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org.apache.commons.collections4.iterators

## Class CollatingIterator<E>

* [java.lang.Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true)
  + org.apache.commons.collections4.iterators.CollatingIterator<E>
* All Implemented Interfaces: [Iterator](https://docs.oracle.com/javase/7/docs/api/java/util/Iterator.html?is-external=true)<E>  
    
  public class CollatingIterator<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)<E>  
  Provides an ordered iteration over the elements contained in a collection of ordered Iterators.  
  Given two ordered [Iterator](https://docs.oracle.com/javase/7/docs/api/java/util/Iterator.html?is-external=true) instances A and B, the [next()](http://docs.google.com/org/apache/commons/collections4/iterators/CollatingIterator.html#next--) method on this iterator will return the lesser of A.next() and B.next().Since: 2.1

### Constructor SummaryConstructors

|  |
| --- |
| * + Constructor and Description |
| * + [CollatingIterator](http://docs.google.com/org/apache/commons/collections4/iterators/CollatingIterator.html#CollatingIterator--)() Constructs a new CollatingIterator. |
| * + [CollatingIterator](http://docs.google.com/org/apache/commons/collections4/iterators/CollatingIterator.html#CollatingIterator-java.util.Comparator-)([Comparator](https://docs.oracle.com/javase/7/docs/api/java/util/Comparator.html?is-external=true)<? super [E](http://docs.google.com/org/apache/commons/collections4/iterators/CollatingIterator.html)> comp) Constructs a new CollatingIterator that will used the specified comparator for ordering. |
| * + [CollatingIterator](http://docs.google.com/org/apache/commons/collections4/iterators/CollatingIterator.html#CollatingIterator-java.util.Comparator-java.util.Collection-)([Comparator](https://docs.oracle.com/javase/7/docs/api/java/util/Comparator.html?is-external=true)<? super [E](http://docs.google.com/org/apache/commons/collections4/iterators/CollatingIterator.html)> comp, [Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<[Iterator](https://docs.oracle.com/javase/7/docs/api/java/util/Iterator.html?is-external=true)<? extends [E](http://docs.google.com/org/apache/commons/collections4/iterators/CollatingIterator.html)>> iterators) Constructs a new CollatingIterator that will use the specified comparator to provide ordered iteration over the collection of iterators. |
| * + [CollatingIterator](http://docs.google.com/org/apache/commons/collections4/iterators/CollatingIterator.html#CollatingIterator-java.util.Comparator-int-)([Comparator](https://docs.oracle.com/javase/7/docs/api/java/util/Comparator.html?is-external=true)<? super [E](http://docs.google.com/org/apache/commons/collections4/iterators/CollatingIterator.html)> comp, int initIterCapacity) Constructs a new CollatingIterator that will used the specified comparator for ordering and have the specified initial capacity. |
| * + [CollatingIterator](http://docs.google.com/org/apache/commons/collections4/iterators/CollatingIterator.html#CollatingIterator-java.util.Comparator-java.util.Iterator:A-)([Comparator](https://docs.oracle.com/javase/7/docs/api/java/util/Comparator.html?is-external=true)<? super [E](http://docs.google.com/org/apache/commons/collections4/iterators/CollatingIterator.html)> comp, [Iterator](https://docs.oracle.com/javase/7/docs/api/java/util/Iterator.html?is-external=true)<? extends [E](http://docs.google.com/org/apache/commons/collections4/iterators/CollatingIterator.html)>[] iterators) Constructs a new CollatingIterator that will use the specified comparator to provide ordered iteration over the array of iterators. |
| * + [CollatingIterator](http://docs.google.com/org/apache/commons/collections4/iterators/CollatingIterator.html#CollatingIterator-java.util.Comparator-java.util.Iterator-java.util.Iterator-)([Comparator](https://docs.oracle.com/javase/7/docs/api/java/util/Comparator.html?is-external=true)<? super [E](http://docs.google.com/org/apache/commons/collections4/iterators/CollatingIterator.html)> comp, [Iterator](https://docs.oracle.com/javase/7/docs/api/java/util/Iterator.html?is-external=true)<? extends [E](http://docs.google.com/org/apache/commons/collections4/iterators/CollatingIterator.html)> a, [Iterator](https://docs.oracle.com/javase/7/docs/api/java/util/Iterator.html?is-external=true)<? extends [E](http://docs.google.com/org/apache/commons/collections4/iterators/CollatingIterator.html)> b) Constructs a new CollatingIterator that will use the specified comparator to provide ordered iteration over the two given iterators. |

### Method SummaryAll Methods Instance Methods Concrete Methods

|  |  |
| --- | --- |
| * + Modifier and Type | * + Method and Description |
| * + void | * + [addIterator](http://docs.google.com/org/apache/commons/collections4/iterators/CollatingIterator.html#addIterator-java.util.Iterator-)([Iterator](https://docs.oracle.com/javase/7/docs/api/java/util/Iterator.html?is-external=true)<? extends [E](http://docs.google.com/org/apache/commons/collections4/iterators/CollatingIterator.html)> iterator) Adds the given [Iterator](https://docs.oracle.com/javase/7/docs/api/java/util/Iterator.html?is-external=true) to the iterators being collated. |
| * + [Comparator](https://docs.oracle.com/javase/7/docs/api/java/util/Comparator.html?is-external=true)<? super [E](http://docs.google.com/org/apache/commons/collections4/iterators/CollatingIterator.html)> | * + [getComparator](http://docs.google.com/org/apache/commons/collections4/iterators/CollatingIterator.html#getComparator--)() Gets the [Comparator](https://docs.oracle.com/javase/7/docs/api/java/util/Comparator.html?is-external=true) by which collatation occurs. |
| * + int | * + [getIteratorIndex](http://docs.google.com/org/apache/commons/collections4/iterators/CollatingIterator.html#getIteratorIndex--)() Returns the index of the iterator that returned the last element. |
| * + [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<[Iterator](https://docs.oracle.com/javase/7/docs/api/java/util/Iterator.html?is-external=true)<? extends [E](http://docs.google.com/org/apache/commons/collections4/iterators/CollatingIterator.html)>> | * + [getIterators](http://docs.google.com/org/apache/commons/collections4/iterators/CollatingIterator.html#getIterators--)() Gets the list of Iterators (unmodifiable). |
| * + boolean | * + [hasNext](http://docs.google.com/org/apache/commons/collections4/iterators/CollatingIterator.html#hasNext--)() Returns true if any child iterator has remaining elements. |
| * + [E](http://docs.google.com/org/apache/commons/collections4/iterators/CollatingIterator.html) | * + [next](http://docs.google.com/org/apache/commons/collections4/iterators/CollatingIterator.html#next--)() Returns the next ordered element from a child iterator. |
| * + void | * + [remove](http://docs.google.com/org/apache/commons/collections4/iterators/CollatingIterator.html#remove--)() Removes the last returned element from the child iterator that produced it. |
| * + void | * + [setComparator](http://docs.google.com/org/apache/commons/collections4/iterators/CollatingIterator.html#setComparator-java.util.Comparator-)([Comparator](https://docs.oracle.com/javase/7/docs/api/java/util/Comparator.html?is-external=true)<? super [E](http://docs.google.com/org/apache/commons/collections4/iterators/CollatingIterator.html)> comp) Sets the [Comparator](https://docs.oracle.com/javase/7/docs/api/java/util/Comparator.html?is-external=true) by which collation occurs. |
| * + void | * + [setIterator](http://docs.google.com/org/apache/commons/collections4/iterators/CollatingIterator.html#setIterator-int-java.util.Iterator-)(int index, [Iterator](https://docs.oracle.com/javase/7/docs/api/java/util/Iterator.html?is-external=true)<? extends [E](http://docs.google.com/org/apache/commons/collections4/iterators/CollatingIterator.html)> iterator) Sets the iterator at the given index. |

### 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

#### CollatingIterator public CollatingIterator() Constructs a new CollatingIterator. A comparator must be set by calling [setComparator(Comparator)](http://docs.google.com/org/apache/commons/collections4/iterators/CollatingIterator.html#setComparator-java.util.Comparator-) before invoking [hasNext()](http://docs.google.com/org/apache/commons/collections4/iterators/CollatingIterator.html#hasNext--), or [next()](http://docs.google.com/org/apache/commons/collections4/iterators/CollatingIterator.html#next--) for the first time. Child iterators will have to be manually added using the [addIterator(Iterator)](http://docs.google.com/org/apache/commons/collections4/iterators/CollatingIterator.html#addIterator-java.util.Iterator-) method.

#### CollatingIterator public CollatingIterator([Comparator](https://docs.oracle.com/javase/7/docs/api/java/util/Comparator.html?is-external=true)<? super [E](http://docs.google.com/org/apache/commons/collections4/iterators/CollatingIterator.html)> comp) Constructs a new CollatingIterator that will used the specified comparator for ordering. Child iterators will have to be manually added using the [addIterator(Iterator)](http://docs.google.com/org/apache/commons/collections4/iterators/CollatingIterator.html#addIterator-java.util.Iterator-) method.Parameters: comp - the comparator to use to sort; must not be null, unless you'll be invoking [setComparator(Comparator)](http://docs.google.com/org/apache/commons/collections4/iterators/CollatingIterator.html#setComparator-java.util.Comparator-) later on.

#### CollatingIterator public CollatingIterator([Comparator](https://docs.oracle.com/javase/7/docs/api/java/util/Comparator.html?is-external=true)<? super [E](http://docs.google.com/org/apache/commons/collections4/iterators/CollatingIterator.html)> comp, int initIterCapacity) Constructs a new CollatingIterator that will used the specified comparator for ordering and have the specified initial capacity. Child iterators will have to be manually added using the [addIterator(Iterator)](http://docs.google.com/org/apache/commons/collections4/iterators/CollatingIterator.html#addIterator-java.util.Iterator-) method.Parameters: comp - the comparator to use to sort; must not be null, unless you'll be invoking [setComparator(Comparator)](http://docs.google.com/org/apache/commons/collections4/iterators/CollatingIterator.html#setComparator-java.util.Comparator-) later on. initIterCapacity - the initial capacity for the internal list of child iterators

#### CollatingIterator public CollatingIterator([Comparator](https://docs.oracle.com/javase/7/docs/api/java/util/Comparator.html?is-external=true)<? super [E](http://docs.google.com/org/apache/commons/collections4/iterators/CollatingIterator.html)> comp, [Iterator](https://docs.oracle.com/javase/7/docs/api/java/util/Iterator.html?is-external=true)<? extends [E](http://docs.google.com/org/apache/commons/collections4/iterators/CollatingIterator.html)> a, [Iterator](https://docs.oracle.com/javase/7/docs/api/java/util/Iterator.html?is-external=true)<? extends [E](http://docs.google.com/org/apache/commons/collections4/iterators/CollatingIterator.html)> b) Constructs a new CollatingIterator that will use the specified comparator to provide ordered iteration over the two given iterators.Parameters: comp - the comparator to use to sort; must not be null, unless you'll be invoking [setComparator(Comparator)](http://docs.google.com/org/apache/commons/collections4/iterators/CollatingIterator.html#setComparator-java.util.Comparator-) later on. a - the first child ordered iterator b - the second child ordered iterator Throws: [NullPointerException](https://docs.oracle.com/javase/7/docs/api/java/lang/NullPointerException.html?is-external=true) - if either iterator is null

#### CollatingIterator public CollatingIterator([Comparator](https://docs.oracle.com/javase/7/docs/api/java/util/Comparator.html?is-external=true)<? super [E](http://docs.google.com/org/apache/commons/collections4/iterators/CollatingIterator.html)> comp, [Iterator](https://docs.oracle.com/javase/7/docs/api/java/util/Iterator.html?is-external=true)<? extends [E](http://docs.google.com/org/apache/commons/collections4/iterators/CollatingIterator.html)>[] iterators) Constructs a new CollatingIterator that will use the specified comparator to provide ordered iteration over the array of iterators.Parameters: comp - the comparator to use to sort; must not be null, unless you'll be invoking [setComparator(Comparator)](http://docs.google.com/org/apache/commons/collections4/iterators/CollatingIterator.html#setComparator-java.util.Comparator-) later on. iterators - the array of iterators Throws: [NullPointerException](https://docs.oracle.com/javase/7/docs/api/java/lang/NullPointerException.html?is-external=true) - if iterators array is or contains null

#### CollatingIterator public CollatingIterator([Comparator](https://docs.oracle.com/javase/7/docs/api/java/util/Comparator.html?is-external=true)<? super [E](http://docs.google.com/org/apache/commons/collections4/iterators/CollatingIterator.html)> comp, [Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<[Iterator](https://docs.oracle.com/javase/7/docs/api/java/util/Iterator.html?is-external=true)<? extends [E](http://docs.google.com/org/apache/commons/collections4/iterators/CollatingIterator.html)>> iterators) Constructs a new CollatingIterator that will use the specified comparator to provide ordered iteration over the collection of iterators.Parameters: comp - the comparator to use to sort; must not be null, unless you'll be invoking [setComparator(Comparator)](http://docs.google.com/org/apache/commons/collections4/iterators/CollatingIterator.html#setComparator-java.util.Comparator-) later on. iterators - the collection of iterators Throws: [NullPointerException](https://docs.oracle.com/javase/7/docs/api/java/lang/NullPointerException.html?is-external=true) - if the iterators collection is or contains null [ClassCastException](https://docs.oracle.com/javase/7/docs/api/java/lang/ClassCastException.html?is-external=true) - if the iterators collection contains an element that's not an [Iterator](https://docs.oracle.com/javase/7/docs/api/java/util/Iterator.html?is-external=true)

### Method Detail

#### addIterator public void addIterator([Iterator](https://docs.oracle.com/javase/7/docs/api/java/util/Iterator.html?is-external=true)<? extends [E](http://docs.google.com/org/apache/commons/collections4/iterators/CollatingIterator.html)> iterator) Adds the given [Iterator](https://docs.oracle.com/javase/7/docs/api/java/util/Iterator.html?is-external=true) to the iterators being collated.Parameters: iterator - the iterator to add to the collation, must not be null Throws: [IllegalStateException](https://docs.oracle.com/javase/7/docs/api/java/lang/IllegalStateException.html?is-external=true) - if iteration has started [NullPointerException](https://docs.oracle.com/javase/7/docs/api/java/lang/NullPointerException.html?is-external=true) - if the iterator is null

#### setIterator public void setIterator(int index, [Iterator](https://docs.oracle.com/javase/7/docs/api/java/util/Iterator.html?is-external=true)<? extends [E](http://docs.google.com/org/apache/commons/collections4/iterators/CollatingIterator.html)> iterator) Sets the iterator at the given index.Parameters: index - index of the Iterator to replace iterator - Iterator to place at the given index Throws: [IndexOutOfBoundsException](https://docs.oracle.com/javase/7/docs/api/java/lang/IndexOutOfBoundsException.html?is-external=true) - if index < 0 or index > size() [IllegalStateException](https://docs.oracle.com/javase/7/docs/api/java/lang/IllegalStateException.html?is-external=true) - if iteration has started [NullPointerException](https://docs.oracle.com/javase/7/docs/api/java/lang/NullPointerException.html?is-external=true) - if the iterator is null

#### getIterators public [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<[Iterator](https://docs.oracle.com/javase/7/docs/api/java/util/Iterator.html?is-external=true)<? extends [E](http://docs.google.com/org/apache/commons/collections4/iterators/CollatingIterator.html)>> getIterators() Gets the list of Iterators (unmodifiable).Returns: the unmodifiable list of iterators added

#### getComparator public [Comparator](https://docs.oracle.com/javase/7/docs/api/java/util/Comparator.html?is-external=true)<? super [E](http://docs.google.com/org/apache/commons/collections4/iterators/CollatingIterator.html)> getComparator() Gets the [Comparator](https://docs.oracle.com/javase/7/docs/api/java/util/Comparator.html?is-external=true) by which collatation occurs.Returns: the [Comparator](https://docs.oracle.com/javase/7/docs/api/java/util/Comparator.html?is-external=true)

#### setComparator public void setComparator([Comparator](https://docs.oracle.com/javase/7/docs/api/java/util/Comparator.html?is-external=true)<? super [E](http://docs.google.com/org/apache/commons/collections4/iterators/CollatingIterator.html)> comp) Sets the [Comparator](https://docs.oracle.com/javase/7/docs/api/java/util/Comparator.html?is-external=true) by which collation occurs. If you would like to use the natural sort order (or, in other words, if the elements in the iterators are implementing the [Comparable](https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html?is-external=true) interface), then use the [ComparableComparator](http://docs.google.com/org/apache/commons/collections4/comparators/ComparableComparator.html).Parameters: comp - the [Comparator](https://docs.oracle.com/javase/7/docs/api/java/util/Comparator.html?is-external=true) to set Throws: [IllegalStateException](https://docs.oracle.com/javase/7/docs/api/java/lang/IllegalStateException.html?is-external=true) - if iteration has started

#### hasNext public boolean hasNext() Returns true if any child iterator has remaining elements.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)<[E](http://docs.google.com/org/apache/commons/collections4/iterators/CollatingIterator.html)> Returns: true if this iterator has remaining elements

#### next public [E](http://docs.google.com/org/apache/commons/collections4/iterators/CollatingIterator.html) next() throws [NoSuchElementException](https://docs.oracle.com/javase/7/docs/api/java/util/NoSuchElementException.html?is-external=true) Returns the next ordered element from a child iterator.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)<[E](http://docs.google.com/org/apache/commons/collections4/iterators/CollatingIterator.html)> Returns: the next ordered element Throws: [NoSuchElementException](https://docs.oracle.com/javase/7/docs/api/java/util/NoSuchElementException.html?is-external=true) - if no child iterator has any more elements

#### remove public void remove() Removes the last returned element from the child iterator that produced it.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)<[E](http://docs.google.com/org/apache/commons/collections4/iterators/CollatingIterator.html)> Throws: [IllegalStateException](https://docs.oracle.com/javase/7/docs/api/java/lang/IllegalStateException.html?is-external=true) - if there is no last returned element, or if the last returned element has already been removed

#### getIteratorIndex public int getIteratorIndex() Returns the index of the iterator that returned the last element.Returns: the index of the iterator that returned the last element Throws: [IllegalStateException](https://docs.oracle.com/javase/7/docs/api/java/lang/IllegalStateException.html?is-external=true) - if there is no last returned element

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