# numpy.argsort

**numpy.argsort(***a*, *axis=-1*, *kind='quicksort'*, *order=None***)** **[source]**
**(http://github.com/numpy/numpy/blob/v1.9.1/numpy/core/fromnumeric.py#L795)**

Returns the indices that would sort an array.

Perform an indirect sort along the given axis using the algorithm specified by the *kind* keyword. It returns an array of indices of the same shape as *a* that index data along the given axis in sorted order.

**Parameters:**

**a** *: array_like*

Array to sort.

**axis** *: int or None, optional*

Axis along which to sort. The default is -1 (the last axis). If None, the flattened array is used.

**kind** *: {'quicksort', 'mergesort', 'heapsort'}, optional*

Sorting algorithm.

**order** *: list, optional*

When *a* is an array with fields defined, this argument specifies which fields to compare first, second, etc. Not all fields need be specified.

**Returns:**

**index_array** *: ndarray, int*

Array of indices that sort *a* along the specified axis. In other words, `a[index_array]` yields a sorted *a*.

**See also:**

sort **(numpy.sort.html#numpy.sort)** Describes sorting algorithms used.
lexsort **(numpy.lexsort.html#numpy.lexsort)** Indirect stable sort with multiple keys.
ndarray.sort **(numpy.ndarray.sort.html#numpy.ndarray.sort)** Inplace sort.
argpartition **(numpy.argpartition.html#numpy.argpartition)** Indirect partial sort.

## Notes

See sort (numpy.sort.html#numpy.sort) for notes on the different sorting algorithms.

As of NumPy 1.4.0 argsort works with real/complex arrays containing nan values. The enhanced sort order is documented in sort (numpy.sort.html#numpy.sort).

## Examples

One dimensional array:

```
>>> x = np.array([3, 1, 2])
>>> np.argsort(x)
array([1, 2, 0])
```

Two-dimensional array:

```
>>> x = np.array([[0, 3], [2, 2]])
>>> x
array([[0, 3],
       [2, 2]])

>>> np.argsort(x, axis=0)
array([[0, 1],
       [1, 0]])

>>> np.argsort(x, axis=1)
array([[0, 1],
       [0, 1]])
```

Sorting with keys:

```
>>> x = np.array([(1, 0), (0, 1)], dtype=[('x', '<i4'), ('y', '<i4')])
>>> x
array([(1, 0), (0, 1)],
      dtype=[('x', '<i4'), ('y', '<i4')])

>>> np.argsort(x, order=('x','y'))
array([1, 0])

>>> np.argsort(x, order=('y','x'))
array([0, 1])
```


### Previous topic

numpy.lexsort (numpy.lexsort.html)

### Next topic

numpy.ndarray.sort (numpy.ndarray.sort.html)