

#1. Creating a NumPy Array

#• Basic ndarray

```
import numpy as np
arr=np.array([1,2,3,4,5])
print(arr)
```

#output

```
[1 2 3 4 5]
```

#• Array of zeros

```
zeros_arr = np.zeros((3, 3))
print(zeros_arr)
```

#output

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

#• Array of ones

```
ones_arr = np.ones((2, 4)) # 2x4 matrix of ones
print(ones_arr)
```

#output

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

#• Random numbers in ndarray

```
random_arr = np.random.rand(3, 3) # 3x3 matrix with random values  
print(random_arr)
```

#output

```
[[0.5488135 0.71518937 0.60276338]  
 [0.54488318 0.4236548 0.64589411]  
 [0.43758721 0.891773 0.96366276]]
```

#• An array of your choice

```
custom_arr = np.array([[10, 20, 30], [40, 50, 60]]) # Custom 2x3 array  
print(custom_arr)
```

#output

```
[[10 20 30]  
 [40 50 60]]
```

#• Identity matrix in NumPy

```
identity_matrix = np.eye(4) # 4x4 Identity matrix  
print(identity_matrix)
```

#output

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

#• Evenly spaced ndarray

```
evenly_spaced = np.linspace(0, 10, 5) # 5 evenly spaced values from 0 to 10  
print(evenly_spaced)
```

#output

```
[ 0.  2.5  5.  7.5 10.]
```