**Q-1: Create a 1D NumPy array with elements from 1 to 10.**

**Solution:**

import numpy as np  
  
array\_1 =np.array([1,2,3,4,5,6,7,8,9,10])  
print(array\_1)

**Output:**

[ 1 2 3 4 5 6 7 8 9 10]

**Q-2: Create a 2D NumPy array with a shape of (3, 4) containing random integers.**

**Solution:**

import numpy as np  
  
array\_1=np.random.randint(100,size=(3,4))  
print(array\_1)

**Output:**

[[29 73 46 30]

[19 94 94 89]

[13 63 94 29]]

**Q-3: Perform element-wise addition, subtraction, multiplication, and division on two arrays.**

**Solution:**

import numpy as np  
  
array\_1=np.array([1,2,3,4,5])  
array\_2=np.array([6,7,8,9,10])  
  
# Using the + Operator  
result1=array\_1+array\_2  
print("Using the + Operator:",result1)  
  
# Using the add() function  
result2=np.add(array\_1,array\_2)  
print("Using add() Function:",result2,"\n")  
  
# Using the - Operator  
result1=array\_1-array\_2  
print("Using the - Operator:",result1)  
  
# Using the subtract() function  
result2=np.subtract(array\_1,array\_2)  
print("Using subtract() Function:",result2,"\n")  
  
# Using the \* Operator  
result1=array\_1\*array\_2  
print("Using the \* Operator:",result1)  
  
# Using the multiplication() function  
result2=np.multiply(array\_1,array\_2)  
print("Using multi() Function:",result2,"\n")  
  
# Using the / Operator  
result1=array\_1/array\_2  
print("Using the / Operator:",result1)  
  
# Using the divide() function  
result2=np.divide(array\_1,array\_2)  
print("Using divide() Function:",result2,"\n")

**Output:**

Using the + Operator: [ 7 9 11 13 15]

Using add() Function: [ 7 9 11 13 15]

Using the - Operator: [-5 -5 -5 -5 -5]

Using subtract() Function: [-5 -5 -5 -5 -5]

Using the \* Operator: [ 6 14 24 36 50]

Using multi() Function: [ 6 14 24 36 50]

Using the / Operator: [0.16666667 0.28571429 0.375 0.44444444 0.5 ]

Using divide() Function: [0.16666667 0.28571429 0.375 0.44444444 0.5 ]

**Q-4: Extract and print the elements at even indices from a 1D array.**

**Solution:**

import numpy as np  
  
array\_1 =np.array([1,2,3,4,5,6,7,8,9,10])  
for i in range(len(array\_1)):  
 if i%2==0 :  
 print("index =",i,"Element=",array\_1[i])

**Output:**

index = 0 Element= 1

index = 2 Element= 3

index = 4 Element= 5

index = 6 Element= 7

index = 8 Element= 9

**Q-5: Create a 2-D array 1 3 5 7 9 2 4 6 8**

**• access the second row of the array • access the third column of the array**

**Solution:**

import numpy as np  
array\_1=np.array([[1,3,5],[7,9,2],[4,6,8]])  
print(array\_1)  
print("Second row :",array\_1[1:2])  
print("Third column :",array\_1[:,2])

**Output:**

**[[1 3 5]**

**[7 9 2]**

**[4 6 8]]**

**Second row : [[7 9 2]]**

**Third column : [5 2 8]**

**Q-6: Create a 3D array with shape (2, 3, 4) and access a specific element of the array [1,2,1].**

**Solution:**

import numpy as np  
  
array\_1=np.random.randint(100,size=(2,3,4))  
print(array\_1)  
print("Element:",array\_1[1:2:1])

**Output:**

[[[83 85 21 81]

[50 42 76 53]

[ 4 54 95 74]]

[[39 18 80 66]

[76 18 1 63]

[44 9 98 67]]]

Element:

[[[39 18 80 66]

[76 18 1 63]

[44 9 98 67]]]

**Q-7: Save one of your created arrays to a text file.**

**Solution:**

import numpy as np  
  
array\_1=np.array([1,2,3,4,5,6,7,8])  
np.save('xyz.npy', array\_1)  
np.savetxt('abc.npy', array\_1)

**Output:**

As text File

**Q-8: Load the saved array back into a NumPy array.**

**Soution:**

import numpy as np  
  
array\_1=np.array([1,2,3,4,5,6,7,8])  
np.save('xyz.npy', array\_1)  
load\_array1=np.load('xyz.npy')  
print(load\_array1)

**Output:**

[1 2 3 4 5 6 7 8]

**Q-9: Create a mark sheet for your class . Find the percentage of scored by each student Find the student with highest percentage and hence scored position 1**

**Solution:**