

```
In [ ]: import numpy as np
```

### INDEXING ,ARRAY FORMATION AFTER IMPORTING ARRAYS

```
In [ ]: A=[1,2,3,4,5]
ar1=np.array(A)
print(ar1)
print(type(ar1))
print(ar1[3])
print(ar1.shape)

[1 2 3 4 5]
<class 'numpy.ndarray'>
4
(5,)
```

### CONVERTING MULTIPLE LIST INTO AN ARRAY

```
In [ ]: a=[1,2,3,4,5]
b=[7,8,9,0,1]
c=[1,3,4,5,6]
d=[7,7,2,3,4]
arr2=np.array([a,b,c,d])
print(arr2)
print(arr2.shape)

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

### RESHAPING AN ARRAY

```
In [ ]: arr2.reshape(1,20)
print(arr2.shape)
print(arr2)

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

### ARRAY SLICING

```
In [ ]: arr2[:,:]# display the exact array
```

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

```
In [ ]: print("REPRESENTING ROW")
arr2[1:,:]

REPRESENTING ROW
```

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

```
In [ ]: print("REPRESENTING COLUMN")
        arr2[:,2]
```

```
Out[ ]: REPRESENTING COLUMN
        array([[1, 2],
               [7, 8],
               [1, 3],
               [7, 7]])
```

```
In [ ]: arr2[2:,1:3]
```

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

```
In [ ]: arr2[1:,1:]
```

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

```
In [ ]: arr2[1:3,:2]
```

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

linspace

```
In [ ]: np.linspace(1,3,5)
```

```
Out[ ]: array([1. , 1.5, 2. , 2.5, 3. ])
```

```
In [ ]: arr2[2:3]=10
        print(arr2)
```

```
[[100 100 100 100 100]
 [100 100 100 100 100]
 [ 10  10  10  10  10]
 [  7   7   2   3   4]]
```

```
In [ ]: np.ones(4)
```

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

```
In [ ]: array=[40,60,33,44,85,92]
        print(array)
```

```
[40, 60, 33, 44, 85, 92]
```

```
In [ ]: a1=np.arange(4,20,5) # range in array
        print(a1)
```

```
[ 4  9 14 19]
```

```
In [ ]: print(arr2)
        arr2%2==0
```

```
Out[ ]: [[100 100 100 100 100]
        [100 100 100 100 100]
        [ 10  10  10  10  10]
        [  7   7   2   3   4]]
        array([[ True,  True,  True,  True,  True],
               [ True,  True,  True,  True,  True],
               [ True,  True,  True,  True,  True],
               [False, False,  True, False,  True]])
```

```
In [ ]: arr2[1:2,1:4]= 87  
print(arr2)
```

```
[[100 100 100 100 100]  
 [100  87  87  87 100]  
 [ 10  10  10  77  10]  
 [  7   7   2  77   4]]
```

```
In [ ]: q= np.random.rand(3,4)  
print(q)
```

```
[[0.06668876 0.13936029 0.83285543 0.48815134]  
 [0.18184991 0.31241901 0.6774846  0.11523738]  
 [0.71401127 0.33185245 0.32149093 0.79733745]]
```