```
In [1]:   #SLICING OPERATIONS ON NDARRAY---1D Array

In [2]:   import numpy as np

In [3]:   lst=[10,20,30,40,50,60,70,80,90]
          a=np.array(lst)
          print(a,type(a))

          [10 20 30 40 50 60 70 80 90] <class 'numpy.ndarray'>

In [4]:   a[2:5]

Out[4]:   array([30, 40, 50])

In [5]:   a[2:]

Out[5]:   array([30, 40, 50, 60, 70, 80, 90])

In [7]:   a[:5]

Out[7]:   array([10, 20, 30, 40, 50])

In [8]:   a[::2]

Out[8]:   array([10, 30, 50, 70, 90])

In [9]:   a[::-1]

Out[9]:   array([90, 80, 70, 60, 50, 40, 30, 20, 10])

In [10]:  #SLICING OPERATIONS ON NDARRAY---2D Array

In [11]:  lst=[10,20,30,40,50,60,70,80,90]
          a=np.array(lst)
          a.shape=(3,3)
          print(a,type(a))

          [[10 20 30]
           [40 50 60]
           [70 80 90]] <class 'numpy.ndarray'>

In [12]:  a[0:3,1:2]

Out[12]:  array([[20],
                 [50],
                 [80]])
```

```
In [13]: a[:,1:2]
```

```
Out[13]: array([[20],
                [50],
                [80]])
```

```
In [14]: a[::,1:2]
```

```
Out[14]: array([[20],
                [50],
                [80]])
```

```
In [15]: a[::1,1:2:1]
```

```
Out[15]: array([[20],
                [50],
                [80]])
```

```
In [16]: a[1:3,0:3]
```

```
Out[16]: array([[40, 50, 60],
                [70, 80, 90]])
```

```
In [17]: a[1:,:]
```

```
Out[17]: array([[40, 50, 60],
                [70, 80, 90]])
```

```
In [18]: a[1::1,::]
```

```
Out[18]: array([[40, 50, 60],
                [70, 80, 90]])
```

```
In [19]: a[1::1,::1]
```

```
Out[19]: array([[40, 50, 60],
                [70, 80, 90]])
```

```
In [20]: print(a)
```

```
[[10 20 30]
 [40 50 60]
 [70 80 90]]
```

```
In [21]: a[0:2,1:3]
```

```
Out[21]: array([[20, 30],
                [50, 60]])
```

```
In [22]: a[:2,1:]
```

Out[22]: array([[20, 30],
                [50, 60]])

```
In [23]: a[:2:1,1::]
```

Out[23]: array([[20, 30],
                [50, 60]])

```
In [24]: a[:2:1,1::1]
```

Out[24]: array([[20, 30],
                [50, 60]])

```
In [25]: a[0:3:2,0:3]
```

Out[25]: array([[10, 20, 30],
                [70, 80, 90]])

```
In [26]: a[::2,:]
```

Out[26]: array([[10, 20, 30],
                [70, 80, 90]])

```
In [27]: print(a)
```

[[10 20 30]
 [40 50 60]
 [70 80 90]]

```
In [28]: a[::2,::]
```

Out[28]: array([[10, 20, 30],
                [70, 80, 90]])

```
In [29]: a[::2,::1]
```

Out[29]: array([[10, 20, 30],
                [70, 80, 90]])

```
In [30]: a[0:3:2,0:3:2]
```

Out[30]: array([[10, 30],
                [70, 90]])

```
In [31]: a[::2,::2]
```

Out[31]: array([[10, 30],
                [70, 90]])

```
In [32]: a[0::2,0::2]
```

```
Out[32]: array([[10, 30],
                [70, 90]])
```

```
In [33]: a[:3:2,:3:2]
```

```
Out[33]: array([[10, 30],
                [70, 90]])
```

```
In [34]: a[0:2,1:2]
```

```
Out[34]: array([[20],
                [50]])
```

```
In [35]: a[1:2,1:2]
```

```
Out[35]: array([[50]])
```

```
In [36]: a[1,2]
```

```
Out[36]: 60
```

```
In [37]: #SLICING OPERATIONS ON NDARRAY---nD Array
         lst=[10,20,30,40,50,60,70,80,90,15,25,35,65,75,85,15,55,65]
         a=np.array(lst)
         a.shape=(3,2,3)
         print(a,type(a))
```

```
[[[10 20 30]
  [40 50 60]]

 [[70 80 90]
  [15 25 35]]

 [[65 75 85]
  [15 55 65]]] <class 'numpy.ndarray'>
```

```
In [38]: a[0:3,0:1,0:3]
```

```
Out[38]: array([[[10, 20, 30]],

                [[70, 80, 90]],

                [[65, 75, 85]]])
```

```
In [39]: a[0:2,:,1:3]

Out[39]: array([[[20, 30],
                 [50, 60]],

                [[80, 90],
                 [25, 35]]])


In [40]: a[0:2,::,1:]

Out[40]: array([[[20, 30],
                 [50, 60]],

                [[80, 90],
                 [25, 35]]])


In [41]: a[0:2:1,::1,1::1]

Out[41]: array([[[20, 30],
                 [50, 60]],

                [[80, 90],
                 [25, 35]]])


In [42]: print(a)

         [[[10 20 30]
           [40 50 60]]

          [[70 80 90]
           [15 25 35]]

          [[65 75 85]
           [15 55 65]]]


In [43]: a[0:3,0:1,::2]

Out[43]: array([[[10, 30]],

                [[70, 90]],

                [[65, 85]]])


In [44]: a[:,:1,::2]

Out[44]: array([[[10, 30]],

                [[70, 90]],

                [[65, 85]]])
```

```
In [45]: a[::1,:1:1,::2]
```

Out[45]: array([[[10, 30]],

                [[70, 90]],

                [[65, 85]]])

```
In [46]: a[1,1,1]
```

Out[46]: 25

```
In [47]: a[1,0,1]
```

Out[47]: 80

```
In [ ]:
```