

```
In [5]: #NUMPY
#Array
import numpy as np
a=[1,2,3,4,5,6,7] #one Dimensional Array
arr=np.array(a)
```

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

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

```
In [7]: type(arr)

Out[7]: numpy.ndarray
```

```
In [8]: arr.shape #No. of ELEMENTS

Out[8]: (7,)
```

```
In [11]: arr.reshape(1,2)
```

```
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ValueError                                Traceback (most recent call last)
~\AppData\Local\Temp\ipykernel_8484\3492019618.py in <module>
----> 1 arr.reshape(1,2)

ValueError: cannot reshape array of size 7 into shape (1,2)
```

```
In [12]: #Multinested array
a=[1,2,3,4,5]
b=[3,4,5,6,7]
c=[6,7,8,9,1]
arr=np.array([a,b,c])
```

```
In [13]: arr

Out[13]: array([[1, 2, 3, 4, 5],
               [3, 4, 5, 6, 7],
               [6, 7, 8, 9, 1]])
```

```
In [14]: type(arr)

Out[14]: numpy.ndarray
```

```
In [15]: arr.shape

Out[15]: (3, 5)
```

```
In [16]: arr.reshape(1,15)

Out[16]: array([[1, 2, 3, 4, 5, 3, 4, 5, 6, 7, 6, 7, 8, 9, 1]])
```

```
In [17]: arr.reshape(5,3)

Out[17]: array([[1, 2, 3],
               [4, 5, 3],
               [4, 5, 6],
               [7, 6, 7],
               [8, 9, 1]])
```

```
In [26]: #Indexing
arr=np.array([1,2,3,4,5,6,7])  #one Dimensional Array
```

```
In [27]: #accessing the array elements
arr
```

```
Out[27]: array([1, 2, 3, 4, 5, 6, 7])
```

```
In [28]: arr[3]
```

```
Out[28]: 4
```

```
In [29]: arr[6]
```

```
Out[29]: 7
```

```
In [30]: arr[0]
```

```
Out[30]: 1
```

```
In [32]: arr[2]
```

```
Out[32]: 3
```

```
In [33]: arr
```

```
Out[33]: array([1, 2, 3, 4, 5, 6, 7])
```

```
In [34]: #Multinested array
a=[1,2,3,4,5] # row 0
b=[3,4,5,6,7] # row 1
c=[6,7,8,9,1] # row 2
arr=np.array([a,b,c])
```

```
In [36]: arr
```

```
Out[36]: array([[1, 2, 3, 4, 5],
               [3, 4, 5, 6, 7],
               [6, 7, 8, 9, 1]])
```

```
In [37]: #Array slicing[start,stop,incereement]
#array[start:stop,  start:stop]
#      row  row  col  col
arr[:,:]
```

```
Out[37]: array([[1, 2, 3, 4, 5],
               [3, 4, 5, 6, 7],
               [6, 7, 8, 9, 1]])
```

```
In [38]: arr[1:,:]
```

```
Out[38]: array([[3, 4, 5, 6, 7],
               [6, 7, 8, 9, 1]])
```

```
In [39]: arr[:, :2]
```

```
Out[39]: array([[1, 2],
               [3, 4],
               [6, 7]])
```

```
In [40]: arr[1:,2:]
```

```
Out[40]: array([[3, 4],
               [6, 7]])
```

```
In [41]: arr[:,3:]
```

```
Out[41]: array([[4, 5],
               [6, 7],
               [9, 1]])
```

```
In [42]: arr[2:,2:]
```

```
Out[42]: array([[8, 9, 1]])
```

```
In [43]: arr[1:,2:]
```

```
Out[43]: array([[5, 6, 7],
               [8, 9, 1]])
```

```
In [56]: #Activity
#creating array in numpy
#multinested array
a=[1,2,3,4,5] # row 0
b=[7,8,9,0,1] # row 1
c=[1,3,4,5,6] # row 2
d=[7,7,2,3,4] # row 3
arr=np.array([a,b,c,d])
```

```
In [57]: arr
```

```
Out[57]: array([[1, 2, 3, 4, 5],
               [7, 8, 9, 0, 1],
               [1, 3, 4, 5, 6],
               [7, 7, 2, 3, 4]])
```

```
In [59]: #array slicing
arr[2:,1:3]
```

```
Out[59]: array([[3, 4],
               [7, 2]])
```

```
In [60]: arr[1:,1:]
```

```
Out[60]: array([[8, 9, 0, 1],
               [3, 4, 5, 6],
               [7, 2, 3, 4]])
```

```
In [61]: arr[1:3,:2]
```

```
Out[61]: array([[7, 8],
               [1, 3]])
```

```
In [ ]:
```