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Package org.apache.commons.collections4

This package contains the interfaces and utilities shared across all the subpackages of this component.

See: [Description](#3znysh7)

* Interface Summary

|  |  |
| --- | --- |
| * Interface | * Description |
| * [Bag](http://docs.google.com/org/apache/commons/collections4/Bag.html)<E> | * Defines a collection that counts the number of times an object appears in the collection. |
| * [BidiMap](http://docs.google.com/org/apache/commons/collections4/BidiMap.html)<K,V> | * Defines a map that allows bidirectional lookup between key and values. |
| * [BoundedCollection](http://docs.google.com/org/apache/commons/collections4/BoundedCollection.html)<E> | * Defines a collection that is bounded in size. |
| * [BoundedMap](http://docs.google.com/org/apache/commons/collections4/BoundedMap.html)<K,V> | * Defines a map that is bounded in size. |
| * [Closure](http://docs.google.com/org/apache/commons/collections4/Closure.html)<T> | * Defines a functor interface implemented by classes that do something. |
| * [Equator](http://docs.google.com/org/apache/commons/collections4/Equator.html)<T> | * An equation function, which determines equality between objects of type T. |
| * [Factory](http://docs.google.com/org/apache/commons/collections4/Factory.html)<T> | * Defines a functor interface implemented by classes that create objects. |
| * [Get](http://docs.google.com/org/apache/commons/collections4/Get.html)<K,V> | * The "read" subset of the [Map](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true) interface. |
| * [IterableGet](http://docs.google.com/org/apache/commons/collections4/IterableGet.html)<K,V> | * The "read" subset of the [Map](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true) interface. |
| * [IterableMap](http://docs.google.com/org/apache/commons/collections4/IterableMap.html)<K,V> | * Defines a map that can be iterated directly without needing to create an entry set. |
| * [IterableSortedMap](http://docs.google.com/org/apache/commons/collections4/IterableSortedMap.html)<K,V> | * [SortedMap](https://docs.oracle.com/javase/7/docs/api/java/util/SortedMap.html?is-external=true) + [OrderedMap](http://docs.google.com/org/apache/commons/collections4/OrderedMap.html). |
| * [KeyValue](http://docs.google.com/org/apache/commons/collections4/KeyValue.html)<K,V> | * Defines a simple key value pair. |
| * [ListValuedMap](http://docs.google.com/org/apache/commons/collections4/ListValuedMap.html)<K,V> | * Defines a map that holds a list of values against each key. |
| * [MapIterator](http://docs.google.com/org/apache/commons/collections4/MapIterator.html)<K,V> | * Defines an iterator that operates over a Map. |
| * [MultiMap](http://docs.google.com/org/apache/commons/collections4/MultiMap.html)<K,V> | * Deprecated since 4.1, use [MultiValuedMap](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html) instead |
| * [MultiSet](http://docs.google.com/org/apache/commons/collections4/MultiSet.html)<E> | * Defines a collection that counts the number of times an object appears in the collection. |
| * [MultiSet.Entry](http://docs.google.com/org/apache/commons/collections4/MultiSet.Entry.html)<E> | * An unmodifiable entry for an element and its occurrence as contained in a MultiSet. |
| * [MultiValuedMap](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html)<K,V> | * Defines a map that holds a collection of values against each key. |
| * [OrderedBidiMap](http://docs.google.com/org/apache/commons/collections4/OrderedBidiMap.html)<K,V> | * Defines a map that allows bidirectional lookup between key and values and retains and provides access to an ordering. |
| * [OrderedIterator](http://docs.google.com/org/apache/commons/collections4/OrderedIterator.html)<E> | * Defines an iterator that operates over an ordered container. |
| * [OrderedMap](http://docs.google.com/org/apache/commons/collections4/OrderedMap.html)<K,V> | * Defines a map that maintains order and allows both forward and backward iteration through that order. |
| * [OrderedMapIterator](http://docs.google.com/org/apache/commons/collections4/OrderedMapIterator.html)<K,V> | * Defines an iterator that operates over an ordered Map. |
| * [Predicate](http://docs.google.com/org/apache/commons/collections4/Predicate.html)<T> | * Defines a functor interface implemented by classes that perform a predicate test on an object. |
| * [Put](http://docs.google.com/org/apache/commons/collections4/Put.html)<K,V> | * The "write" subset of the [Map](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true) interface. |
| * [ResettableIterator](http://docs.google.com/org/apache/commons/collections4/ResettableIterator.html)<E> | * Defines an iterator that can be reset back to an initial state. |
| * [ResettableListIterator](http://docs.google.com/org/apache/commons/collections4/ResettableListIterator.html)<E> | * Defines a list iterator that can be reset back to an initial state. |
| * [SetValuedMap](http://docs.google.com/org/apache/commons/collections4/SetValuedMap.html)<K,V> | * Defines a map that holds a set of values against each key. |
| * [SortedBag](http://docs.google.com/org/apache/commons/collections4/SortedBag.html)<E> | * Defines a type of Bag that maintains a sorted order among its unique representative members. |
| * [SortedBidiMap](http://docs.google.com/org/apache/commons/collections4/SortedBidiMap.html)<K,V> | * Defines a map that allows bidirectional lookup between key and values and retains both keys and values in sorted order. |
| * [Transformer](http://docs.google.com/org/apache/commons/collections4/Transformer.html)<I,O> | * Defines a functor interface implemented by classes that transform one object into another. |
| * [Trie](http://docs.google.com/org/apache/commons/collections4/Trie.html)<K,V> | * Defines the interface for a prefix tree, an ordered tree data structure. |
| * [Unmodifiable](http://docs.google.com/org/apache/commons/collections4/Unmodifiable.html) | * Marker interface for collections, maps and iterators that are unmodifiable. |

* Class Summary

|  |  |
| --- | --- |
| * Class | * Description |
| * [ArrayStack](http://docs.google.com/org/apache/commons/collections4/ArrayStack.html)<E> | * Deprecated use [ArrayDeque](https://docs.oracle.com/javase/7/docs/api/java/util/ArrayDeque.html?is-external=true) instead (available from Java 1.6) |
| * [BagUtils](http://docs.google.com/org/apache/commons/collections4/BagUtils.html) | * Provides utility methods and decorators for [Bag](http://docs.google.com/org/apache/commons/collections4/Bag.html) and [SortedBag](http://docs.google.com/org/apache/commons/collections4/SortedBag.html) instances. |
| * [ClosureUtils](http://docs.google.com/org/apache/commons/collections4/ClosureUtils.html) | * ClosureUtils provides reference implementations and utilities for the Closure functor interface. |
| * [CollectionUtils](http://docs.google.com/org/apache/commons/collections4/CollectionUtils.html) | * Provides utility methods and decorators for [Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true) instances. |
| * [ComparatorUtils](http://docs.google.com/org/apache/commons/collections4/ComparatorUtils.html) | * Provides convenient static utility methods for Comparator objects. |
| * [EnumerationUtils](http://docs.google.com/org/apache/commons/collections4/EnumerationUtils.html) | * Provides utility methods for [Enumeration](https://docs.oracle.com/javase/7/docs/api/java/util/Enumeration.html?is-external=true) instances. |
| * [FactoryUtils](http://docs.google.com/org/apache/commons/collections4/FactoryUtils.html) | * FactoryUtils provides reference implementations and utilities for the Factory functor interface. |
| * [FluentIterable](http://docs.google.com/org/apache/commons/collections4/FluentIterable.html)<E> | * A FluentIterable provides a powerful yet simple API for manipulating Iterable instances in a fluent manner. |
| * [IterableUtils](http://docs.google.com/org/apache/commons/collections4/IterableUtils.html) | * Provides utility methods and decorators for [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true) instances. |
| * [IteratorUtils](http://docs.google.com/org/apache/commons/collections4/IteratorUtils.html) | * Provides static utility methods and decorators for [Iterator](https://docs.oracle.com/javase/7/docs/api/java/util/Iterator.html?is-external=true) instances. |
| * [ListUtils](http://docs.google.com/org/apache/commons/collections4/ListUtils.html) | * Provides utility methods and decorators for [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true) instances. |
| * [MapUtils](http://docs.google.com/org/apache/commons/collections4/MapUtils.html) | * Provides utility methods and decorators for [Map](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true) and [SortedMap](https://docs.oracle.com/javase/7/docs/api/java/util/SortedMap.html?is-external=true) instances. |
| * [MultiMapUtils](http://docs.google.com/org/apache/commons/collections4/MultiMapUtils.html) | * Provides utility methods and decorators for [MultiValuedMap](http://docs.google.com/org/apache/commons/collections4/MultiValuedMap.html) instances. |
| * [MultiSetUtils](http://docs.google.com/org/apache/commons/collections4/MultiSetUtils.html) | * Provides utility methods and decorators for [MultiSet](http://docs.google.com/org/apache/commons/collections4/MultiSet.html) instances. |
| * [PredicateUtils](http://docs.google.com/org/apache/commons/collections4/PredicateUtils.html) | * PredicateUtils provides reference implementations and utilities for the Predicate functor interface. |
| * [QueueUtils](http://docs.google.com/org/apache/commons/collections4/QueueUtils.html) | * Provides utility methods and decorators for [Queue](https://docs.oracle.com/javase/7/docs/api/java/util/Queue.html?is-external=true) instances. |
| * [SetUtils](http://docs.google.com/org/apache/commons/collections4/SetUtils.html) | * Provides utility methods and decorators for [Set](https://docs.oracle.com/javase/7/docs/api/java/util/Set.html?is-external=true) and [SortedSet](https://docs.oracle.com/javase/7/docs/api/java/util/SortedSet.html?is-external=true) instances. |
| * [SetUtils.SetView](http://docs.google.com/org/apache/commons/collections4/SetUtils.SetView.html)<E> | * An unmodifiable **view** of a set that may be backed by other sets. |
| * [SplitMapUtils](http://docs.google.com/org/apache/commons/collections4/SplitMapUtils.html) | * Utilities for working with "split maps:" objects that implement [Put](http://docs.google.com/org/apache/commons/collections4/Put.html) and/or [Get](http://docs.google.com/org/apache/commons/collections4/Get.html) but not [Map](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true). |
| * [TransformerUtils](http://docs.google.com/org/apache/commons/collections4/TransformerUtils.html) | * TransformerUtils provides reference implementations and utilities for the Transformer functor interface. |
| * [TrieUtils](http://docs.google.com/org/apache/commons/collections4/TrieUtils.html) | * A collection of [Trie](http://docs.google.com/org/apache/commons/collections4/Trie.html) utilities. |

* Exception Summary

|  |  |
| --- | --- |
| * Exception | * Description |
| * [FunctorException](http://docs.google.com/org/apache/commons/collections4/FunctorException.html) | * Runtime exception thrown from functors. |

## Package org.apache.commons.collections4 Description

This package contains the interfaces and utilities shared across all the subpackages of this component.

The following collection implementations are provided in the package:

* ArrayStack - a non synchronized Stack that follows the same API as java.util Stack

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* [Help](http://docs.google.com/help-doc.html)
* Prev Package
* [Next Package](http://docs.google.com/org/apache/commons/collections4/bag/package-summary.html)
* [Frames](http://docs.google.com/index.html?org/apache/commons/collections4/package-summary.html)
* [No Frames](http://docs.google.com/package-summary.html)
* [All Classes](http://docs.google.com/allclasses-noframe.html)

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