In [1]:
```
import numpy as np
```

Creating ndarrays

In [2]:
```
data1 = [5,6,7.8,9.5]
arr1 = np.array(data1)
```

In [3]:
```
arr1
```

Out[3]:
```
array([5. , 6. , 7.8, 9.5])
```

In [4]:
```
data2 = [[1,2,3,4],[5,6,7,8,]]
arr2 = np.array(data2)
```

In [5]:
```
arr2
```

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

In [6]:
```
arr2.ndim
```

Out[6]:
```
2
```

In [7]:
```
arr2.shape
```

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

In [8]:
```
arr2.size
```

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

In [9]:
```
arr1.dtype
```

Out[9]:
```
dtype('float64')
```

In [10]:
```
arr2.dtype
```

Out[10]:
```
dtype('int32')
```

In [11]:
```
np.zeros(5)
```

Out[11]:
```
array([0., 0., 0., 0., 0.])
```

In [12]:
```
np.zeros((3,6))
```

Out[12]:
```
array([[0., 0., 0., 0., 0., 0.],
       [0., 0., 0., 0., 0., 0.],
       [0., 0., 0., 0., 0., 0.]])
```

In [15]:
```
#3D array (x,y,z)
np.zeros((2,3,2))
```

Out[15]:
```
array([[[0., 0.],
        [0., 0.],
        [0., 0.]],

       [[0., 0.],
        [0., 0.],
        [0., 0.]]])
```

In [16]:
```
arr1 = np.array([1,2,3])
arr2 = np.array([1,2,3])
```

In [17]:
```
arr1.dtype
```

Out[17]:
```
dtype('int32')
```

In [18]:
```
arr2.dtype
```

Out[18]:
```
dtype('int32')
```

In [22]:
```
arr2 = arr2.astype('float64')
```

In [23]:
```
arr2.dtype
```

Out[23]:
```
dtype('float64')
```

Simple Airthmatic Operations

In [28]:
```
arr = np.array([[1,2,3,4] , [5,6,7,8]])
arr
```

Out[28]:
```
array([[1, 2, 3, 4],
       [5, 6, 7, 8]])
```

In [29]:
```
arr * arr
```

Out[29]:
```
array([[ 1,  4,  9, 16],
       [25, 36, 49, 64]])
```

In [30]:
```
arr + arr
```

Out[30]:
```
array([[ 2,  4,  6,  8],
       [10, 12, 14, 16]])
```

In [31]:
```
arr - arr
```

Out[31]:
```
array([[0, 0, 0, 0],
       [0, 0, 0, 0]])
```

In [32]:
```
arr / arr
```

Out[32]:
```
array([[1., 1., 1., 1.],
       [1., 1., 1., 1.]])
```

In [33]:
```
1 / arr
```

Out[33]:
```
array([[1.        , 0.5       , 0.33333333, 0.25      ],
       [0.2       , 0.16666667, 0.14285714, 0.125     ]])
```

In [34]:
```
arr ** 2
```

Out[34]:
```
array([[ 1,  4,  9, 16],
       [25, 36, 49, 64]], dtype=int32)
```

In [37]:
```
arr2 = np.array([[0,4,9,6],[3,5,7,8]])
arr2
```

Out[37]:
```
array([[0, 4, 9, 6],
       [3, 5, 7, 8]])
```

In [38]:
```
arr2 > arr
```

Out[38]:
```
array([[False,  True,  True,  True],
       [False, False, False, False]])
```

In [ ]:
```

```