In [1]:
```
import numpy as np
arr=np.arange(7)
arr
```

Out[1]:
```
array([0, 1, 2, 3, 4, 5, 6])
```

In [2]:
```
arr=arr[np.newaxis,:]
arr
```

Out[2]:
```
array([[0, 1, 2, 3, 4, 5, 6]])
```

In [3]:
```
arr.shape
```

Out[3]:
```
(1, 7)
```

In [4]:
```
arr1=np.array([1,2,3,4,5,6])
arr2=np.array([[1,2,3,4],[5,6,7,8],[9,10,11,12]])
```

In [5]:
```
print(arr[0])
```

```
[0 1 2 3 4 5 6]
```

In [6]:
```
# print(arr[1])
```

In [7]:
```
print(arr1[0])
```

```
1
```

In [8]:
```
print(arr2[0])
```

```
[1 2 3 4]
```

In [9]:
```
arr=np.zeros(5)
```

In [10]:
```
arr
```

Out[10]:
```
array([0., 0., 0., 0., 0.])
```

In [11]:
```
np.ones(3)
```

Out[11]:
```
array([1., 1., 1.])
```

In [12]:
```
np.empty(3)
```

Out[12]:
```
array([1., 1., 1.])
```

In [13]:
```
np.linspace(0,100,num=20)
```

Out[13]:
```
array([  0.        ,   5.26315789,  10.52631579,  15.78947368,
        21.05263158,  26.31578947,  31.57894737,  36.84210526,
        42.10526316,  47.36842105,  52.63157895,  57.89473684,
        63.15789474,  68.42105263,  73.68421053,  78.94736842,
        84.21052632,  89.47368421,  94.73684211, 100.        ])
```

In [14]:
```
np.ones(4,dtype=np.int64)
```

Out[14]:
```
array([1, 1, 1, 1], dtype=int64)
```

In [15]:
```
arr=np.array([3,1,4,2,5,6,2,0,9])
arr.sort()
arr
```

Out[15]:
```
array([0, 1, 2, 2, 3, 4, 5, 6, 9])
```

In [16]:
```
arr=np.array([3,1,4,2,5,6,2,0,9])
np.sort(arr)
# in this case arr in not sorted
# new sorted array formed
```

Out[16]:
```
array([0, 1, 2, 2, 3, 4, 5, 6, 9])
```

In [ ]:
```

```

In [17]:
```
# merge two numpy array
arr1=np.array([1,2,3,4,5])
arr2=np.array([7,8,9,3,5])
np.concatenate((arr1,arr2))
```

Out[17]:
```
array([1, 2, 3, 4, 5, 7, 8, 9, 3, 5])
```

In [18]:
```
arr1=np.array([[1,2],[3,4]])
arr2=np.array([[5,6]])
a=np.concatenate((arr1,arr2))
b=np.concatenate((arr1,arr2),axis=0)
```

In [19]:
```
print(a)
print(b)
```

```
[[1 2]
 [3 4]
 [5 6]]
[[1 2]
 [3 4]
 [5 6]]
```

In [20]:
```
arr=np.array([[[0,1,2,3],[4,5,6,7]],[[0,1,2,3],[4,5,6,7]]])
arr
```

Out[20]:
```
array([[[0, 1, 2, 3],
        [4, 5, 6, 7]],

       [[0, 1, 2, 3],
        [4, 5, 6, 7]]])
```

In [21]:
```
arr.shape
```

Out[21]:
```
(2, 2, 4)
```

In [22]:
```
arr.ndim
```

Out[22]:
```
3
```

In [23]:
```
arr.size
```

Out[23]:
```
16
```

In [24]:
```
arr=arr.reshape(2,8)
arr
```

Out[24]:
```
array([[0, 1, 2, 3, 4, 5, 6, 7],
       [0, 1, 2, 3, 4, 5, 6, 7]])
```

In [25]:
```
print(arr[arr>5])
```

```
[6 7 6 7]
```

In [26]:
```
arr1=[[2,3,4],[5,6,7]]
arr2=[[1,2],[4,5],[6,7]]
val=np.dot(arr1,arr2)
val
```

Out[26]:
```
array([[38, 47],
       [71, 89]])
```

In [27]:
```
val=np.transpose(arr1)
val
```

Out[27]:
```
array([[2, 5],
       [3, 6],
       [4, 7]])
```

In [28]:
```
val=np.sum(arr1)
val
```

Out[28]:
```
27
```

In [29]:
```
val=np.sum(arr1,axis=0)
val
```

Out[29]:
```
array([ 7,  9, 11])
```

In [30]:
```
np.max(arr1)
```

Out[30]:
```
7
```

In [31]:
```
np.max(arr1,axis=0)
```

Out[31]:
```
array([5, 6, 7])
```

In [32]:
```
np.max(arr1,axis=1)
```

Out[32]:
```
array([4, 7])
```

In [33]:
```
np.min(arr1)
```

Out[33]:
```
2
```

In [34]:
```
np.unique(arr)
```

Out[34]:
```
array([0, 1, 2, 3, 4, 5, 6, 7])
```

In [35]:
```
np.flip(arr1)
```

Out[35]:
```
array([[7, 6, 5],
       [4, 3, 2]])
```

In [40]:
```
arr=[[3,4],[4,5]]
arr=np.array(arr)
arr.ravel()
```

Out[40]:
```
array([3, 4, 4, 5])
```

In [41]:
```
arr
```

Out[41]:
```
array([[3, 4],
       [4, 5]])
```

In [42]:
```
arr.flatten()
```

Out[42]:
```
array([3, 4, 4, 5])
```

In [43]:
```
arr
```

Out[43]:
```
array([[3, 4],
       [4, 5]])
```

In [ ]: