

```
import numpy as np
arr=np.array([1,2,3,4],ndmin=5)
print(arr)
print("no. of dimensions",arr.ndim)
```

```
[[[[[1 2 3 4]]]]]
no. of dimensions 5
```

```
import numpy as np
arr=np.array([1.1,2.1,3.1])
newarr=arr.astype('i')
print(newarr)
print(newarr.dtype)
```

```
[1 2 3]
int32
```

```
import numpy as np
arr=np.array([[1,2,3],[4,5,6]])
print(arr.shape)
```

```
(2, 3)
```

```
import numpy as np
arr=np.array([[1,2,3],[4,5,6]])
arr.shape=(3,2)
print(arr)
```

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

```
import numpy as np
arr=np.array([[1,2,3],[4,5,6]])
b=arr.reshape(2,3)
print(b)
```

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

```
import numpy as np
a=np.arange(24)
print(a)
a.ndim
b=a.reshape(2,4,3)
print(b)
```

```
[ 0  1  2  3  4  5  6  7  8  9 10 11 12 13 14 15 16 17 18 19 20 21 22 23]
[[[ 0  1  2]
 [ 3  4  5]
 [ 6  7  8]
 [ 9 10 11]]

 [[12 13 14]
 [15 16 17]
 [18 19 20]
 [21 22 23]]]
```

```
import numpy as np
x=np.array([1,2,3,4,5],dtype=np.int8)
print(x.itemsize)
```

```
1
```

```
import numpy as np
x=np.array([[1,2],[3,4],[5,6]])
y=x[[0,1,2],[0,1,0]]
print(y)
```

```
[1 4 5]
```

```
import numpy as np
x=np.array([[0,1,2],[3,4,5],[6,7,8],[9,10,11]])
print('our array is:',x)
rows=np.array([[0,0],[3,3]])
cols=np.array([[0,2],[0,2]])
y=x[rows,cols]
print('the corner elements of this array are:',y)
```

```
our array is: [[ 0  1  2]
 [ 3  4  5]
 [ 6  7  8]
 [ 9 10 11]]
the corner elements of this array are: [[ 0  2]
 [ 9 11]]
```

```
import numpy as np
a=np.array([[3,7],[9,1]])
print('our array is:',a)
print(np.sort(a))
print(np.sort(a,axis=0))
dt=np.dtype([('name','S10'),('age',int)])
a=np.array([("raju",21),("anil",25),("ravi",17),("amar",27)],dtype=dt)
print('our array is:',a)
print('order by name:')
print (np.sort(a,order='name'))
```

```
our array is: [[3 7]
 [9 1]]
[[3 7]
 [1 9]]
[[3 1]
 [9 7]]
our array is: [(b'raju', 21) (b'anil', 25) (b'ravi', 17) (b'amar', 27)]
order by name:
[(b'amar', 27) (b'anil', 25) (b'raju', 21) (b'ravi', 17)]
```

```
import numpy as np
arr=np.array([1,2,3,4,5,4,4])
x=np.where(arr==4)
print(x)
```

```
(array([3, 5, 6]),)
```

```
import numpy as np
arr=np.array([1,2,3,4,5,6,7,8])
x=np.where(arr%2==0)
print(x)
```

```
(array([1, 3, 5, 7]),)
```

```
import numpy as np
arr=np.array([6,7,8,9])
x=np.searchsorted(arr,7)
print(x)
```

```
1
```

```
import numpy as np
arr=np.array([6,7,8,9])
x=np.searchsorted(arr,7,side='right')
print(x)
```

```
2
```

```
import numpy as np
arr=np.array([1,3,5,7])
x=np.searchsorted(arr,[2,4,6])
print(x)
```

```
[1 2 3]
```

```
import numpy as np
arr1=np.array([[1,2],[3,4]])
arr2=np.array([[5,6],[7,8]])
arr=np.concatenate((arr1,arr2),axis=1)
print(arr)
```

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

```
import numpy as np
arr1=np.array([[1,2],[3,4]])
arr2=np.array([[5,6],[7,8]])
arr=np.concatenate((arr1,arr2),axis=0)
print(arr)
```

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

```
import numpy as np
arr1 = np.array([1,2,3])
arr2 = np.array([4,5,6])
arr = np.vstack((arr1,arr2))
print(arr)
```

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

```
import numpy as np
arr1=np.array([[1,2],[3,4]])
arr2=np.array([[5,6],[7,8]])
arr=np.vstack((arr1,arr2))
print(arr)
```

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

```
import numpy as np
arr=np.array([1,2,3,4,5,6])
newarr=np.array_split(arr,3)
print(newarr)
```

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

```
import numpy as np
arr=np.array([1,2,3,4,5,6,7])
newarr=np.array_split(arr,5)
print(newarr)
```

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

```
import numpy as np
arr=np.array([1,2,3,4,5])
x=arr.copy()
arr[0]=42
print(arr)
print(x)
```

```
[42 2 3 4 5]
[1 2 3 4 5]
```

```
import numpy as np
arr=np.array([1,2,3,4,5])
x=arr.view()
arr[0]=42
print(arr)
print(x)
```

```
[42  2  3  4  5]  
[42  2  3  4  5]
```

