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

```
In [3]:  my_list=[10,20,30,40,50]
         arr=np.array(my_list)
         print(arr)
```

```
[10 20 30 40 50]
```

Properties of the array

```
In [5]:  my=[10,20,30,40,50]
         arr=np.array(my)
         print(arr)
         print("size is:",arr.size)
         print("datatype is:",arr.dtype)
         print("dimension is:",arr.ndim)
         print("shape is:",arr.shape)
```

```
[10 20 30 40 50]
size is: 5
datatype is: int64
dimension is: 1
shape is: (5,)
```

```
In [11]:  my=[[10,23],[20,30],[40,50]]
          arr1=np.array(my)
          print(arr)
          print("size is:",arr1.size)
          print("datatype is:",arr1.dtype)
          print("dimension is:",arr1.ndim)
          print("shape is:",arr1.shape)
```

```
[10 20 30 40 50]
size is: 6
datatype is: int64
dimension is: 2
shape is: (3, 2)
```

ArrayList

```
In [13]:  my_list=[10,20,30,40]
          arr=np.array(my_list)
          print("elements:")
          for i in range(0,len(my_list)):
              print(my_list[i])
```

```
elements:
10
20
30
40
```

```
In [15]:  my_list=[[10,20,70],[30,40,80],[50,60,90]]
          arr=np.array(my_list)
          print(arr)
          print("elements:")
          for i in arr:
              for j in i:
                  print(j,end=' ')
              print()
```

```
[[10 20]
 [30 40]
 [50 60]]
elements:
10 20
30 40
50 60
```

Submatrix from matrix slicing

```
In [18]:  my_list=[[10,20,70],[30,40,80],[50,60,90]]
          arr=np.array(my_list)
          res1=arr[:,:]
          res2=arr[0:3,2:3]
          print(res1)
          print()
          print(res2)
          print()
```

```
[[10 20 70]
 [30 40 80]
 [50 60 90]]

[[70]
 [80]
 [90]]
```

Creating one dimensional array:->

In [20]:
```python
arr=np.ndarray(shape=5, dtype=int)
print("enter the elements:")
for i in range(0,arr.size):
    arr[i]=int(input())
print("array elements are:",arr)
```

```
enter the elements:
array elements are: [12 13 14 15 11]
```

Creating one dimensional array:->

In [21]:
```python
n=int(input())
arr=np.ndarray(shape=n,dtype=int)
print("enter elements:")
for i in range(n):
    arr[i]=int(input())
print(arr)
```

```
enter elements:
[1 2 3 4 5]
```

In [22]:
```python
n=int(input())
arr=np.ndarray(shape=n)
print("enter elements:")
for i in range(n):
    arr[i]=input()
print(arr)
```

```
enter elements:
[1. 2. 3. 4. 5.]
```

In [24]:
```python
n=int(input())
arr=np.ndarray(shape=n,dtype=str)
print("enter elements:")
for i in range(n):
    arr[i]=input()
print(arr)
```

```
enter elements:
['' '' '' '' '']
```

Creating 2D array

In [25]:
```python
r=int(input("enter rows:"))
c=int(input("enter columns:"))
arr=np.ndarray(shape=(r,c), dtype=int)
print("size of the array is:",arr.size)
print("shape of the array is:",arr.shape)
print("dimension of the array is:",arr.ndim)
print("datatype of the array is:",arr.dtype)
```

```
size of the array is: 6
shape of the array is: (3, 2)
dimension of the array is: 2
datatype of the array is: int64
```

Reading elements into matrix:->

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

In [4]:
```python
r=int(input("enter rows:"))
c=int(input("enter columns:"))
arr=np.ndarray(shape=(r,c),dtype=int)
for i in range(r):
    for j in range(c):
        arr[i][j]=int(input())
print("Array elements are:")
print(arr)
```

```
Array elements are:
[[1 2 3]
 [4 5 6]
 [7 8 9]]
```

Multi-Dimesional Arrays:->

```
In [ ]:  r=int(input("enter rows:"))
         c=int(input("enter columns:"))
         z=int(input("enter value for x axis:"))
         arr=np.ndarray(shape=(r,c,z),dtype=int)
         for i in range(r):
             for j in range(c):
                 for k in range(z):
                     arr[i][j][k]=int(input())
         print("Array elements are:")
         print(arr)
```

reshape()

```
In [6]:  list1=[10,20,30,40,50,60]
         arr=np.array(list1)
         print("dimension of the array is:",arr.ndim)
         arr2=arr.reshape(2,3)
         print(arr2)
         print("dimension of the new array is:",arr2.ndim)
```

```
dimension of the array is: 1
[[10 20 30]
 [40 50 60]]
dimension of the new array is: 2
```

```
In [ ]:
```

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