NumPy: NumPy stands for Numerical Python and is the core library for numeric and scientific computing.

Introduction to NumPy:

Single Dimensional Array

In [2]:

```
import numpy as np
n1 = np.array([10,20,30,40])
n1
```

Out[2]:

```
array([10, 20, 30, 40])
```

Multi Dimensional Array

In [6]:

```
import numpy as np
n2 = np.array([[10,20,30,40],[50,60,70,80]])
n2
```

Out[6]:

```
array([[10, 20, 30, 40],
       [50, 60, 70, 80]])
```

In [8]:

```
type(n2)
```

Out[8]:

```
numpy.ndarray
```

Initializing NumPy array with zeros:

Single Dimensional Array

In [11]:

```
import numpy as np
n3 = np.zeros((1,2))
n3
```

Out[11]:

```
array([[0., 0.]])
```

Multi Dimensional Array

In [12]:

```
import numpy as np
n4 = np.zeros((5,5))
n4
```

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.]])
```

Initializing Numpy array with same number:

In [13]:

```
import numpy as np
n5 = np.full((2,2),10)
n5
```

Out[13]:

```
array([[10, 10],
       [10, 10]])
```

Intializing NumPy array with arange:

Continuous range

In [14]:

```
import numpy as np
n6 = np.arange(10,20)
n6
```

Out[14]:

```
array([10, 11, 12, 13, 14, 15, 16, 17, 18, 19])
```

Continuous range with step

In [15]:

```
import numpy as np
n7 = np.arange(10,50,5)
n7
```

Out[15]:

```
array([10, 15, 20, 25, 30, 35, 40, 45])
```

Initializing NumPy array with random numbers:

In [17]:

```
import numpy as np
n8 = np.random.randint(1,100,5)
n8
```

Out[17]:

```
array([79, 75, 17, 73, 86])
```

Checking the shape of NumPy array:

To find shape of array

In [18]:

```
import numpy as np
n9 = np.array([[1,2,3],[4,5,6]])
n9
```

Out[18]:

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

In [19]:

```
n9.shape
```

Out[19]:

```
(2, 3)
```

To change the shape of array

In [21]:

```
n9.shape =(3,2)
n9
```

Out[21]:

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

In [22]:

```
n9.shape
```

Out[22]:

```
(3, 2)
```

In [ ]:

```

```