傻瓜也會的numpy基礎操作

這是list並不是matrix

In [18]:
```
x=[[1, 2, 3],[4, 5, 6]]
type(x)
```

Out[18]:
```
list
```

In [6]:
```
x[0]
```

Out[6]:
```
[1, 2, 3]
```

In [7]:
```
x[1]
```

Out[7]:
```
[4, 5, 6]
```

In [23]:
```
x[0:2] #注意是小於2 並非小於等於2
```

Out[23]:
```
[[1, 2, 3], [4, 5, 6]]
```

In [8]:
```
x[0,1]  #這樣操作不可，因為不是maxtrix
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
<ipython-input-8-9d03a9b262fb> in <module>()
----> 1 x[0,1]  #這樣操作不可，因為不是maxtrix

TypeError: list indices must be integers, not tuple
```

1-dimention matrix

In [41]:
```
import numpy as np
x = np.array([1,2,3])
```

In [42]:
```
x
```

Out[42]:
```
array([1, 2, 3])
```

In [13]:
```
x[0]
```

Out[13]:
```
1
```

In [14]:
```
x[1]
```

Out[14]:
```
2
```

In [15]:
```
x[0:2] #注意是小於2 並非小於等於2
```

Out[15]:
```
array([1, 2])
```

In [27]:
```
x[1:]
```

Out[27]:
```
array([2, 3])
```

In [28]:
```
x[:3]
```

Out[28]:
```
array([1, 2, 3])
```

In [29]:
```
x[:2]
```

Out[29]:
```
array([1, 2])
```

In [30]:
```
x[-1:3]
```

Out[30]:
```
array([3])
```

In [31]:
```
x[[0,2]]
```

Out[31]:
```
array([1, 3])
```

In [32]:
```
x*2  #每一個元素乘以2
```

Out[32]:
```
array([2, 4, 6])
```

In [33]:
```
x**2
```

Out[33]:
```
array([1, 4, 9])
```

In [34]:
```
x>2
```

Out[34]:
```
array([False, False,  True], dtype=bool)
```

In [35]:
```
x[x>2]
```

Out[35]:
```
array([3])
```

In [36]:
```
x[x>2] = 5
```

In [37]:
```
x
```

Out[37]:
```
array([1, 2, 5])
```

2-dimention

In [43]:
```
import numpy as np
x = np.array([[1,2,3], [4,5,6]])
```

In [44]:
```
x
```

Out[44]:
```
array([[1, 2, 3],
       [4, 5, 6]])
```

In [45]:
```
type(x)
```

Out[45]:
```
numpy.ndarray
```

In [46]:
```
x.ndim
```

Out[46]:
```
2
```

In [47]:
```
x.shape
```

Out[47]:
```
(2L, 3L)
```

In [ ]:
```
x[0]
```

In [ ]:
```
x[1]
```

In [ ]:
```
x[0:2]
```

In [ ]:
```
x[0,0]
```

In [ ]:
```
x[0,1]
```

In [ ]:
```
x[0:2,0:1]
```

In [ ]:
```
x[0:2,0:3]
```

In [ ]:
```
x[1,[0,2]]
```

3-dimention

In [49]:
```
x = np.array([ [ [1],[2],[3] ], [ [4],[5],[6]] ])
type(x)
```

Out[49]:
```
numpy.ndarray
```

In [50]:
```
x
```

Out[50]:
```
array([[[1],
        [2],
        [3]],

       [[4],
        [5],
        [6]]])
```

In [ ]:
```

```