

Array of Zeros

```
In [ ]: import numpy as np
x=np.zeros((3,3),np.int64)
print(f"{x}")
x=np.zeros((3,3))
print(f"{x}")
```

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

Array of Ones

```
In [ ]: x=np.ones((2,3),np.int64)
print(x)
```

```
[[1 1 1]
 [1 1 1]]
```

Array of Full of specific elements

```
In [ ]: # np.full(shape, constant value)
x=np.full((4,3),1)
print(x)
```

```
[[1 1 1]
 [1 1 1]
 [1 1 1]
 [1 1 1]]
```

Identity Martix

```
In [ ]: x=np.eye(5,dtype=np.int64)
print(x)
x=np.eye(3,dtype=np.int32)
print(x)
```

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

Diagonal Matrix

```
In [ ]: x=np.diag([10,20])
print(x)
```

```
x=np.diag([10,20,30,40])
print(x)
```

```
[[10  0]
 [ 0 20]]
[[10  0  0  0]
 [ 0 20  0  0]
 [ 0  0 30  0]
 [ 0  0  0 40]]
```

arange function for producing integer array

```
In [ ]: # x=np.arange(start=0,stop,step=1)
x=np.arange(10)
print(x)
x=np.arange(1,10)
print(x)
x=np.arange(1,11,2)
print(x)
```

```
[0 1 2 3 4 5 6 7 8 9]
[1 2 3 4 5 6 7 8 9]
[1 3 5 7 9]
```

linspace function for producing float array

```
In [ ]: x=np.linspace(0.0,10.0)
print(x)
```

```
[ 0.          0.20408163  0.40816327  0.6122449   0.81632653  1.02040816
 1.2244898   1.42857143  1.63265306  1.83673469  2.04081633  2.24489796
 2.44897959  2.65306122  2.85714286  3.06122449  3.26530612  3.46938776
 3.67346939  3.87755102  4.08163265  4.28571429  4.48979592  4.69387755
 4.89795918  5.10204082  5.30612245  5.51020408  5.71428571  5.91836735
 6.12244898  6.32653061  6.53061224  6.73469388  6.93877551  7.14285714
 7.34693878  7.55102041  7.75510204  7.95918367  8.16326531  8.36734694
 8.57142857  8.7755102   8.97959184  9.18367347  9.3877551   9.59183673
 9.79591837 10.]
```

Creating Multidimensional Array using arange and reshape

```
In [ ]: x=np.arange(1,10)
print(f"Original = {x}")
x=x.reshape(3,3)
print(x)
y=np.arange(1,10).reshape(3,3)
print(y)
```

```
Original = [1 2 3 4 5 6 7 8 9]
[[1 2 3]
 [4 5 6]
 [7 8 9]]
[[1 2 3]
 [4 5 6]
 [7 8 9]]
```

Array with random Numbers

```
In [ ]: x=np.random.random()
print(x)
x=np.random.random((3,3))
print(x)
x=np.random.randint(1,10,size=(3,3))
print(x)
```

0.2059240109132886

[[0.19229565 0.20693956 0.14281604]

[0.52593563 0.0253163 0.94258303]

[0.75570061 0.74557899 0.49880196]]

[[5 8 8]

[9 6 5]

[3 5 4]]