

CSE 3041 Programming in Data Science

Numpy HW

1.Create a array using numpy for 10 different barcodes

```
[1] import numpy as np
arr1=np.random.randn(10)
arr1
```

```
array([ 0.0210742 , 0.64465989, 0.50741173, 1.19252786, 0.03139602,
       -0.48210009, -1.08563223, -0.95700953, 0.33393219, 0.462051  ])
```

2.Create a 2 different array and number 1 for toys ,2 for grocery and so on(both arrays have different datatypes)

```
[9] arr2=np.array(['Toys','Grocery','PackedFood','Dress','Shoes'])
arr3=np.array([1,2,3,4,5])
print(arr2)
print(arr3)
```

```
['Toys' 'Grocery' 'PackedFood' 'Dress' 'Shoes']
[1 2 3 4 5]
```

3.Create a stock array using numpy with zero allotted for all entries

```
[16] stock=np.zeros(5)
stock
```

```
array([0., 0., 0., 0., 0.])
```

4.Increase the assigned value by 1 for grocery

```
[17] stock[1]=1
stock
```

```
array([0., 1., 0., 0., 0.])
```

5.Create a 2D array which has branch code,item code,item quantity,price.

```
[36] main=np.array([[1,2,5,25],[44,5,10,2000],[8,1,10,200]])
main
```

```
array([[ 1,  2,  5, 25],
       [44,  5, 10, 2000],
       [ 8,  1, 10, 200]])
```

6. Get the shape of the above 2D array.

```
[23] main.shape
```

```
(3, 4)
```

7. Get the datatype of the 2 arrays created in 2nd question

```
[25] print(arr2.dtype)
      print(arr3.dtype)
```

```
<U10
int64
```

8. Create a simple 3D array with particular branch details in regard with the product

```
main1=([[[[1,2,5,25],[1,1,5,1000]],[[8,1,10,200],[8,5,6,8000]],[[44,5,10,2000],[44,1,10,28]]]])
main1
```

```
[[[1, 2, 5, 25], [1, 1, 5, 1000]],
 [[8, 1, 10, 200], [8, 5, 6, 8000]],
 [[44, 5, 10, 2000], [44, 1, 10, 28]]]
```

9. Find the dot product of the 2D matrix with the quantity available thereby finding the final worth of the stock available.

```
[29] a=np.dot(main[0,3],5)
      print("the worth of stock available in store 1 is:",a)
```

```
the worth of stock available in store 1 is: 125
```

10. Increase all values of "Main array" by 1 using matrix addition

```
b=main+([1,1,1,1])
b
```

```
array([[ 2,  3,  6, 26],
       [ 9,  2, 11, 201],
       [45,  6, 11, 2001]])
```

11. Print the first, third, and last position of any random Matrix

```
[33] num = np.array([0, 65, 100, 125, 2550, 2025])

      print('first position:',num[0])
      print('third position:',num[2])
      print('third position:',num[-1])
```

```
[33] first position: 0
      third position: 100
      third position: 2025
```

12.print even entries of a array

```
[32] import numpy as np
      x = np.array([2, 3, 7, 11, 13, 17, 19, 23, 29, 31, 37])
      print(x[0:11:2])
```

```
[ 2  7 13 19 29 37]
```

13.Array of all the even integers from 30 to 100

```
▶ import numpy as np
   array=np.arange(30,102,2)

   print(array)
```

```
↳ [ 30  32  34  36  38  40  42  44  46  48  50  52  54  56  58  60  62  64
    66  68  70  72  74  76  78  80  82  84  86  88  90  92  94  96  98 100]
```

14.reverse the array

```
[35] arr = np.array([1, 2, 4, 5, 6])

      reverse_arr = np.flipud(arr)
      print(reverse_arr)
```

```
[6 5 4 2 1]
```

15.Arrange the 2D array from 5th question based on increasing values .

```
[40] c=np.array([[1,2,5,25],[44,5,10,2000],[8,1,10,200]])
      print(np.sort(c))
```

```
[[ 1  2  5 25]
 [ 5 10 44 2000]
 [ 1  8 10 200]]
```