In [47]:
```
import numpy as ny
a=['BMW','HONDA','RR']
b=ny.array(a)
print(b)
print(len(b))
print(type(b))
print(b.shape)
print(b[2])                    #index value
```

```
['BMW' 'HONDA' 'RR']
3
<class 'numpy.ndarray'>
(3,)
RR
```

In [10]:
```
v=b.reshape(1,3)
print(v)
y=b.reshape(3,1)
print(y)
```

```
[['BMW' 'HONDA' 'RR']]
[['BMW']
 ['HONDA']
 ['RR']]
```

In [14]:
```
e=[1,2,3,4,5]
f=[6,7,8,9,2]
g=[4,8,6,7,1]
h=ny.array([e,f,g])
print(h)
print(type(h))
print(h.shape)
```

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

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

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

In [16]:
```
u=[1,2,3,4,5]
w=[7,8,9,0,1]
y=[1,3,4,5,6]
x=[7,7,2,3,4]
```

```
z=ny.array([u,w,y,x])
print(z)
print(type(z))
```

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

In [24]:
```
print(z[2:4,1:3])
```

```
[[3 4]
 [7 2]]
```

In [27]:
```
print(z[1:,1:])
```

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

In [46]:
```
print(z[1:3,:2])
```

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

In [52]:
```
j=ny.arange(1,40,2)
print(j)
```

```
[ 1  3  5  7  9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39]
```

In [61]:
```
t=ny.linspace(1,30,10)
print(t)
```

```
[ 1.          4.22222222  7.44444444 10.66666667 13.88888889 17.11111111
 20.33333333 23.55555556 26.77777778 30.        ]
```

In [65]:
```
t1=[1,2,3,4,5]
t2=ny.array(t1)
print(t2*20)
```

```
[ 20  40  60  80 100]
```

In [66]:
```
t[5:]=5
print(t)
```

```
[ 1.          4.22222222  7.44444444 10.66666667 13.88888889  5.
  5.          5.          5.          5.        ]
```

In [73]:
```
t[5:5:3]=4
print(t)
```

```
[ 1.          4.22222222  7.44444444 10.66666667 13.88888889  4.
  5.          5.          5.          5.        ]
```

In [75]:
```
print(ny.random.rand(5,5))
```

```
[[0.78736793 0.70201375 0.92714632 0.86009269 0.64962867]
 [0.56241563 0.12096241 0.68883561 0.02875543 0.08110389]
 [0.70353088 0.38549194 0.04786687 0.94626292 0.9036952 ]
 [0.73839232 0.2751547  0.56339868 0.64910699 0.27677604]
 [0.72033547 0.02506624 0.84074008 0.53284218 0.29348107]]
```

In [76]:
```
print(ny.random.randn(5,5))
```

```
[[-0.10961427  0.23219802 -0.06145596  0.28721061  0.41507962]
 [ 0.07546805  0.63265048 -0.29612966  0.33191256  0.00804271]
 [ 0.38701595 -1.48237473 -0.79693139 -0.34253512 -0.55461083]
 [ 2.40717322  0.6312063  -0.7922779  -1.54087119 -1.85334326]
 [ 0.69216871  0.33644022  1.67951381  0.6419524  -1.20827813]]
```

In [ ]: