NUMPY (587)

In [3]:
```
import numpy as np
arr_1d = np.array([1,2,3,4,5])
print("1D Array:",arr_1d)
```

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

In [4]:
```
arr_2d = np.array([[1,2,3],[4,5,6]])
print("2D Array:\n",arr_2d)
```

```
2D Array:
 [[1 2 3]
 [4 5 6]]
```

In [5]:
```
arr_3d = np.array([[[1,2,3],[4,5,6]],[[17,18,19],[10,11,12]]])
print("3D Array:\n\n",arr_3d)
```

```
3D Array:

 [[[ 1  2  3]
  [ 4  5  6]]

 [[17 18 19]
  [10 11 12]]]
```

In [6]:
```
print("Array Properties\n")
print("Shape:",arr_2d.shape)
print("Size:",arr_2d.size)
print("Data Type:",arr_2d.dtype)
```

```
Array Properties

Shape: (2, 3)
Size: 6
Data Type: int32
```

In [7]:
```
zeros=np.zeros((2,3))
print("Zeros array:\n",zeros)
```

```
Zeros array:
 [[0. 0. 0.]
 [0. 0. 0.]]
```

In [8]:
```
ones=np.ones((3,6))
print("Zeros array:\n",ones)
```

```
Zeros array:
 [[1. 1. 1. 1. 1. 1.]
 [1. 1. 1. 1. 1. 1.]
 [1. 1. 1. 1. 1. 1.]]
```

In [9]:
```
identity=np.eye(4)
print("Identity Matrix:\n",identity)
```

```
Identity Matrix:
 [[1. 0. 0. 0.]
 [0. 1. 0. 0.]
 [0. 0. 1. 0.]
 [0. 0. 0. 1.]]
```

In [10]:
```
linespace=np.linspace(0,10,3)
print("Linespace:\n",linespace)
```

```
Linespace:
 [ 0.  5. 10.]
```

In [11]:
```
arrange_array=np.arange(0,100,2)
print("Arranging:\n",arrange_array)
```

```
Arranging:
 [ 0  2  4  6  8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46
 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88 90 92 94
 96 98]
```

In [12]:
```
array_a=np.array([1,2,3])
array_b=np.array([4,5,6])
add = array_a +array_b
print("Addition:\n",add)
```

```
Addition:
 [5 7 9]
```

In [13]:
```
array_a=np.array([1,2,3])
array_b=np.array([4,5,6])
mul = array_a * array_b
print("Multiplication:\n",mul)
```

```
Multiplication:
 [ 4 10 18]
```

In [14]:
```

scalar_multiply = array_a * 2
print("Scalar Multiplication:\n",scalar_multiply)
```

```
Scalar Multiplication:
 [2 4 6]
```

In [15]:
```
matrix_a=([1,2],[11,12])
matrix_b=([4,5],[14,15])
mul = np.dot(matrix_a,matrix_b)
print("Matrix Multiplication:\n",mul)
```

```
Matrix Multiplication:
 [[ 32  35]
 [212 235]]
```

In [16]:
```
array = np.array([10,20,30,40])
print("Array:\n",array)
```

```
Array:
 [10 20 30 40]
```

In [17]:
```
print("Elements at index 1: ",array[1])
print("Elements at index 1 to 3: ",array[2:4])
```

```
Elements at index 1:  20
Elements at index 1 to 3:  [30 40]
```

In [18]:
```
large_array = np.array([1,2,3,4,5,6,7,8,9])
print("Statistical Operations:\n")
print("Sum:",large_array.sum())
print("Mean:",large_array.mean())
print("Standard Deviation:",large_array.std())
print("Max:",large_array.max())
print("Min:",large_array.min())
```

```
Statistical Operations:

Sum: 45
Mean: 5.0
Standard Deviation: 2.581988897471611
Max: 9
Min: 1
```

In [19]:
```
random_array= np.random.random((2,3))
print("Random array:\n",random_array)
```

```
Random array:
 [[0.25056301 0.04967087 0.52493334]
 [0.00997338 0.02978253 0.39329247]]
```

In [20]:
```
random_int= np.random.randint(1,10,size=(2,3))
print("Random Integers:\n",random_int)
```

```
Random Integers:
 [[2 7 8]
 [7 4 3]]
```

In [ ]:
```

```