Basic array_operations

```
In [2]:  import numpy as np
```

```
In [6]:  arr=np.array([1,2,3,4,5])
         print("array:",arr)
```

```
array: [1 2 3 4 5]
```

```
In [7]:  print("add 5",arr+5)
```

```
add 5 [ 6  7  8  9 10]
```

```
In [10]:  print("multiply 2",arr*2)
```

```
multiply 2 [ 2  4  6  8 10]
```

Mean_median_standard deviation

```
In [11]:  import numpy as np
```

```
In [12]:  arr=np.array([1,2,3,4,5,6,7,8,9,10])
```

```
In [14]:  print("mean",np.mean(arr))
```

```
mean 5.5
```

```
In [16]:  print("median",np.median(arr))
```

```
median 5.5
```

```
In [17]:  print("standard_deviation",np.std(arr))
```

```
standard_deviation 2.8722813232690143
```

Reshaping_arrays

```
In [19]:  import numpy as np
```

```
In [25]:  arr=np.arange(1,13)
```

```
In [28]:  reshaped_arr=arr.reshape(3,4)
```

In [30]: ```python
print("Reshaped_array",reshaped_arr)
```

```
Reshaped_array [[ 1  2  3  4]
 [ 5  6  7  8]
 [ 9 10 11 12]]
```

Array_indexing

In [31]: ```python
import numpy as np
```

In [32]: ```python
arr=np.array([10,20,30,40,50])
```

In [33]: ```python
print("First_element",arr[0])
```

```
First_element 10
```

In [36]: ```python
print("Last_element",arr[-1])
```

```
Last_element 50
```

In [40]: ```python
print("slicing",arr[1:3])
```

```
slicing [20 30]
```

Array_concatenation

In [41]: ```python
import numpy as np
```

In [42]: ```python
arr1=np.array([1,2,3])
```

In [43]: ```python
arr2=np.array([4,5,6])
```

In [44]: ```python
concordinate=np.concatenate((arr1,arr2))
```

In [45]: ```python
print("concordinate_array:",concordinate)
```

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

Boolean Indexing

In [46]: ```python
import numpy as np
```

In [47]: ```python
arr=np.array([1,2,3,4,5])
```

In [48]: ```python
filter_array=arr[arr>2]
```

```
In [49]: print("filterd_array",filter_array)

         filterd_array [3 4 5]
```

Dot product

```
In [50]: import numpy as np
```

```
In [51]: arr1=np.array([1,2,3])
```

```
In [52]: arr2=np.array([4,5,6])
```

```
In [53]: dot_prtoduct=np.dot(arr1,arr2)
```

```
In [54]: print("dot_product",dot_prtoduct)

         dot_product 32
```

Linear algebra operations

```
In [55]: import numpy as np
```

```
In [56]: matrix=np.array([[1,2],[3,4]])
```

```
In [57]: determinant=np.linalg.det(matrix)
```

```
In [61]: inverse=np.linalg.inv(matrix)
```

```
In [62]: print("determinant",determinant)

         determinant -2.0000000000000004
```

```
In [65]: print("nverse",inverse)

         nverse [[-2.   1. ]
          [ 1.5 -0.5]]
```