

```
In [1]: import numpy as np
a=np.arange(1,6) # make a list of values from 1 to 5(6-1).
print(a)
print('-----')
b=np.min(a) #print minimum value of list a.
print(b)
print('-----')
b=np.max(a) #print maximum value of list a.
print(b)
print('-----')
b=np.argmin(a) #print lowest index value of list a.
print(b)
print('-----')
b=np.argmax(a) #print highest index value of list a.
print(b)
print('-----')
b=np.sqrt(a) #print square root value of each elements of list a.
print(b)
print('-----')
b=np.sin(a) #print sin value of list a.
print(b)
print('-----')
b=np.cos(a) #print cos value of list a.
print(b)
print('-----')
b=np.linspace(1,2,4) #print random 4 values between 1 and 2 including 1 and 2.
print(b)
```

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

```
-----
1
```

```
-----
5
```

```
-----
0
```

```
-----
4
```

```
-----
[1.          1.41421356  1.73205081  2.          2.23606798]
```

```
-----
[ 0.84147098  0.90929743  0.14112001 -0.7568025  -0.95892427]
```

```
-----
[ 0.54030231 -0.41614684 -0.9899925  -0.65364362  0.28366219]
```

```
-----
[1.          1.33333333  1.66666667  2.          ]
```

```
In [2]: a=np.random.seed(1)
a=np.random.randint(1,21,9).reshape(3,3)
print(a)
print('-----')
print(np.sum(a)) #print sum of all the elements of 2 D array. Method 1
print('-----')
print(a.sum()) #print sum of all the elements of 2 D array. Method 2
print('-----')
print(np.min(a)) #print minimum value of 2D array a.
print('-----')
print(np.max(a)) #print maximum value of 2D array a.
print('-----')
print(np.min(a,axis = 1)) # print minimum value of each row.axis=1 means row
print('-----')
print(np.min(a,axis = 0)) # print minimum value of each column.axis=0 means column
print('-----')
print(np.max(a,axis = 1)) # print maximum value of each row.axis=1 means row
print('-----')
print(np.max(a,axis = 0)) # print maximum value of each column.axis=0 means column
print('-----')
print(np.sum(a,axis =1)) #print sum of each row
print('-----')
print(np.sum(a,axis =0)) #print sum of each column
print('-----')
print(np.cumsum(a)) #cumulative sum
print('-----')
print(np.cumsum(a,axis=1)) #cumulative sum of rows
print('-----')
print(np.cumsum(a,axis=0)) #cumulative sum of columns
print('-----')
```

```
[[ 6 12 13]
 [ 9 10 12]
 [ 6 16  1]]
```

```
-----
85
```

```
-----
85
```

```
-----
1
```

```
-----
16
```

```
-----
[6 9 1]
```

```
-----
[ 6 10  1]
```

```
-----
[13 12 16]
```

```
-----
[ 9 16 13]
```

```
-----
[31 31 23]
```

```
-----
[21 38 26]
```

```
-----
[ 6 18 31 40 50 62 68 84 85]
```

```
-----
[[ 6 18 31]
 [ 9 19 31]
 [ 6 22 23]]
```

```
-----
[[ 6 12 13]
 [15 22 25]
 [21 38 26]]
-----
```

```
In [3]: a=np.array([1,2,3,4])
b=np.array([5,6,7,8])
print(a)
print('-----')
print(b)
print('-----')
c=np.hstack((a,b)) #horizontally arrange all values of list a and list b
print(c)
print('-----')
d=np.vstack((a,b)) #vertically arrange all values of list a and list b
print(d)
print('-----')
np.random.seed(122)
a=np.random.randint(1,21,9).reshape(3,3)
b=np.random.randint(31,51,9).reshape(3,3)
print(a)
print('-----')
print(b)
print('-----')
c=np.hstack((a,b)) #horizontally arrange all values of Array a and Array b
print(c)
print('-----')
d=np.vstack((a,b)) #vertically arrange all values of Array a and Array b
print(d)
```

```
[1 2 3 4]
```

```
-----
[5 6 7 8]
```

```
-----
[1 2 3 4 5 6 7 8]
```

```
-----
[[1 2 3 4]
 [5 6 7 8]]
```

```
-----
[[16 11 13]
 [17 13 16]
 [ 3 16 11]]
```

```
-----
[[40 37 45]
 [34 35 50]
 [50 44 31]]
```

```
-----
[[16 11 13 40 37 45]
 [17 13 16 34 35 50]
 [ 3 16 11 50 44 31]]
```

```
-----
[[16 11 13]
 [17 13 16]
 [ 3 16 11]
 [40 37 45]
 [34 35 50]
 [50 44 31]]
```

```

In [4]: ► a=np.arange(1,11)
print(a)
print('-----CONDITIONAL PRINTING-----')
b=np.where(a==7) #print index value where element 7 is stored.
print(b)
print('-----')
a=np.array([1,2,3,7,8,4,7,6,5,7])
print(a)
print('-----')
b=np.where(a==7) #print index value where each element 7 is stored.
print(b)
print('-----')
print() #condition based searching
a=np.arange(1,11)
print(a)
print('-----')
b=np.where(a%2==0) #print index value of every even element
print(b)
print('-----')
a=np.array([1,2,3,7,8,13,26,65,77]) #sorted List is given here.
print(a)
print('-----')
index=np.searchsorted(a,6)
#print index value ,if we want to insert element 6 in a given sorted list.
print(index)

```

```

[ 1  2  3  4  5  6  7  8  9 10]
-----CONDITIONAL PRINTING-----
(array([6], dtype=int64),)
-----
[1 2 3 7 8 4 7 6 5 7]
-----
(array([3, 6, 9], dtype=int64),)
-----

[ 1  2  3  4  5  6  7  8  9 10]
-----
(array([1, 3, 5, 7, 9], dtype=int64),)
-----
[ 1  2  3  7  8 13 26 65 77]
-----
3

```

In []: ►