

## PROGRAM 01

```
import numpy as np
```

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

```
In [4]: print("Array: ",arr)
```

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

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

```
Sum: [ 6  7  8  9 10]
```

```
In [6]: print("Multiply: ",arr*2)
```

```
Multiply: [ 2  4  6  8 10]
```

## PROGRAM 02

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

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

```
In [8]: print("Mean: ",np.mean(arr))
```

```
Mean:  5.5
```

```
In [9]: print("Median: ",np.median(arr))
```

```
Median:  5.5
```

```
In [10]: print("Standard Deviation: ",np.std(arr))
```

```
Standard Deviation:  2.8722813232690143
```

## PROGRAM 03

```
In [20]: import numpy as np
```

```
In [11]: arr=np.arange(1,13)
```

```
In [12]: reshape=arr.reshape(3,4)
```

```
In [13]: print("Reshape: ",reshape)
```

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

## PROGRAM 04

```
In [21]: import numpy as np
```

```
In [14]: arr=np.array([10,20,30,40,50])
```

```
In [15]: print(arr[0])
```

```
10
```

```
In [16]: print(arr[-1])
```

```
50
```

```
In [18]: print(arr[1:3])
```

```
[20 30]
```

## PROGRAM 05

```
In [22]: import numpy as np
```

```
In [23]: arr=np.array([1,2,3,4])
```

```
In [24]: arr1=np.array([5,6,7,8])
```

```
In [26]: concadenate=np.concatenate([arr,arr1])
```

```
In [28]: print("Concatenation: ",concadenate)
```

```
Concatenation: [1 2 3 4 5 6 7 8]
```

## PROGRAM 06

```
In [29]: import numpy as np
```

```
In [30]: arr=np.array([1,2,3,4,5])
```

```
In [31]: filter=arr[arr>2]
```

```
In [32]: print("Filter: ",filter)
```

```
Filter:  [3 4 5]
```

## PROGRAM 07

```
In [33]: import numpy as np
```

```
In [34]: arr1=np.array([1,2,3])
```

```
In [35]: arr2=np.array([4,5,6,])
```

```
In [38]: dot=np.dot(arr1,arr2)
```

```
In [39]: print("Dot product: ",dot)
```

```
Dot product:  32
```

## PROGRAM 08

```
In [51]: import numpy as np
matrix=np.array([[1,2],[4,5]])
determinant=np.linalg.det(matrix)
inverse=np.linalg.inv(matrix)
print("Determinant: ",determinant)
print("Inverse: ",inverse)
```

```
Determinant:  -2.9999999999999996
Inverse:  [[-1.66666667  0.66666667]
 [ 1.33333333 -0.33333333]]
```

```
In [ ]:
```