

```
In [2]: import numpy as np
n1=np.array([10,20,30])
n1
```

```
Out[2]: array([10, 20, 30])
```

```
In [2]: import numpy as np
n2=np.array([[10,20,30],[40,50,60]])
n2
```

```
Out[2]: array([[10, 20, 30],
               [40, 50, 60]])
```

```
In [4]: #initialization numpy array
n1=np.zeros((1,2))
n1
```

```
Out[4]: array([[0., 0.]])
```

```
In [5]: n2=np.zeros((6,6))
n2
```

```
Out[5]: array([[0., 0., 0., 0., 0., 0.],
               [0., 0., 0., 0., 0., 0.],
               [0., 0., 0., 0., 0., 0.],
               [0., 0., 0., 0., 0., 0.],
               [0., 0., 0., 0., 0., 0.],
               [0., 0., 0., 0., 0., 0.]])
```

```
In [7]: n3=np.full((3,3),10)
n3
```

```
Out[7]: array([[10, 10, 10],
               [10, 10, 10],
               [10, 10, 10]])
```

```
In [8]: #intializing numpy array within array
n4=np.arange(10,20)
n4
```

```
Out[8]: array([10, 11, 12, 13, 14, 15, 16, 17, 18, 19])
```

```
In [9]: n5=np.arange(10,100,5)
n5
```

```
Out[9]: array([10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80, 85, 90,
               95])
```

```
In [10]: #array with random numbers
n6=np.random.randint(1,200,10)
```

```
n6
```

```
Out[10]: array([101, 152,  37, 121, 164, 198, 135, 197, 151, 105])
```

```
In [11]: #Numpy shape  
n7=np.array([[1,2,3],[4,5,6]])  
n7
```

```
Out[11]: array([[1, 2, 3],  
               [4, 5, 6]])
```

```
In [12]: n7.shape
```

```
Out[12]: (2, 3)
```

```
In [16]: n7.shape=(3,2)  
n7
```

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

```
In [17]: #Joining Numpy Arrays  
n8=np.array([10,20,30])  
n9=np.array([40,50,60])  
np.vstack((n8,n9))
```

```
Out[17]: array([[10, 20, 30],  
               [40, 50, 60]])
```

```
In [18]: np.vstack((n9,n8))
```

```
Out[18]: array([[40, 50, 60],  
               [10, 20, 30]])
```

```
In [19]: np.hstack((n8,n9))
```

```
Out[19]: array([10, 20, 30, 40, 50, 60])
```

```
In [20]: np.hstack((n9,n8))
```

```
Out[20]: array([40, 50, 60, 10, 20, 30])
```

```
In [26]: #NUMPY INTERSECTION AND DIFFERENCE  
  
n10=np.array([10,20,30,40,50,60])  
n11=np.array([50,60,70,80,90])  
np.intersect1d(n10,n11)
```

```
Out[26]: array([50, 60])
```

```
In [27]: np.setdiff1d(n10,n11)
```

```
Out[27]: array([10, 20, 30, 40])
```

```
In [28]: #ADDITION OF NUMPY ARRAYS  
n12=np.array([10,20])  
n13=np.array([30,40])  
np.sum([n12,n13])
```

```
Out[28]: 100
```

```
In [31]: np.sum([n12,n13],axis=0)
```

```
Out[31]: array([40, 60])
```

```
In [32]: np.sum([n12,n13],axis=1)
```

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

```
In [33]: #NUMPY ARRAY MATHEMTICS  
n14=np.array([10,20,30])  
n14=n14+1  
n14
```

```
Out[33]: array([11, 21, 31])
```

```
In [34]: n14=n14-1  
n14
```

```
Out[34]: array([10, 20, 30])
```

```
In [35]: n14=n14*1  
n14
```

```
Out[35]: array([10, 20, 30])
```

```
In [36]: n14=n14/2  
n14
```

```
Out[36]: array([ 5., 10., 15.])
```

```
In [37]: #MEAN,MEDIUN,SD
```

```
In [40]: n15=np.array([10,20,30,40,50,60])  
np.mean(n15)
```

```
35.0
```

Out[40]:

In [39]: `np.std(n15)`

Out[39]: 17.07825127659933

In [42]: `#NUMPY MATRIX
n16=np.array([[1,2,3],[4,5,6],[7,8,9]])
n16`

Out[42]: `array([[1, 2, 3],
 [4, 5, 6],
 [7, 8, 9]])`

In [43]: `n16[0,]`

Out[43]: `array([1, 2, 3])`

In [44]: `n16[:,0]`

Out[44]: `array([1, 4, 7])`

In []: