P **Python**
T U T O R I A L

NumPy zeros()

Summary: in this tutorial, you'll learn how to create a numpy array of a given shape whose elements are filled with zeros.

The `zeros()` function of the `numpy` module allows you to create a numpy array (https://www.pythontutorial.net/python-numpy/create-numpy-array/) of a given shape whose elements are filled with zeros.

For example, the following uses the `zeros()` function to create an array with two axes, the first axis has two elements and the second axis has three elements:

```python
import numpy as np


a = np.zeros((2, 3))
print(a)
```

Output:

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

In layman's terms, this example creates a 2-D array or a matrix that has two rows and three columns.

By default, `zeros()` function uses the type `float64` for its elements. For example:

```
import numpy as np


a = np.zeros((2, 3))
print(a.dtype)
```

Output:

```
float64
```

To use a different type, you need to explicitly specify it in the `zeros()` function via the `dtype` argument. For example:

```
import numpy as np


a = np.zeros((2, 3), dtype=np.int32)
print(a)
print(a.dtype)
```

Output:

```
[[0 0 0]
 [0 0 0]]
int32
```

In this example, we use `int32` type for the elements. Hence, you don't see the decimal point (.) in the output.

Summary

- Use numpy `zeros()` function to create an array of a given shape whose elements are filled with zeros.