

```
In [27]: import numpy as b
a=['tony','steve','peter']
c=b.array(a)
print(b.array(a))
print(len(a))
print(type(b))
```

```
['tony' 'steve' 'peter']
3
<class 'numpy.ndarray'>
```

```
In [26]: print(b.shape)
```

```
<function shape at 0x00000117E85C7A60>
```

```
In [12]: print(b.reshape(1,3))
print(b.reshape(3,1))
```

```
[['tony' 'steve' 'peter']]
[['tony']
 ['steve']
 ['peter']]
```

```
In [17]: ab=b.reshape(1,3)
bc=b.reshape(3,1)
print(ab.shape)
print(bc.shape)
```

```
(1, 3)
(3, 1)
```

```
In [14]: e=[5,6,8,4,7]
f=[66,4,55,77,10]
g=[7,8,9,3,4]
h=c.array([e,f,g])
print(h)
print(type(h))
print(h.shape)
```

```
[[ 5  6  8  4  7]
 [66  4 55 77 10]
 [ 7  8  9  3  4]]
<class 'numpy.ndarray'>
(3, 5)
```

```
In [18]: print(h.reshape(15,1))
```

```
[[ 5]
 [ 6]
 [ 8]
 [ 4]
 [ 7]
 [66]
 [ 4]
 [55]
 [77]
 [10]
 [ 7]
 [ 8]
 [ 9]
 [ 3]
 [ 4]]
```

```
In [19]: print(h.reshape(1,15))
```

```
[[ 5  6  8  4  7 66  4 55 77 10  7  8  9  3  4]]
```

```
In [20]: u=[1,2,3,4,5]
v=[7,8,9,0,1]
w=[1,3,4,5,6]
x=[7,7,2,3,4]
y=c.array([u,v,w,x])
print(y)
print(type(y))
```

```
[[1 2 3 4 5]
 [7 8 9 0 1]
 [1 3 4 5 6]
 [7 7 2 3 4]]
<class 'numpy.ndarray'>
```

```
In [21]: print(y[:,:])
```

```
[[1 2 3 4 5]
 [7 8 9 0 1]
 [1 3 4 5 6]
 [7 7 2 3 4]]
```

```
In [ ]:
```

```
In [22]: print(y[2:])
```

```
[[1 3 4 5 6]
 [7 7 2 3 4]]
```

```
In [35]: print(y[:2])
```

```
[[1 2 3 4 5]
 [7 8 9 0 1]]
```

```
In [38]: print(y[:,2:])
```

```
[[3 4 5]
 [9 0 1]
 [4 5 6]
 [2 3 4]]
```

```
In [39]: print(y[:,2])
```

```
[[1 2]
 [7 8]
 [1 3]
 [7 7]]
```

```
In [23]: print(y[2:3])
```

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

```
In [34]: print(y[2:3,1:4])
```

```
[[3 4 5]]
```

```
In [31]: print(y[1:3])
```

```
[[7 8 9 0 1]
 [1 3 4 5 6]]
```

```
In [32]: print(y[1:3,:2])
```

```
[[7 8]
 [1 3]]
```

```
In [50]: z=b.arange(1,50)
print(z)
print(type(z))
```

[1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48
 49]
 <class 'numpy.ndarray'>

```
In [58]: z=b.arange(1,50,3)
print(z)
```

[1 4 7 10 13 16 19 22 25 28 31 34 37 40 43 46 49]

```
In [66]: cj=b.linspace(2.0,3.0,10)
print(cj)
```

[2. 2.11111111 2.22222222 2.33333333 2.44444444 2.55555556
 2.66666667 2.77777778 2.88888889 3.]

```
In [55]: cj=b.linspace(2.0,3.0,30)
print(cj)
```

[2. 2.03448276 2.06896552 2.10344828 2.13793103 2.17241379
 2.20689655 2.24137931 2.27586207 2.31034483 2.34482759 2.37931034
 2.4137931 2.44827586 2.48275862 2.51724138 2.55172414 2.5862069
 2.62068966 2.65517241 2.68965517 2.72413793 2.75862069 2.79310345
 2.82758621 2.86206897 2.89655172 2.93103448 2.96551724 3.]

```
In [59]: z*2
```

Out[59]: array([2, 8, 14, 20, 26, 32, 38, 44, 50, 56, 62, 68, 74, 80, 86, 92, 98])

```
In [60]: z%2==0
```

Out[60]: array([False, True, False, True, False, True, False, True, False,
 True, False, True, False, True, False, True, False])

```
In [67]: cj[4:]=10
print(cj)
```

[2. 2.11111111 2.22222222 2.33333333 10. 10.
 10. 10. 10. 10.]

```
In [68]: cj[4:8:2]=11
print(cj)
```

[2. 2.11111111 2.22222222 2.33333333 11. 10.
 11. 10. 10. 10.]

```
In [64]: print(b.random.rand(4,4))
```

[[0.72056644 0.74609992 0.48020948 0.06439833]
 [0.97430827 0.59421619 0.52963188 0.18268773]
 [0.74292618 0.72346871 0.9640995 0.83152703]
 [0.29342618 0.61179742 0.74635634 0.2485364]]

```
In [65]: print(b.random.rand(5,9))
```

```
[ [0.98726983 0.56258063 0.40557318 0.19614375 0.95174643 0.03742439  
  0.72951537 0.33735156 0.65732668]  
 [0.84170962 0.34501001 0.81827583 0.81226508 0.23630028 0.6272872  
  0.10835823 0.76550421 0.5896805 ]  
 [0.75821144 0.9198642 0.69206765 0.24638423 0.37296553 0.1967506  
  0.40496377 0.76923961 0.25708982]  
 [0.62142475 0.58774293 0.92650871 0.1985641 0.44662745 0.85522704  
  0.59112167 0.69404287 0.90227218]  
 [0.31638205 0.58275844 0.75126265 0.9590402 0.08327841 0.34048459  
  0.0594491 0.78675427 0.79117832]]
```

In []: