

```
In [1]: !pip install numpy
```

Requirement already satisfied: numpy in c:\users\hepsi\anaconda3\lib\site-packages (1.24.3)

```
In [2]: #importing numpy
import numpy as np
```

```
In [5]: #creating numpy
a=np.array([1,2,3])
b=np.array([(1.5,2,3),(4,5,6)],
c=np.array([(1.5,2,3),(4,5,6)],
           [(3,2,1),(4,5,6)]],
print(c)
```

Cell In[5], line 6
print(c)
^

SyntaxError: incomplete input

```
In [6]: a=np.array([1,2,3,4,5,6])
b=np.array([[1,2,3,4],[5,6,7,8],[45,3,7,87],[9,10,23,56]])
print(b)
```

```
[[ 1  2  3  4]
 [ 5  6  7  8]
 [45  3  7 87]
 [ 9 10 23 56]]
```

```
In [7]: #creating an array of zeros
np.zeros((4,5))#---4 rows and 5 columns in 2d array
```

```
Out[7]: array([[0., 0., 0., 0., 0.],
               [0., 0., 0., 0., 0.],
               [0., 0., 0., 0., 0.],
               [0., 0., 0., 0., 0.]])
```

```
In [8]: #creating an array of ones  
np.ones((3,4,4)) #here 3 is the shape,4 is no of rows and 4 is no of columns
```

```
Out[8]: array([[1., 1., 1., 1.],  
               [1., 1., 1., 1.],  
               [1., 1., 1., 1.],  
               [1., 1., 1., 1.]],  
             [[1., 1., 1., 1.],  
               [1., 1., 1., 1.],  
               [1., 1., 1., 1.],  
               [1., 1., 1., 1.]],  
             [[1., 1., 1., 1.],  
               [1., 1., 1., 1.],  
               [1., 1., 1., 1.],  
               [1., 1., 1., 1.]])
```

```
In [11]: #creating an array of evenly spaced values  
b=np.arange(12,30,4) #start,stop,step  
print(b)
```

```
[12 16 20 24 28]
```

```
In [13]: #create a 2D array  
e=np.full((2,2),5)  
print(e)  
print(e.ndim)
```

```
[[5 5]  
 [5 5]]  
2
```

```
In [15]: #creating 3D array  
e=np.full((2,2,2),6)  
print(e)  
print(e.ndim)
```

```
[[[6 6]  
   [6 6]]  
 [[6 6]  
   [6 6]]]  
3
```

```
In [16]: #creating identity matrix  
f=np.eye(5) #here 5=no of rows  
print(f)
```

```
[[1. 0. 0. 0. 0.]  
 [0. 1. 0. 0. 0.]  
 [0. 0. 1. 0. 0.]  
 [0. 0. 0. 1. 0.]  
 [0. 0. 0. 0. 1.]]
```

```
In [17]: #creating an array with random values  
np.random.random((2,2))
```

```
Out[17]: array([[0.18748174, 0.97259101],  
               [0.23880227, 0.11410119]])
```

```
In [19]: #finding shape of an array  
arr=np.array([[1,2,3,4],  
              [5,6,7,8],    #3 is no of rows and 4 is no of columns  
              [5,7,7,9]])  
print(arr.shape)
```

```
(3, 4)
```

```
In [20]: #to find no of elements in an array  
arr=np.array([[1,2,3,4],  
              [5,6,7,8],  
              [4,2,6,3]])  
print(arr.size)
```

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12
```

```
In [22]: #to find length of an array  
arr=np.array([[2,3,4,5],  
              [6,5,7,9]])  
len(arr)    #it will count only rows
```

```
Out[22]: 2
```

accessing array elements(refering index)

```
In [23]: arr=np.array([1,2,3])  
print(arr[2])
```

```
3
```

```
In [24]: #adding two index position  
arr=np.array([3,5,6,8,2])  
print(arr[3]+arr[2])
```

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```

```
In [26]: #access 3D array  
arr=np.array([[[1,2,3],[4,5,6]],  
              [[7,8,9],[10,11,12]],  
              [[7,4,9],[1,11,13]],  
              [[3,5,4],[6,7,9]])]  
print(arr[1,1,2])
```

```
12
```

In []: