as np
arr = np.array([1,2,3,4,5])
print(arr[1:4])
```

```
[2,3,4]
```

2. Fetch in line

```
import numpy as np
data1=[1,2,3,4,5]
data2=[6,7,8,9,10]
data3=[11,12,13,14,15]
data4=[16,17,18,19,20]
data5=[21,22,23,24,25]
data6=[26,27,28,29,30]
data=np.array( [[data1,data2,data3],[data4,data5,data6]] )
#now it is 3D array
#data.shape= (2,3,5)
```

```
data[0:1]="[data1 , data2, data3]
Further
data[0:1,0:2]=[data1,data2]
```

### 3. Fetch in column

```
print(data[:,]) # same as for(;;i++) Ignore!
```

**so imagine**

```
data[:,0:2]
```

## 6. Stackage

```
stacked_vertically = np.vstack((array1, array2))
stacked_horizontally = np.hstack((array1, array2))
```

### 1. Goat ↩