NumPy transpose()

If this Python Tutorial saves you hours of work, please whitelist it in your ad blocker 😭 and

Donate Now
(https://www.pythontutorial.net/donation/)

to help us 💔 pay for the web hosting fee and CDN to keep the website running.

Summary: in this tutorial, you'll learn how to use the numpy `transpose()` function to reverse the axes of an array.

Introduction to the numpy transpose() function

The numpy `transpose()` function reverses the axes of an array (https://www.pythontutorial.net/python-numpy/create-numpy-array/) . Here's the syntax of the `transpose()` function:

```
numpy.transpose(a, axes=None)
```

In this syntax:

- a is an input array. It can be a numpy array or any object that can be converted to a numpy array.
- axes is a tuple or a list that contains a permutation of [0,1,..,N-1] where N is the number of axes of the array a.

The `transpose()` function returns the array `a` with its axes permuted.

The `transpose()` function is equivalent to:

- `ndarray.T` property method that returns an array transposed.
- `ndarray.transpose(*axes)` method that returns an array transposed.

NumPy transpose() function examples

Let's take some examples of using the `transpose()` function.

1) Using transpose() function with 1-D array example

The following example uses the `transpose()` function with 1-D array:

```
import numpy as np

a = np.array([1, 2, 3])
b = np.transpose(a)
print(b)
```

Output:

```
[1 2 3]
```

The `transpose()` function has no effect on a 1-D array because a transposed vector is simply the same vector.

2) Using numpy transpose() function with 2-D array example

The following example uses the `transpose()` function to transpose a 2-D array (or a matrix):

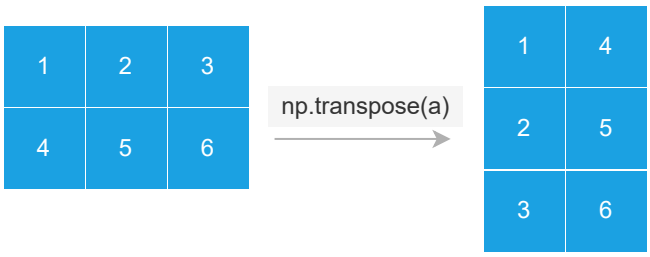
```
import numpy as np

a = np.array([
    [1, 2, 3],
    [4, 5, 6]
])
```

```
b = np.transpose(a)
print(b)
```

Output:

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



In this example, the `transpose()` function transpose a (2,3) array. Basically, it swaps rows and columns of the array.

After the transposition, the first row of array a becomes the first column of the transposed array b, the second row of array a becomes the second column of the transposed array b.

Summary

- Use the `transpose()` to transpose an array.