Importing numpy library

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

Numerical Operations

```
In [ ]: np.sqrt(20) #Square Root
```

```
In [ ]: np.power(4,2) #Power
```

```
In [ ]: np.sin(3)
```

```
In [ ]: np.cos(3)
```

```
In [ ]: np.tan(3)
```

```
In [ ]: np.log(5)
```

```
In [ ]: np.round(10.3456)
```

Creating numpy arrays

One dimensional arrays

```
In [ ]: L=[23,33,35,56,67,78]
        arr=np.array(L)
        print(arr)
```

```
In [ ]: arr
```

Two dimensional arrays

```
In [ ]: L=[[12,22,23],[56,54,77]]
        arr=np.array(L)
        print(arr)
```

```
In [ ]: arr
```

Shape of the array

```
In [ ]: print(arr1.shape)
        print(arr2.shape)
```

Changing the shape of the sequence array

```
In [ ]: arr=np.arange(20)
        arr.shape=(4,5)
        arr
```

```
In [ ]: arr=np.arange(20).reshape(4,5)
        arr
```

Indexing

```
In [ ]: a=np.array([12,22,34,56,54,56])
```

```
In [ ]: a[0]
```

```
In [ ]: a[2]
```

```
In [ ]: a[-1]
```

Indexing multi dimensional

```
In [ ]: b=np.array([[23,33,34,45,56],[23,33,34,56,54],[78,65,67,64,78]])
        b
```

```
In [ ]: b[0,3]
```

numpy functions with arrays

```
In [ ]: arr=np.array([34,33,21,25,56,32,44,78,12])
```

```
In [ ]: arr.min()
```

```
In [ ]: arr.max()
```

```
In [ ]: arr.mean()
```

Array mathematical operations

Scaler multiplication

```
In [ ]: m1=np.array([[12,22,23],[45,43,33]])
        3*m1
```

Array addition & substraction

```
In [ ]: m1=np.array([10,20,30,40])
        m2=np.array([30,40,50,60])
```

```
In [ ]: m1+m2
```

```
In [ ]: m1-m2
```

```
In [ ]: m1=np.array([[12,22,23],[45,43,33]])
        m2=np.array([[22,21,43],[46,23,13]])
```

```
In [ ]: m1+m2
```

```
In [ ]: m1-m2
```

Array multiplication

```
In [ ]: m1=np.array([[12,23],[10,25]])
        m2=np.array([[10,15],[5,15]])
```

```
In [ ]: m1*m2
```