1) create a list, accept 5 numbers , store them in the list and finally convert that list to numpy array.

import numpy as np  
l = [int(input("Enter number: ")) for i in range(5)]  
arr = np.array(l)  
print(arr)

2) create numpy array of 5 numbers and print their sum

import numpy as np  
arr = np.array([1,2,3,4,5])  
sum = 0  
for i in range(len(arr)):  
 sum += arr[i]  
  
print(sum)

3) create numpy double dimension array of 3\*3 to store your initial and display them in a tabular form.

import numpy as np  
arr = np.array([[1, "ABC", 99.99], [2, "PQR", 99.95], [3,"XYZ", 99.90]])  
  
for i in arr:  
 print("|".join(i))

4) create one-d numpy array of 12 elements , accept 12 numbers and display them. Now convert this one-d array into (4\*3) two-d array and display it in a tabular form.

import numpy as np  
s = input("Enter 12 elements: ")  
l = list(s.split())  
arr = np.array(l)  
arr = arr.reshape(4,3)  
  
for i in arr: print("|".join(i))

5) create two double dimension array and arrange (stack) them using "axis=0" "axis=1" and "axis=2".

import numpy as np  
  
a = np.array([[1,2],  
 [3,4]])  
b = np.array([[5,6],  
 [7,8]])  
  
print(a)  
print(b)  
print("\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*")  
first = np.stack((a,b), axis = 2)  
print(first)  
  
second = np.stack((a,b), axis=1)  
print(second)  
  
third = np.stack((a,b),axis=2)  
print(third)

6) create two one-d arrays and then find out:

a) common elements of both the array

b) unique elements of first array

c) unique elements of second array

import numpy as np  
  
a = np.array([1,2,3,4,5])  
b = np.array([4,5,6,7,8])  
  
print(\*[i for i in a if i in b])  
print(\*[i for i in a if i not in b])  
print(\*[i for i in b if i not in a])

7) accept no.of rows and no. of cols from the user , create two-d array accordingly. Now calculate the sum as per "axis=0" and "axis=1"

import numpy as np  
  
m,n = int(input("enter number of rows ")),int(input("enter number of columns "))  
arr = np.random.randint(1,11, (m,n))  
print(arr)  
  
print("row sum = ", np.sum(arr, axis=1))  
print("col sum = ", np.sum(arr,axis=0))

8) declare two 2d arrays and calculate the sum as per "axis=0" "axis=1" and "axis=2"

import numpy as np  
  
a = np.array([[1,2], [3,4]])  
b = np.array([[5,6],[7,8]])  
print(a)  
print(b)  
  
print("Sum = ", np.sum(a, axis=0))  
print("Sum = ", np.sum(a, axis=1))  
print("Sum = ", np.sum(b, axis=0))  
print("Sum = ", np.sum(b, axis=1))

9) create two-d array ,display it. Now accept a number from user and perform all arithmetic operations on each and every element of the array using that number.

import numpy as np  
  
a = np.array([[1,2],[3,4]])  
print(a)  
  
n = int(input("Enter a number: "))  
print("add:", a+n)  
print("Sub:", a-n)  
print("prod:", a\*n)  
print("div:", a/n)  
print("div floor:", a//n)  
print("mod:", a%n)

10) accept start, end and how many numbers to be generated and then using "linspace" create numpy array.

import numpy as np  
  
s = int(input("Enter start : "))  
e = int(input("Enter End : "))  
n = int(input("Enter Number of elements : "))  
  
arr = np.linspace(s,e,n)  
print(arr)

11) create one-d array of 8 numbers and then using "slicing" concept,

a) print numbers from 1 to 4

b) print all the numbers from 3rd position

c) print last 3 numbers

import numpy as np  
  
arr = np.random.randint(1,100,8)  
print(arr)  
  
print(arr[1:5])  
print(arr[3:])  
print(arr[-3:])

12) create 2 d array (4\*3) with following values:

[[10,20,30,40],[50,60,70,80],[90,100,110,120]]

now using array slicing concept display following values

a) display 50 60 70 80

b) display 100 and 110

c) display 30 70 and 110

d) display 50 60 90 and 100

import numpy as np  
  
arr = np.arange(10,121,10).reshape(3,4)  
print(arr)  
  
print("a) ", arr[1, :])  
print("b) ", arr[2, 1:3])  
print("c) ",arr[:, 2])  
print("d) ", arr[1:3,0:2 ])