

```
In [1]: # import numpy package with nickname/alias np;
import numpy as np
```

```
In [2]: # create a numpy array
n_array=np.array([1,2,3,6,9,8,10])
```

```
In [3]: n_array
```

```
Out[3]: array([ 1,  2,  3,  6,  9,  8, 10])
```

```
In [4]: # print the array n_array
print(n_array)
```

```
[ 1  2  3  6  9  8 10]
```

```
In [5]: # Length of the array
len(n_array)
```

```
Out[5]: 7
```

```
In [6]: # sum of all elements in the array
n_array.sum()
```

```
Out[6]: 39
```

```
In [7]: # maximum value the elements in the array
n_array.max()
```

```
Out[7]: 10
```

```
In [8]: # minimum value the elements in the array
n_array.min()
```

```
Out[8]: 1
```

```
In [9]: # create a numpy array of 1s (of length 5)
np.ones(5)
```

```
Out[9]: array([1., 1., 1., 1., 1.])
```

```
In [10]: # create a numpy array of length 6 with 6 zeros
np.zeros(6)
```

```
Out[10]: array([0., 0., 0., 0., 0., 0.])
```

```
In [11]: # create an empty numpy array of length 7
np.empty(7)
```

```
Out[11]: array([2.61671669e-232, 4.71823278e+257, 1.82061472e+185, 3.49051730e-313,
                8.20610029e-304, 4.30737745e-294, 5.37798613e-310])
```

```
In [12]: np.zeros([5,6])
```

```
Out[12]: 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.]])
```

```
In [13]: # create a numpy array with a range of numbers 0 to 9
np.arange(10)
```

```
Out[13]: array([0, 1, 2, 3, 4, 5, 6, 7, 8, 9])
```

```
In [14]: # print the array
print(np.arange(10))

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

```
In [16]: # create a numpy array with a range of numbers and step size
np.arange(0, 14, 3)
```

```
Out[16]: array([ 0,  3,  6,  9, 12])
```

```
In [17]: # create an array with random numbers
np.random.random(7)
```

```
Out[17]: array([0.58460974, 0.3686499 , 0.05226293, 0.60281352, 0.74545576,
                0.61207557, 0.74407463])
```

```
In [18]: # Return evenly spaced numbers over a specified interval.
np.linspace(0, 3, 10)
```

```
Out[18]: array([0.          , 0.33333333, 0.66666667, 1.          , 1.33333333,
                1.66666667, 2.          , 2.33333333, 2.66666667, 3.          ])
```

```
In [20]: #create a 2-D array
b = np.arange(16).reshape(4, 4)
```

```
In [21]: print(b)
```

```
[[ 0  1  2  3]
 [ 4  5  6  7]
 [ 8  9 10 11]
 [12 13 14 15]]
```

```
In [22]: #print a array of Large numbers
print(np.arange(10000).reshape(100, 100))
```

```
[[  0   1   2 ...  97  98  99]
 [ 100 101 102 ... 197 198 199]
 [ 200 201 202 ... 297 298 299]
 ...
 [9700 9701 9702 ... 9797 9798 9799]
 [9800 9801 9802 ... 9897 9898 9899]
 [9900 9901 9902 ... 9997 9998 9999]]
```

```
In [24]: # create two arrays and print another array using arithmetic operator
a = np.array([20, 30, 40, 50,60])
b = np.arange(5)
c=a-b
print(c)
```

```
[20 29 38 47 56]
```

```
In [25]: print(b*2)
```

```
[0 2 4 6 8]
```

```
In [26]: b.dtype.name
```

```
Out[26]: 'int32'
```

```
In [29]: # min of each row
c.min(axis=0)
```

```
Out[29]: 20
```

```
In [30]: #print the exp of array
X=np.array([5,6,9,1,3])
np.exp(X)
```

```
Out[30]: array([1.48413159e+02, 4.03428793e+02, 8.10308393e+03, 2.71828183e+00,
                2.00855369e+01])
```

```
In [32]: #print the square root of array
print(np.sqrt(X))
```

```
[2.23606798 2.44948974 3.          1.          1.73205081]
```

```
In [33]: # a 3D array (two stacked 2D arrays)
c = np.array([[ [ 0, 1, 2],
                 [ 10, 12, 13]],
               [[100, 101, 102],
                 [110, 112, 113]]])
c.shape
```

```
Out[33]: (2, 2, 3)
```

```
In [ ]:
```

