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Uses of Interface

org.apache.commons.collections4.SortedBag

* Packages that use [SortedBag](http://docs.google.com/org/apache/commons/collections4/SortedBag.html)

|  |  |
| --- | --- |
| * Package | * Description |
| * [org.apache.commons.collections4](#3znysh7) | * This package contains the interfaces and utilities shared across all the subpackages of this component. |
| * [org.apache.commons.collections4.bag](#2et92p0) | * This package contains implementations of the [Bag](http://docs.google.com/org/apache/commons/collections4/Bag.html) and [SortedBag](http://docs.google.com/org/apache/commons/collections4/SortedBag.html) interfaces. |

### Uses of [**SortedBag**](http://docs.google.com/org/apache/commons/collections4/SortedBag.html) in [**org.apache.commons.collections4**](http://docs.google.com/org/apache/commons/collections4/package-summary.html)Methods in [org.apache.commons.collections4](http://docs.google.com/org/apache/commons/collections4/package-summary.html) that return [SortedBag](http://docs.google.com/org/apache/commons/collections4/SortedBag.html)

|  |  |
| --- | --- |
| * + Modifier and Type | * + Method and Description |
| * + static <E> [SortedBag](http://docs.google.com/org/apache/commons/collections4/SortedBag.html)<E> | * + BagUtils.[emptySortedBag](http://docs.google.com/org/apache/commons/collections4/BagUtils.html#emptySortedBag--)() Get an empty SortedBag. |
| * + static <E> [SortedBag](http://docs.google.com/org/apache/commons/collections4/SortedBag.html)<E> | * + BagUtils.[predicatedSortedBag](http://docs.google.com/org/apache/commons/collections4/BagUtils.html#predicatedSortedBag-org.apache.commons.collections4.SortedBag-org.apache.commons.collections4.Predicate-)([SortedBag](http://docs.google.com/org/apache/commons/collections4/SortedBag.html)<E> bag, [Predicate](http://docs.google.com/org/apache/commons/collections4/Predicate.html)<? super E> predicate) Returns a predicated (validating) sorted bag backed by the given sorted bag. |
| * + static <E> [SortedBag](http://docs.google.com/org/apache/commons/collections4/SortedBag.html)<E> | * + BagUtils.[synchronizedSortedBag](http://docs.google.com/org/apache/commons/collections4/BagUtils.html#synchronizedSortedBag-org.apache.commons.collections4.SortedBag-)([SortedBag](http://docs.google.com/org/apache/commons/collections4/SortedBag.html)<E> bag) Returns a synchronized (thread-safe) sorted bag backed by the given sorted bag. |
| * + static <E> [SortedBag](http://docs.google.com/org/apache/commons/collections4/SortedBag.html)<E> | * + BagUtils.[transformingSortedBag](http://docs.google.com/org/apache/commons/collections4/BagUtils.html#transformingSortedBag-org.apache.commons.collections4.SortedBag-org.apache.commons.collections4.Transformer-)([SortedBag](http://docs.google.com/org/apache/commons/collections4/SortedBag.html)<E> bag, [Transformer](http://docs.google.com/org/apache/commons/collections4/Transformer.html)<? super E,? extends E> transformer) Returns a transformed sorted bag backed by the given bag. |
| * + static <E> [SortedBag](http://docs.google.com/org/apache/commons/collections4/SortedBag.html)<E> | * + BagUtils.[unmodifiableSortedBag](http://docs.google.com/org/apache/commons/collections4/BagUtils.html#unmodifiableSortedBag-org.apache.commons.collections4.SortedBag-)([SortedBag](http://docs.google.com/org/apache/commons/collections4/SortedBag.html)<E> bag) Returns an unmodifiable view of the given sorted bag. |

* + Methods in [org.apache.commons.collections4](http://docs.google.com/org/apache/commons/collections4/package-summary.html) with parameters of type [SortedBag](http://docs.google.com/org/apache/commons/collections4/SortedBag.html)

|  |  |
| --- | --- |
| * + Modifier and Type | * + Method and Description |
| * + static <E> [SortedBag](http://docs.google.com/org/apache/commons/collections4/SortedBag.html)<E> | * + BagUtils.[predicatedSortedBag](http://docs.google.com/org/apache/commons/collections4/BagUtils.html#predicatedSortedBag-org.apache.commons.collections4.SortedBag-org.apache.commons.collections4.Predicate-)([SortedBag](http://docs.google.com/org/apache/commons/collections4/SortedBag.html)<E> bag, [Predicate](http://docs.google.com/org/apache/commons/collections4/Predicate.html)<? super E> predicate) Returns a predicated (validating) sorted bag backed by the given sorted bag. |
| * + static <E> [SortedBag](http://docs.google.com/org/apache/commons/collections4/SortedBag.html)<E> | * + BagUtils.[synchronizedSortedBag](http://docs.google.com/org/apache/commons/collections4/BagUtils.html#synchronizedSortedBag-org.apache.commons.collections4.SortedBag-)([SortedBag](http://docs.google.com/org/apache/commons/collections4/SortedBag.html)<E> bag) Returns a synchronized (thread-safe) sorted bag backed by the given sorted bag. |
| * + static <E> [SortedBag](http://docs.google.com/org/apache/commons/collections4/SortedBag.html)<E> | * + BagUtils.[transformingSortedBag](http://docs.google.com/org/apache/commons/collections4/BagUtils.html#transformingSortedBag-org.apache.commons.collections4.SortedBag-org.apache.commons.collections4.Transformer-)([SortedBag](http://docs.google.com/org/apache/commons/collections4/SortedBag.html)<E> bag, [Transformer](http://docs.google.com/org/apache/commons/collections4/Transformer.html)<? super E,? extends E> transformer) Returns a transformed sorted bag backed by the given bag. |
| * + static <E> [SortedBag](http://docs.google.com/org/apache/commons/collections4/SortedBag.html)<E> | * + BagUtils.[unmodifiableSortedBag](http://docs.google.com/org/apache/commons/collections4/BagUtils.html#unmodifiableSortedBag-org.apache.commons.collections4.SortedBag-)([SortedBag](http://docs.google.com/org/apache/commons/collections4/SortedBag.html)<E> bag) Returns an unmodifiable view of the given sorted bag. |

### Uses of [**SortedBag**](http://docs.google.com/org/apache/commons/collections4/SortedBag.html) in [**org.apache.commons.collections4.bag**](http://docs.google.com/org/apache/commons/collections4/bag/package-summary.html)Classes in [org.apache.commons.collections4.bag](http://docs.google.com/org/apache/commons/collections4/bag/package-summary.html) that implement [SortedBag](http://docs.google.com/org/apache/commons/collections4/SortedBag.html)

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| --- | --- |
| * + Modifier and Type | * + Class and Description |
| * + class | * + [AbstractSortedBagDecorator](http://docs.google.com/org/apache/commons/collections4/bag/AbstractSortedBagDecorator.html)<E> Decorates another SortedBag to provide additional behaviour. |
| * + class | * + [CollectionSortedBag](http://docs.google.com/org/apache/commons/collections4/bag/CollectionSortedBag.html)<E> Decorates another [SortedBag](http://docs.google.com/org/apache/commons/collections4/SortedBag.html) to comply with the Collection contract. |
| * + class | * + [PredicatedSortedBag](http://docs.google.com/org/apache/commons/collections4/bag/PredicatedSortedBag.html)<E> Decorates another [SortedBag](http://docs.google.com/org/apache/commons/collections4/SortedBag.html) to validate that additions match a specified predicate. |
| * + class | * + [SynchronizedSortedBag](http://docs.google.com/org/apache/commons/collections4/bag/SynchronizedSortedBag.html)<E> Decorates another [SortedBag](http://docs.google.com/org/apache/commons/collections4/SortedBag.html) to synchronize its behaviour for a multi-threaded environment. |
| * + class | * + [TransformedSortedBag](http://docs.google.com/org/apache/commons/collections4/bag/TransformedSortedBag.html)<E> Decorates another [SortedBag](http://docs.google.com/org/apache/commons/collections4/SortedBag.html) to transform objects that are added. |
| * + class | * + [TreeBag](http://docs.google.com/org/apache/commons/collections4/bag/TreeBag.html)<E> Implements [SortedBag](http://docs.google.com/org/apache/commons/collections4/SortedBag.html), using a [TreeMap](https://docs.oracle.com/javase/7/docs/api/java/util/TreeMap.html?is-external=true) to provide the data storage. |
| * + class | * + [UnmodifiableSortedBag](http://docs.google.com/org/apache/commons/collections4/bag/UnmodifiableSortedBag.html)<E> Decorates another [SortedBag](http://docs.google.com/org/apache/commons/collections4/SortedBag.html) to ensure it can't be altered. |

* + Methods in [org.apache.commons.collections4.bag](http://docs.google.com/org/apache/commons/collections4/bag/package-summary.html) that return [SortedBag](http://docs.google.com/org/apache/commons/collections4/SortedBag.html)

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| --- | --- |
| * + Modifier and Type | * + Method and Description |
| * + static <E> [SortedBag](http://docs.google.com/org/apache/commons/collections4/SortedBag.html)<E> | * + CollectionSortedBag.[collectionSortedBag](http://docs.google.com/org/apache/commons/collections4/bag/CollectionSortedBag.html#collectionSortedBag-org.apache.commons.collections4.SortedBag-)([SortedBag](http://docs.google.com/org/apache/commons/collections4/SortedBag.html)<E> bag) Factory method to create a sorted bag that complies to the Collection contract. |
| * + protected [SortedBag](http://docs.google.com/org/apache/commons/collections4/SortedBag.html)<[E](http://docs.google.com/org/apache/commons/collections4/bag/AbstractSortedBagDecorator.html)> | * + AbstractSortedBagDecorator.[decorated](http://docs.google.com/org/apache/commons/collections4/bag/AbstractSortedBagDecorator.html#decorated--)() Gets the bag being decorated. |
| * + protected [SortedBag](http://docs.google.com/org/apache/commons/collections4/SortedBag.html)<[E](http://docs.google.com/org/apache/commons/collections4/bag/PredicatedSortedBag.html)> | * + PredicatedSortedBag.[decorated](http://docs.google.com/org/apache/commons/collections4/bag/PredicatedSortedBag.html#decorated--)() Gets the decorated sorted bag. |
| * + protected [SortedBag](http://docs.google.com/org/apache/commons/collections4/SortedBag.html)<[E](http://docs.google.com/org/apache/commons/collections4/bag/SynchronizedSortedBag.html)> | * + SynchronizedSortedBag.[getSortedBag](http://docs.google.com/org/apache/commons/collections4/bag/SynchronizedSortedBag.html#getSortedBag--)() Gets the bag being decorated. |
| * + protected [SortedBag](http://docs.google.com/org/apache/commons/collections4/SortedBag.html)<[E](http://docs.google.com/org/apache/commons/collections4/bag/TransformedSortedBag.html)> | * + TransformedSortedBag.[getSortedBag](http://docs.google.com/org/apache/commons/collections4/bag/TransformedSortedBag.html#getSortedBag--)() Gets the decorated bag. |
| * + static <E> [SortedBag](http://docs.google.com/org/apache/commons/collections4/SortedBag.html)<E> | * + UnmodifiableSortedBag.[unmodifiableSortedBag](http://docs.google.com/org/apache/commons/collections4/bag/UnmodifiableSortedBag.html#unmodifiableSortedBag-org.apache.commons.collections4.SortedBag-)([SortedBag](http://docs.google.com/org/apache/commons/collections4/SortedBag.html)<E> bag) Factory method to create an unmodifiable bag. |

* + Methods in [org.apache.commons.collections4.bag](http://docs.google.com/org/apache/commons/collections4/bag/package-summary.html) with parameters of type [SortedBag](http://docs.google.com/org/apache/commons/collections4/SortedBag.html)

|  |  |
| --- | --- |
| * + Modifier and Type | * + Method and Description |
| * + static <E> [SortedBag](http://docs.google.com/org/apache/commons/collections4/SortedBag.html)<E> | * + CollectionSortedBag.[collectionSortedBag](http://docs.google.com/org/apache/commons/collections4/bag/CollectionSortedBag.html#collectionSortedBag-org.apache.commons.collections4.SortedBag-)([SortedBag](http://docs.google.com/org/apache/commons/collections4/SortedBag.html)<E> bag) Factory method to create a sorted bag that complies to the Collection contract. |
| * + static <E> [PredicatedSortedBag](http://docs.google.com/org/apache/commons/collections4/bag/PredicatedSortedBag.html)<E> | * + PredicatedSortedBag.[predicatedSortedBag](http://docs.google.com/org/apache/commons/collections4/bag/PredicatedSortedBag.html#predicatedSortedBag-org.apache.commons.collections4.SortedBag-org.apache.commons.collections4.Predicate-)([SortedBag](http://docs.google.com/org/apache/commons/collections4/SortedBag.html)<E> bag, [Predicate](http://docs.google.com/org/apache/commons/collections4/Predicate.html)<? super E> predicate) Factory method to create a predicated (validating) bag. |
| * + static <E> [SynchronizedSortedBag](http://docs.google.com/org/apache/commons/collections4/bag/SynchronizedSortedBag.html)<E> | * + SynchronizedSortedBag.[synchronizedSortedBag](http://docs.google.com/org/apache/commons/collections4/bag/SynchronizedSortedBag.html#synchronizedSortedBag-org.apache.commons.collections4.SortedBag-)([SortedBag](http://docs.google.com/org/apache/commons/collections4/SortedBag.html)<E> bag) Factory method to create a synchronized sorted bag. |
| * + static <E> [TransformedSortedBag](http://docs.google.com/org/apache/commons/collections4/bag/TransformedSortedBag.html)<E> | * + TransformedSortedBag.[transformedSortedBag](http://docs.google.com/org/apache/commons/collections4/bag/TransformedSortedBag.html#transformedSortedBag-org.apache.commons.collections4.SortedBag-org.apache.commons.collections4.Transformer-)([SortedBag](http://docs.google.com/org/apache/commons/collections4/SortedBag.html)<E> bag, [Transformer](http://docs.google.com/org/apache/commons/collections4/Transformer.html)<? super E,? extends E> transformer) Factory method to create a transforming sorted bag that will transform existing contents of the specified sorted bag. |
| * + static <E> [TransformedSortedBag](http://docs.google.com/org/apache/commons/collections4/bag/TransformedSortedBag.html)<E> | * + TransformedSortedBag.[transformingSortedBag](http://docs.google.com/org/apache/commons/collections4/bag/TransformedSortedBag.html#transformingSortedBag-org.apache.commons.collections4.SortedBag-org.apache.commons.collections4.Transformer-)([SortedBag](http://docs.google.com/org/apache/commons/collections4/SortedBag.html)<E> bag, [Transformer](http://docs.google.com/org/apache/commons/collections4/Transformer.html)<? super E,? extends E> transformer) Factory method to create a transforming sorted bag. |
| * + static <E> [SortedBag](http://docs.google.com/org/apache/commons/collections4/SortedBag.html)<E> | * + UnmodifiableSortedBag.[unmodifiableSortedBag](http://docs.google.com/org/apache/commons/collections4/bag/UnmodifiableSortedBag.html#unmodifiableSortedBag-org.apache.commons.collections4.SortedBag-)([SortedBag](http://docs.google.com/org/apache/commons/collections4/SortedBag.html)<E> bag) Factory method to create an unmodifiable bag. |

* + Constructors in [org.apache.commons.collections4.bag](http://docs.google.com/org/apache/commons/collections4/bag/package-summary.html) with parameters of type [SortedBag](http://docs.google.com/org/apache/commons/collections4/SortedBag.html)

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| --- |
| * + Constructor and Description |
| * + [AbstractSortedBagDecorator](http://docs.google.com/org/apache/commons/collections4/bag/AbstractSortedBagDecorator.html#AbstractSortedBagDecorator-org.apache.commons.collections4.SortedBag-)([SortedBag](http://docs.google.com/org/apache/commons/collections4/SortedBag.html)<[E](http://docs.google.com/org/apache/commons/collections4/bag/AbstractSortedBagDecorator.html)> bag) Constructor that wraps (not copies). |
| * + [CollectionSortedBag](http://docs.google.com/org/apache/commons/collections4/bag/CollectionSortedBag.html#CollectionSortedBag-org.apache.commons.collections4.SortedBag-)([SortedBag](http://docs.google.com/org/apache/commons/collections4/SortedBag.html)<[E](http://docs.google.com/org/apache/commons/collections4/bag/CollectionSortedBag.html)> bag) Constructor that wraps (not copies). |
| * + [PredicatedSortedBag](http://docs.google.com/org/apache/commons/collections4/bag/PredicatedSortedBag.html#PredicatedSortedBag-org.apache.commons.collections4.SortedBag-org.apache.commons.collections4.Predicate-)([SortedBag](http://docs.google.com/org/apache/commons/collections4/SortedBag.html)<[E](http://docs.google.com/org/apache/commons/collections4/bag/PredicatedSortedBag.html)> bag, [Predicate](http://docs.google.com/org/apache/commons/collections4/Predicate.html)<? super [E](http://docs.google.com/org/apache/commons/collections4/bag/PredicatedSortedBag.html)> predicate) Constructor that wraps (not copies). |
| * + [SynchronizedSortedBag](http://docs.google.com/org/apache/commons/collections4/bag/SynchronizedSortedBag.html#SynchronizedSortedBag-org.apache.commons.collections4.SortedBag-)([SortedBag](http://docs.google.com/org/apache/commons/collections4/SortedBag.html)<[E](http://docs.google.com/org/apache/commons/collections4/bag/SynchronizedSortedBag.html)> bag) Constructor that wraps (not copies). |
| * + [TransformedSortedBag](http://docs.google.com/org/apache/commons/collections4/bag/TransformedSortedBag.html#TransformedSortedBag-org.apache.commons.collections4.SortedBag-org.apache.commons.collections4.Transformer-)([SortedBag](http://docs.google.com/org/apache/commons/collections4/SortedBag.html)<[E](http://docs.google.com/org/apache/commons/collections4/bag/TransformedSortedBag.html)> bag, [Transformer](http://docs.google.com/org/apache/commons/collections4/Transformer.html)<? super [E](http://docs.google.com/org/apache/commons/collections4/bag/TransformedSortedBag.html),? extends [E](http://docs.google.com/org/apache/commons/collections4/bag/TransformedSortedBag.html)> transformer) Constructor that wraps (not copies). |

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