In [6]:
```
import numpy as np
a=np.array([10, 20, 50, 85, 75, 95, 46, 12, 45, 95, 86, 36, 85, 89, 45, 36])
a
```

Out[6]:
```
array([10, 20, 50, 85, 75, 95, 46, 12, 45, 95, 86, 36, 85, 89, 45, 36])
```

Advance Indexing and Slicing Concept on 1D , 2D and 3D arrays

To Get Random Elements like (20,45,85) we use Advance Indexing and Slicing Concept on 1D , 2D and 3D arrays

In [10]:
```
# Get Randome elements like 20,45,85
#Get the INDEX of Random Elements
ind =[1,9,12]
#pass Random elements Indices to Ndarray objects
a[ind]
```

Out[10]:
```
array([20, 95, 85])
```

In [11]:
```
a[[1,9,12]]
```

Out[11]:
```
array([20, 95, 85])
```

In [9]:
```
a[[1,9,-4]]
```

Out[9]:
```
array([20, 95, 85])
```

In [12]:
```
print(a)
```

```
[10 20 50 85 75 95 46 12 45 95 86 36 85 89 45 36]
```

In [14]:
```
a.shape = (4,4)
print(a)
```

```
[[10 20 50 85]
 [75 95 46 12]
 [45 95 86 36]
 [85 89 45 36]]
```

In [21]:
```
# To get Principal Diagonal Elements from above matrix. Its not possible with indexing or slicing.
# sO NEED TO USE ADVANCE INDEXING METHOD in 2d Array
```

In [17]:
```
a[(0,1,2,3),(0,1,2,3)]
```

Out[17]:
```
array([10, 95, 86, 36])
```

In [18]:
```
a[(3,2,1,0),(0,1,2,3)]
```

Out[18]:
```
array([85, 95, 46, 85])
```

In [19]:
```
a[(0,1,2,3),(3,2,1,0)]
```

Out[19]:
```
array([85, 46, 95, 85])
```

In [20]:
```
a[(1,3),(1,2)]
```

Out[20]:
```
array([95, 45])
```

In [23]:
```
a.shape= (2,4,2)  #Here also we cant use basic indexing and slicing so using 3d / NDarray for random elements selection
print (a)
```

```
[[[10 20]
  [50 85]
  [75 95]
  [46 12]]

 [[45 95]
  [86 36]
  [85 89]
  [45 36]]]
```

In [24]:
```
a[(0,0,0),(1,2,1)]   # its wrong way to use. we cant get the output like this.
```

Out[24]:
```
array([[50, 85],
       [75, 95],
       [50, 85]])
```

In [26]:
```
a[(0,1),(0,2),(0,1)]
```

Out[26]:
```
array([10, 89])
```

In [28]:
```
# to get 75,12,36
a[(0,0,1),(2,3,3),(0,1,1)]
```

Out[28]:
```
array([75, 12, 36])
```

In [ ]:

In [ ]: