PROGRAM 1

In [1]:
```
import numpy as np
```

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

In [3]:
```
print("addition value is: ",arr+5)
```

```
addition value is:  [ 6  7  8  9 10]
```

In [4]:
```
print("multiply value is : ",arr*2)
```

```
multiply value is :  [ 2  4  6  8 10]
```

PROGRAM 2

In [5]:
```
import numpy as np
```

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

In [7]:
```
print("the mean value is: ",np.mean(arr))
```

```
the mean value is:  5.5
```

In [8]:
```
print("the median value is: ",np.median(arr))
```

```
the median value is:  5.5
```

In [9]:
```
print("standard deviation is: ",np.std(arr))
```

```
standard deviation is:  2.8722813232690143
```

PROGRAM 3

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

In [15]:
```
arr=np.arange(1,13)
```

In [16]:
```
reshaped_arr=arr.reshape(3,4)
```

In [17]:
```
print("reshape is: \n",reshaped_arr)
```

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

PROGRAM 4

In [18]:
```
import numpy as np
arr=np.array([10,20,30,40,50])
```

In [19]:
```
print("First element: ",arr[0])
```

```
First element:  10
```

In [20]:
```
print("second element: ",arr[-1])
```

```
second element:  50
```

In [21]:
```
print("slicing element: ",arr[1:4])
```

```
slicing element:  [20 30 40]
```

PROGRAM 5

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

In [23]:
```
arr1=np.array([1,2,3])
arr2=np.array([4,5,6,])
```

In [25]:
```
concatenated=np.concatenate([arr1,arr2])
print("the concatenated value is: ",concatenated)
```

```
the concatenated value is:  [1 2 3 4 5 6]
```

PROGRAM 6

In [26]:
```
import numpy as np
```

In [27]:
```
arr=np.array([1,2,3,4,5])
```

In [29]:
```
filtered_arr=arr[arr>2]
```

In [30]:
```
print("The concatenated value is: ",filtered_arr)
```

```
The concatenated value is:  [3 4 5]
```

PROGRAM 7

In [32]:
```
import numpy as np
```

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

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

In [36]:
```
dot_product=np.dot(arr1,arr2)
```

In [37]:
```
print("The dot product is: ",dot_product)
```

```
The dot product is:  32
```

PROGRAM 8

In [38]:
```
import numpy as np
```

In [40]:
```
matrix=np.array([[1,2],[3,4]])
```

In [41]:
```
determinate=np.linalg.det(matrix)
```

In [42]:
```
inverse=np.linalg.inv(matrix)
```

In [46]:
```
print("Dterminate is : ",determinate)
```

```
Dterminate is :  -2.0000000000000004
```

In [47]:
```
print("inverse is: ", inverse)
```

```
inverse is:  [[-2.   1. ]
 [ 1.5 -0.5]]
```

In [ ]: