NUMPY ARRAY

PROGRAMS

#Store values in one dimensional array and display them

```
import numpy as np
a = np.array([])
n=int(input("enter number of elements you want to store in array"))
for i in range(0,n):
    a=np.insert(a,i,input("enter a number for index "+str(i)+" "))
for i in range(0,n):
    print(a[i])
```

Note :- in above program float values are stored by default

#Store integer values in one dimensional array and display them

```
import numpy as np
a = np.array([],np.int16)
n=int(input("enter number of elements you want to store in array"))
for i in range(0,n):
    a=np.insert(a,i,input("enter a number for index "+str(i)+" "))
for i in range(0,n):
    print(a[i])
```

Note :- in above program we have to pass np.int16 as datatype while creating blank array

#Find maximum value/index position from one dimensional array

```
import numpy as np
a = np.array([],np.int16)
n=int(input("enter number of elements you want to store in array"))
for i in range(0,n):
        a=np.insert(a,i,input("enter a number for index "+str(i)+" "))
for i in range(0,n):
        print(a[i])
maxvalue=np.amax(a)
print("maximum value=",maxvalue)
position=np.where(a == maxvalue)
print("Index position of maximum value=",position)
```

#Find second largest number from one dimensional array

```
import numpy as np
a = np.array([],np.int16)
n=int(input("enter number of elements you want to store in array"))
for i in range(0,n):
    a=np.insert(a,i,input("enter a number for index "+str(i)+" "))
for i in range(0,n):
    print(a[i])
n = 2
r=a[np.argsort(a)[-n:-(n-1)]]
print(r)
```

#To create array with 4 random numbers between 90 to 99

```
import numpy as np
a = np.random.randint(low=90, high=99, size=4)
print(a)
```

#Store values in Two dimensional array and display them

#Program1

```
import numpy as np
x = np.random.rand(2, 2)
for i in range(0,2):
    for j in range(0,2):
        x[i,j]=int(input("enter number for row"+str(i)+"column"+str(j)))
print(x)
```

#Program2

```
import numpy as np
x = np.empty([2,2],np.int16)
#x = np.random.rand(2, 2)
for i in range(0,2):
    for j in range(0,2):
        x[i,j]=int(input("enter number for row"+str(i)+"column"+str(j)))
print(x)
```

#Dynamic Two dimensional array creation (number of rows/columns prompt) and display all the elements

```
import numpy as np
r=int(input("Enter number of rows for matrix"))
c=int(input("Enter number of columns for matrix"))
x = np.empty([r,c],np.int16)
#x = np.random.rand(2, 2)
for i in range(0,r):
    for j in range(0,c):
        x[i,j]=int(input("enter number for row"+str(i)+"column"+str(j)))
for i in range(0,r):
    for j in range(0,c):
        print(x[i,j],end=" ")
    print()
```

#find the most frequent value in an array.

```
import numpy as np
x = np.random.randint(0, 10, 40)
print("Original array:")
print(x)
print("Most frequent value in the above array:")
print(np.bincount(x).argmax())
```

#numpy.random.randint(*low, high=None, size=None, dtype='l'***)**

#low=start number

#high=end number

#size = no of elements in array

#dtype = datatype of array elements