NUMPY-Documantion

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

In [2]:
```
from numpy import *
```

In [5]:
```
my_list=[0,1,2,3,4,5]
my_list
```

Out[5]:
```
[0, 1, 2, 3, 4, 5]
```

In [7]:
```
arr=np.array(my_list)
arr
```

Out[7]:
```
array([0, 1, 2, 3, 4, 5])
```

In [8]:
```
print(type(arr))
print(type(my_list))
```

```
<class 'numpy.ndarray'>
<class 'list'>
```

In [10]:
```
a=np.arange(12)
a=a.reshape(3,2,2)
print(a)
```

```
[[[ 0  1]
  [ 2  3]]

 [[ 4  5]
  [ 6  7]]

 [[ 8  9]
  [10 11]]]
```

In [11]:
```
a[...,0]
```

Out[11]:
```
array([[ 0,  2],
       [ 4,  6],
       [ 8, 10]])
```

In [12]:
```
array
```

Out[12]:
```
<function numpy.array>
```

In [13]:
```
arr[1:,...]
```

Out[13]:
```
array([1, 2, 3, 4, 5])
```

In [14]:
```
arr[4:,...]
```

Out[14]:
```
array([4, 5])
```

See also: [],newaxis

In [27]:
```
arr
```

Out[27]:
```
array([0, 1, 2, 3, 4, 5])
```

In [29]:
```
my_list=[0,1,2,3,4]
my_list
```

Out[29]:
```
[0, 1, 2, 3, 4]
```

In [30]:
```
array=np.array(my_list)
array
```

Out[30]:
```
array([0, 1, 2, 3, 4])
```

In [31]:
```
print(type(my_list))
print(type(array))
```

```
<class 'list'>
<class 'numpy.ndarray'>
```

In [33]:
```
a=array
a
```

Out[33]:
```
array([0, 1, 2, 3, 4])
```

In [43]:
```
from numpy import *
```

Out[43]:
```
array([ 0,  5, 10, 15, 20, 25, 30])
```

In [56]:
```
a=np.random.randint(0,35,(4,5))
a
```

Out[56]:
```
array([[11, 32, 24, 12, 13],
       [14,  9,  7, 12, 18],
       [ 5,  4, 34, 32,  4],
       [22, 22, 20, 16,  1]], dtype=int32)
```

In [57]:
```
type(a)
```

Out[57]:
```
numpy.ndarray
```

In [58]:
```
a[0,0] # indices start by Zero
```

Out[58]:
```
np.int32(11)
```

In [59]:
```
a[1,1]
```

Out[59]:
```
np.int32(9)
```

In [60]:
```
a[-1] # last row
```

Out[60]:
```
array([22, 22, 20, 16,  1], dtype=int32)
```

In [62]:
```
a
```

Out[62]:
```
array([[11, 32, 24, 12, 13],
       [14,  9,  7, 12, 18],
       [ 5,  4, 34, 32,  4],
       [22, 22, 20, 16,  1]], dtype=int32)
```

In [63]:
```
a[1:3,1:4] #subarray
```

Out[63]:
```
array([[ 9,  7, 12],
       [ 4, 34, 32]], dtype=int32)
```

In [64]:
```
a[a<13]# boolean indexing
```

Out[64]:
```
array([11, 12,  9,  7, 12,  5,  4,  4,  1], dtype=int32)
```

In [65]:
```
a[a>13]# boolean indexing
```

Out[65]:
```
array([32, 24, 14, 18, 34, 32, 22, 22, 20, 16], dtype=int32)
```

In [74]:
```
a=np.random.randint(0,35,(4,5))
a
```

Out[74]:
```
array([[31, 16,  5,  4, 22],
       [34, 32, 12, 28,  8],
       [ 8,  0, 28, 29,  3],
       [11, 30,  3, 33, 31]], dtype=int32)
```

In [75]:
```
b1=a
```

In [76]:
```
b1
```

Out[76]:
```
array([[31, 16,  5,  4, 22],
       [34, 32, 12, 28,  8],
       [ 8,  0, 28, 29,  3],
       [11, 30,  3, 33, 31]], dtype=int32)
```

In [94]:
```
print(a)
```

```
[[31 16  5  4 22]
 [34 32 12 28  8]
 [ 8  0 28 29  3]
 [11 30  3 33 31]]
```

In [95]:
```
b1 = np.array([True, False, True, False]) # boolean row selecter
print(b1)
```

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

In [96]:
```
a[b1,:]
```

Out[96]:
```
array([[31, 16,  5,  4, 22],
       [ 8,  0, 28, 29,  3]], dtype=int32)
```

In [121…
```
b=np.random.randint(0,50,(4,4))
b
```

Out[121…
```
array([[29,  5,  2, 31],
       [26, 11, 40, 10],
       [14,  2, 44, 35],
       [44, 19, 21, 33]], dtype=int32)
```

In [122…
```
import numpy as np

b2 = np.array([True, False, True, False])
print(b2)
```

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

In [123…
```
b[:,b2]
```

Out[123…
```
array([[29,  2],
       [26, 40],
       [14, 44],
       [44, 21]], dtype=int32)
```

abs()

In [1]:
```
from math import *
```

In [2]:
```
abs(-1)
```

Out[2]:
```
1
```

In [3]:
```

```

```
---------------------------------------------------------------------------
NameError                                 Traceback (most recent call last)
Cell In[3], line 1
----> 1 abs(array([-1.2,1.2]))
      2 abs

NameError: name 'array' is not defined
```

In [ ]:
```

```