

Numpy Basic Functions

```
In [1]: import numpy as np
```

Making a Numpy Array

```
In [2]: np_array = np.array([1,2,3,4,5,6,7,8,9,10])
```

```
In [3]: print(np_array)
```

```
[ 1  2  3  4  5  6  7  8  9 10]
```

np.arange()

```
In [4]: np_array_range = np.arange(10 + 1 )
```

```
In [5]: print(np_array_range)
```

```
[ 0  1  2  3  4  5  6  7  8  9 10]
```

Blank Arrays

```
In [6]: np_blank_arr = np.zeros((8,8))
```

```
In [7]: print(np_blank_arr)
```

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

Ones Arrays

```
In [8]: ones_nparr = np.ones((8,8))
```

```
In [9]: print(ones_nparr)
```

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

DMAS on Arrays

```
In [10]: dmas_arr = np.array([1,2,3,4,5,6,7,8,9,10])
```

```
In [11]: # Division
```

```
In [12]: print(dmas_arr/2)
```

```
[0.5 1. 1.5 2. 2.5 3. 3.5 4. 4.5 5. ]
```

```
In [13]: #Multiplication
```

```
In [14]: print(dmas_arr*3)
```

```
[ 3  6  9 12 15 18 21 24 27 30]
```

```
In [15]: #Addition
```

```
In [16]: print(dmas_arr + 60)
```

```
[61 62 63 64 65 66 67 68 69 70]
```

```
In [17]: #Subtraction
```

```
In [18]: print(dmas_arr - 0.5)
```

```
[0.5 1.5 2.5 3.5 4.5 5.5 6.5 7.5 8.5 9.5]
```

.dtype in Arrays

```
In [19]: np_array = np.array([1,2,3,4,5,6,7,8,9,10])
```

```
In [20]: np_array.dtype
```

```
Out[20]: dtype('int32')
```

Square Root of Arrays

```
In [21]: np_array = np.array([1,2,3,4,5,6,7,8,9,10])
```

```
In [22]: print(np_array*np_array)
```

```
[ 1  4  9 16 25 36 49 64 81 100]
```

Cuberoot of Arrays

```
In [23]: np_array = np.array([1,2,3,4,5,6,7,8,9,10])
```

```
In [24]: print(np_array*np_array*np_array)
```

```
[ 1  8 27 64 125 216 343 512 729 1000]
```

Slicing

```
In [25]: np_array = np.array([0,1,2,3,4,5,6,7,8,9,10])
```

```
In [26]: #Printing specific elements from array
```

```
In [27]: print(np_array[1])
```

```
1
```

```
In [28]: print(np_array[1:7])
```

```
[1 2 3 4 5 6]
```

```
In [29]: #Making a new array inside an existing array - Nested Array
```

```
In [30]: np_array = np.array([0,1,2,3,4,5,6,7,8,9,10])
```

```
In [31]: nested_array = np_array[5:11]
```

```
In [32]: print(nested_array)
```

```
[ 5  6  7  8  9 10]
```

```
In [33]: #Changing the elements inside an array
```

```
In [34]: np_array = np.array([0,1,2,3,4,5,6,7,8,9,10])
```

```
In [35]: print('Before : ', np_array)
```

```
Before : [ 0  1  2  3  4  5  6  7  8  9 10]
```

```
In [36]: np_array[5]=52
```

```
In [37]: print('After : ', np_array)
```

```
After : [ 0  1  2  3  4 52  6  7  8  9 10]
```

```
In [38]: #Changing elements in an array using a nested array
```

```
In [39]: np_array = np.array([0,1,2,3,4,5,6,7,8,9,10])
```

```
In [40]: nested_array = np_array[5:11]
```

```
In [41]: print('Before : ', np_array, nested_array)
```

```
Before : [ 0  1  2  3  4  5  6  7  8  9 10] [ 5  6  7  8  9 10]
```

```
In [42]: nested_array[3]=2568
```

```
In [43]: print('After : ', np_array, nested_array)
```

```
After : [ 0  1  2  3  4 2568  6  7 2568  9 10] [ 5  6  7 2568  9 10]
```

End