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org.apache.commons.collections4.iterators

## Class PermutationIterator<E>

* [java.lang.Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true)
  + org.apache.commons.collections4.iterators.PermutationIterator<E>
* Type Parameters: E - the type of the objects being permuted All Implemented Interfaces: [Iterator](https://docs.oracle.com/javase/7/docs/api/java/util/Iterator.html?is-external=true)<[List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<E>>  
    
  public class PermutationIterator<E>  
  extends [Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true)  
  implements [Iterator](https://docs.oracle.com/javase/7/docs/api/java/util/Iterator.html?is-external=true)<[List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<E>>  
  This iterator creates permutations of an input collection, using the Steinhaus-Johnson-Trotter algorithm (also called plain changes).  
  The iterator will return exactly n! permutations of the input collection. The remove() operation is not supported, and will throw an UnsupportedOperationException.  
  NOTE: in case an empty collection is provided, the iterator will return exactly one empty list as result, as 0! = 1.Since: 4.0

### Constructor SummaryConstructors

|  |
| --- |
| * + Constructor and Description |
| * + [PermutationIterator](http://docs.google.com/org/apache/commons/collections4/iterators/PermutationIterator.html#PermutationIterator-java.util.Collection-)([Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<? extends [E](http://docs.google.com/org/apache/commons/collections4/iterators/PermutationIterator.html)> coll) Standard constructor for this class. |

### Method SummaryAll Methods Instance Methods Concrete Methods

|  |  |
| --- | --- |
| * + Modifier and Type | * + Method and Description |
| * + boolean | * + [hasNext](http://docs.google.com/org/apache/commons/collections4/iterators/PermutationIterator.html#hasNext--)() Indicates if there are more permutation available. |
| * + [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/iterators/PermutationIterator.html)> | * + [next](http://docs.google.com/org/apache/commons/collections4/iterators/PermutationIterator.html#next--)() Returns the next permutation of the input collection. |
| * + void | * + [remove](http://docs.google.com/org/apache/commons/collections4/iterators/PermutationIterator.html#remove--)() |

### Methods inherited from class java.lang.[**Object**](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true)[clone](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true#clone--), [equals](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true#equals-java.lang.Object-), [finalize](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true#finalize--), [getClass](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true#getClass--), [hashCode](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true#hashCode--), [notify](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true#notify--), [notifyAll](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true#notifyAll--), [toString](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true#toString--), [wait](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true#wait--), [wait](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true#wait-long-), [wait](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true#wait-long-int-)

### Methods inherited from interface java.util.[**Iterator**](https://docs.oracle.com/javase/7/docs/api/java/util/Iterator.html?is-external=true)[forEachRemaining](https://docs.oracle.com/javase/7/docs/api/java/util/Iterator.html?is-external=true#forEachRemaining-java.util.function.Consumer-)

### Constructor Detail

#### PermutationIterator public PermutationIterator([Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<? extends [E](http://docs.google.com/org/apache/commons/collections4/iterators/PermutationIterator.html)> coll) Standard constructor for this class.Parameters: coll - the collection to generate permutations for Throws: [NullPointerException](https://docs.oracle.com/javase/7/docs/api/java/lang/NullPointerException.html?is-external=true) - if coll is null

### Method Detail

#### hasNext public boolean hasNext() Indicates if there are more permutation available.Specified by: [hasNext](https://docs.oracle.com/javase/7/docs/api/java/util/Iterator.html?is-external=true#hasNext--) in interface [Iterator](https://docs.oracle.com/javase/7/docs/api/java/util/Iterator.html?is-external=true)<[List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/iterators/PermutationIterator.html)>> Returns: true if there are more permutations, otherwise false

#### next public [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/iterators/PermutationIterator.html)> next() Returns the next permutation of the input collection.Specified by: [next](https://docs.oracle.com/javase/7/docs/api/java/util/Iterator.html?is-external=true#next--) in interface [Iterator](https://docs.oracle.com/javase/7/docs/api/java/util/Iterator.html?is-external=true)<[List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/iterators/PermutationIterator.html)>> Returns: a list of the permutator's elements representing a permutation Throws: [NoSuchElementException](https://docs.oracle.com/javase/7/docs/api/java/util/NoSuchElementException.html?is-external=true) - if there are no more permutations

#### remove public void remove()Specified by: [remove](https://docs.oracle.com/javase/7/docs/api/java/util/Iterator.html?is-external=true#remove--) in interface [Iterator](https://docs.oracle.com/javase/7/docs/api/java/util/Iterator.html?is-external=true)<[List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/iterators/PermutationIterator.html)>>

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