

In [1]:

```
# Advance Indexing
import numpy as np
```

In [2]:

```
l1 = ['a','b','c','d','e']
```

In [3]:

```
l1[2]
```

Out[3]:

```
'c'
```

In [4]:

```
# eg
a = np.arange(1,10)
a
```

Out[4]:

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

In [5]:

```
# normal
a[2]
```

Out[5]:

```
3
```

In [6]:

```
# Adv
#1st
index = np.array([1,4,5])
a[index]
```

Out[6]:

```
array([2, 5, 6])
```

In [7]:

```
# 2nd
a[[1,4,5]]
```

Out[7]:

```
array([2, 5, 6])
```

In [8]:

```
# 2d
b = np.array([
    [1,2,3],[4,5,6],[7,8,9]
])
b
```

Out[8]:

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

In [9]:

```
b[:,1]
```

Out[9]:

```
array([2, 5, 8])
```

In [10]:

```
# adv
# b[[row],[column]]
b[[0,2],[2,0]]
```

Out[10]:

```
array([3, 7])
```

In [11]:

```
# test
b[[1,1,2],[0,2,1]]
```

Out[11]:

```
array([4, 6, 8])
```

In []:

In [12]:

```
# test
a = np.arange(1,10)
a
```

Out[12]:

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

In [13]:

```
a[[1,4,1,4,1,3]]
```

Out[13]:

```
array([2, 5, 2, 5, 2, 4])
```

In []:

In [15]:

```
# Boolean Indexing
a = np.array([[1,-2,3],[4,-6,3]])
a
```

Out[15]:

```
array([[ 1, -2,  3],
       [ 4, -6,  3]])
```

In [16]:

```
a<0
```

Out[16]:

```
array([[False,  True, False],
       [False,  True, False]])
```

In [17]:

```
a[a<0]
```

Out[17]:

```
array([-2, -6])
```

In [18]:

```
a[a>0]
```

Out[18]:

```
array([1, 3, 4, 3])
```

In []:

In [19]:

```
b = np.array([
    [1,2,-3],[-5,6,-7],[-8,9,-4]
])
b
```

Out[19]:

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

In [21]:

```
b[b<0]
```

Out[21]:

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

In [22]:

```
b[b<0]*2
```

Out[22]:

```
array([-6, -10, -14, -16, -8])
```

In [23]:

```
b[b<0]*-1
```

Out[23]:

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

In [24]:

```
b
```

Out[24]:

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