

## CSE 3041 Data Science

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1.To perform dot product of numpy.

```
[ ] import numpy as np
    x=np.array([5,8,-6,2])
    y=np.array([4,-3,8,9])
    dotproduct=np.dot(x,y)
    print(dotproduct)
```

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2.To print random values as 2\*3 matrix

```
[ ] import numpy as np
    data=np.random.randn(2,3)
    data
```

```
array([[ 0.87557754, -0.13121886, -1.26537925],
       [-0.65207855,  1.60865341, -0.07585572]])
```

3.To get the datashape of the matrix

```
[ ] data.shape  
  
(2, 3)
```

4.To get the the datatype of the matrix

```
[ ] data.dtype  
  
dtype('float64')
```

5.To print particular elements as a numpy

```
▶ data1=[6,7,4,3]  
arr1=np.array(data1)  
arr1  
  
↪ array([6, 7, 4, 3])
```

## 6.To print zero array numpy

```
[ ] np.zeros(10)
```

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

```
▶ np.zeros((3,6))
```

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

## 7.To print 3D array

```
[ ] np.empty((4,3,2))
```

```
array([[[2.53552276e-316, 7.11454530e-322],  
       [0.00000000e+000, 0.00000000e+000],  
       [0.00000000e+000, 3.16251369e+180]],  
      [[1.05776693e-153, 6.03461190e+151],  
       [1.08248685e-071, 7.37108894e+228],  
       [1.04796651e-142, 4.99874583e+217]],  
      [[4.47303447e-143, 1.99886082e+161],  
       [6.34914943e+151, 3.81391076e+180],  
       [8.99847089e+130, 1.23064818e+171]],  
      ...])
```

## 8.Typecast

```
[ ] arr=np.array([1,2,3,4])
    print(arr.dtype)
    float_arr=arr.astype(np.float64)
    print(float_arr.dtype)
```

```
int64
float64
```

```
▶ numeric_strings=np.array(['1.25','-9.6'])
   numeric_strings.astype(float)
```

```
➞ array([ 1.25, -9.6 ])
```

```
[ ] import numpy as np
```

```
    arr[5:8]=12
    arr
```

```
array([ 0,  1,  2,  3,  3, 12, 12, 12,  8,  9])
```

## 9.Basic indexing and slicing

```
[ ] import numpy as np
    arr=np.arange (10)
    arr[4:5]=3
    arr
```

```
array([0, 1, 2, 3, 3, 5, 6, 7, 8, 9])
```

## 10.2D array

```
[2] import numpy as np
    array2d=np.array([[1,2,3],[4,5,6],[9,3,4]])
    array2d[1]
```

```
array([4, 5, 6])
```

### 11.3D array

```
▶ arr3d=np.array([[[1,2,3],[4,5,6]],[[8,7,4],[2,6,8]]])  
arr3d
```

```
↳ array([[[1, 2, 3],  
          [4, 5, 6]],  
        [[8, 7, 4],  
          [2, 6, 8]]])
```

---

### 12.Indexing and slicing in 3D array

```
[ ] arr3d[0,1]
```

```
array([4, 5, 6])
```

```
[ ] arr3d[1,1,1]
```

```
6
```

```
[ ] array2d[:2,2:]
```

```
array([[3],  
       [6]])
```