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org.apache.commons.collections4

## Interface MultiSet<E>

* Type Parameters: E - the type held in the multiset All Superinterfaces: [Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<E>, [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> All Known Implementing Classes: [AbstractMapMultiSet](http://docs.google.com/org/apache/commons/collections4/multiset/AbstractMapMultiSet.html), [AbstractMultiSet](http://docs.google.com/org/apache/commons/collections4/multiset/AbstractMultiSet.html), [AbstractMultiSetDecorator](http://docs.google.com/org/apache/commons/collections4/multiset/AbstractMultiSetDecorator.html), [HashMultiSet](http://docs.google.com/org/apache/commons/collections4/multiset/HashMultiSet.html), [PredicatedMultiSet](http://docs.google.com/org/apache/commons/collections4/multiset/PredicatedMultiSet.html), [SynchronizedMultiSet](http://docs.google.com/org/apache/commons/collections4/multiset/SynchronizedMultiSet.html), [UnmodifiableMultiSet](http://docs.google.com/org/apache/commons/collections4/multiset/UnmodifiableMultiSet.html)  
    
  public interface MultiSet<E>  
  extends [Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<E>  
  Defines a collection that counts the number of times an object appears in the collection.  
  Suppose you have a MultiSet that contains {a, a, b, c}. Calling [getCount(Object)](http://docs.google.com/org/apache/commons/collections4/MultiSet.html#getCount-java.lang.Object-) on a would return 2, while calling [uniqueSet()](http://docs.google.com/org/apache/commons/collections4/MultiSet.html#uniqueSet--) would return {a, b, c}.Since: 4.1

### Nested Class SummaryNested Classes

|  |  |
| --- | --- |
| * + Modifier and Type | * + Interface and Description |
| * + static interface | * + [MultiSet.Entry](http://docs.google.com/org/apache/commons/collections4/MultiSet.Entry.html)<[E](http://docs.google.com/org/apache/commons/collections4/MultiSet.Entry.html)> An unmodifiable entry for an element and its occurrence as contained in a MultiSet. |

### Method SummaryAll Methods Instance Methods Abstract Methods

|  |  |
| --- | --- |
| * + Modifier and Type | * + Method and Description |
| * + boolean | * + [add](http://docs.google.com/org/apache/commons/collections4/MultiSet.html#add-E-)([E](http://docs.google.com/org/apache/commons/collections4/MultiSet.html) object) Adds one copy of the specified object to the MultiSet. |
| * + int | * + [add](http://docs.google.com/org/apache/commons/collections4/MultiSet.html#add-E-int-)([E](http://docs.google.com/org/apache/commons/collections4/MultiSet.html) object, int occurrences) Adds a number of occurrences of the specified object to the MultiSet. |
| * + boolean | * + [containsAll](http://docs.google.com/org/apache/commons/collections4/MultiSet.html#containsAll-java.util.Collection-)([Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<?> coll) Returns true if the MultiSet contains at least one occurrence for each element contained in the given collection. |
| * + [Set](https://docs.oracle.com/javase/7/docs/api/java/util/Set.html?is-external=true)<[MultiSet.Entry](http://docs.google.com/org/apache/commons/collections4/MultiSet.Entry.html)<[E](http://docs.google.com/org/apache/commons/collections4/MultiSet.html)>> | * + [entrySet](http://docs.google.com/org/apache/commons/collections4/MultiSet.html#entrySet--)() Returns a [Set](https://docs.oracle.com/javase/7/docs/api/java/util/Set.html?is-external=true) of all entries contained in the MultiSet. |
| * + boolean | * + [equals](http://docs.google.com/org/apache/commons/collections4/MultiSet.html#equals-java.lang.Object-)([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) obj) Compares this MultiSet to another object. |
| * + int | * + [getCount](http://docs.google.com/org/apache/commons/collections4/MultiSet.html#getCount-java.lang.Object-)([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) object) Returns the number of occurrences of the given object currently in the MultiSet. |
| * + int | * + [hashCode](http://docs.google.com/org/apache/commons/collections4/MultiSet.html#hashCode--)() Gets a hash code for the MultiSet compatible with the definition of equals. |
| * + [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/MultiSet.html)> | * + [iterator](http://docs.google.com/org/apache/commons/collections4/MultiSet.html#iterator--)() Returns an [Iterator](https://docs.oracle.com/javase/7/docs/api/java/util/Iterator.html?is-external=true) over the entire set of members, including copies due to cardinality. |
| * + boolean | * + [remove](http://docs.google.com/org/apache/commons/collections4/MultiSet.html#remove-java.lang.Object-)([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) object) Removes one occurrence of the given object from the MultiSet. |
| * + int | * + [remove](http://docs.google.com/org/apache/commons/collections4/MultiSet.html#remove-java.lang.Object-int-)([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) object, int occurrences) Removes a number of occurrences of the specified object from the MultiSet. |
| * + boolean | * + [removeAll](http://docs.google.com/org/apache/commons/collections4/MultiSet.html#removeAll-java.util.Collection-)([Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<?> coll) Remove all occurrences of all elements from this MultiSet represented in the given collection. |
| * + boolean | * + [retainAll](http://docs.google.com/org/apache/commons/collections4/MultiSet.html#retainAll-java.util.Collection-)([Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<?> coll) Remove any elements of this MultiSet that are not contained in the given collection. |
| * + int | * + [setCount](http://docs.google.com/org/apache/commons/collections4/MultiSet.html#setCount-E-int-)([E](http://docs.google.com/org/apache/commons/collections4/MultiSet.html) object, int count) Sets the number of occurrences of the specified object in the MultiSet to the given count. |
| * + int | * + [size](http://docs.google.com/org/apache/commons/collections4/MultiSet.html#size--)() Returns the total number of items in the MultiSet. |
| * + [Set](https://docs.oracle.com/javase/7/docs/api/java/util/Set.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/MultiSet.html)> | * + [uniqueSet](http://docs.google.com/org/apache/commons/collections4/MultiSet.html#uniqueSet--)() Returns a [Set](https://docs.oracle.com/javase/7/docs/api/java/util/Set.html?is-external=true) of unique elements in the MultiSet. |

### Methods inherited from interface java.util.[**Collection**](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)[addAll](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true#addAll-java.util.Collection-), [clear](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true#clear--), [contains](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true#contains-java.lang.Object-), [isEmpty](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true#isEmpty--), [parallelStream](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true#parallelStream--), [removeIf](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true#removeIf-java.util.function.Predicate-), [spliterator](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true#spliterator--), [stream](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true#stream--), [toArray](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true#toArray--), [toArray](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true#toArray-T:A-)

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

### Method Detail

#### getCount int getCount([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) object) Returns the number of occurrences of the given object currently in the MultiSet. If the object does not exist in the multiset, return 0.Parameters: object - the object to search for Returns: the number of occurrences of the object, zero if not found

#### setCount int setCount([E](http://docs.google.com/org/apache/commons/collections4/MultiSet.html) object, int count) Sets the number of occurrences of the specified object in the MultiSet to the given count. If the provided count is zero, the object will be removed from the [uniqueSet()](http://docs.google.com/org/apache/commons/collections4/MultiSet.html#uniqueSet--).Parameters: object - the object to update count - the number of occurrences of the object Returns: the number of occurrences of the object before this operation, zero if the object was not contained in the multiset Throws: [IllegalArgumentException](https://docs.oracle.com/javase/7/docs/api/java/lang/IllegalArgumentException.html?is-external=true) - if count is negative

#### add boolean add([E](http://docs.google.com/org/apache/commons/collections4/MultiSet.html) object) Adds one copy of the specified object to the MultiSet. If the object is already in the [uniqueSet()](http://docs.google.com/org/apache/commons/collections4/MultiSet.html#uniqueSet--) then increment its count as reported by [getCount(Object)](http://docs.google.com/org/apache/commons/collections4/MultiSet.html#getCount-java.lang.Object-). Otherwise add it to the [uniqueSet()](http://docs.google.com/org/apache/commons/collections4/MultiSet.html#uniqueSet--) and report its count as 1.Specified by: [add](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true#add-E-) in interface [Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/MultiSet.html)> Parameters: object - the object to add Returns: true always, as the size of the MultiSet is increased in any case

#### add int add([E](http://docs.google.com/org/apache/commons/collections4/MultiSet.html) object, int occurrences) Adds a number of occurrences of the specified object to the MultiSet. If the object is already in the [uniqueSet()](http://docs.google.com/org/apache/commons/collections4/MultiSet.html#uniqueSet--) then increment its count as reported by [getCount(Object)](http://docs.google.com/org/apache/commons/collections4/MultiSet.html#getCount-java.lang.Object-). Otherwise add it to the [uniqueSet()](http://docs.google.com/org/apache/commons/collections4/MultiSet.html#uniqueSet--) and report its count as occurrences.Parameters: object - the object to add occurrences - the number of occurrences to add, may be zero, in which case no change is made to the multiset Returns: the number of occurrences of the object in the multiset before this operation; possibly zero Throws: [IllegalArgumentException](https://docs.oracle.com/javase/7/docs/api/java/lang/IllegalArgumentException.html?is-external=true) - if occurrences is negative

#### remove boolean remove([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) object) Removes one occurrence of the given object from the MultiSet. If the number of occurrences after this operations is reduced to zero, the object will be removed from the [uniqueSet()](http://docs.google.com/org/apache/commons/collections4/MultiSet.html#uniqueSet--).Specified by: [remove](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true#remove-java.lang.Object-) in interface [Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/MultiSet.html)> Parameters: object - the object to remove Returns: true if this call changed the collection

#### remove int remove([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) object, int occurrences) Removes a number of occurrences of the specified object from the MultiSet. If the number of occurrences to remove is greater than the actual number of occurrences in the multiset, the object will be removed from the multiset.Parameters: object - the object to remove occurrences - the number of occurrences to remove, may be zero, in which case no change is made to the multiset Returns: the number of occurrences of the object in the multiset before the operation; possibly zero Throws: [IllegalArgumentException](https://docs.oracle.com/javase/7/docs/api/java/lang/IllegalArgumentException.html?is-external=true) - if occurrences is negative

#### uniqueSet [Set](https://docs.oracle.com/javase/7/docs/api/java/util/Set.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/MultiSet.html)> uniqueSet() Returns a [Set](https://docs.oracle.com/javase/7/docs/api/java/util/Set.html?is-external=true) of unique elements in the MultiSet. Uniqueness constraints are the same as those in [Set](https://docs.oracle.com/javase/7/docs/api/java/util/Set.html?is-external=true). The returned set is backed by this multiset, so any change to either is immediately reflected in the other. Only removal operations are supported, in which case all occurrences of the element are removed from the backing multiset.Returns: the Set of unique MultiSet elements

#### entrySet [Set](https://docs.oracle.com/javase/7/docs/api/java/util/Set.html?is-external=true)<[MultiSet.Entry](http://docs.google.com/org/apache/commons/collections4/MultiSet.Entry.html)<[E](http://docs.google.com/org/apache/commons/collections4/MultiSet.html)>> entrySet() Returns a [Set](https://docs.oracle.com/javase/7/docs/api/java/util/Set.html?is-external=true) of all entries contained in the MultiSet. The returned set is backed by this multiset, so any change to either is immediately reflected in the other.Returns: the Set of MultiSet entries

#### iterator [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/MultiSet.html)> iterator() Returns an [Iterator](https://docs.oracle.com/javase/7/docs/api/java/util/Iterator.html?is-external=true) over the entire set of members, including copies due to cardinality. This iterator is fail-fast and will not tolerate concurrent modifications.Specified by: [iterator](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true#iterator--) in interface [Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/MultiSet.html)> Specified by: [iterator](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true#iterator--) in interface [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/MultiSet.html)> Returns: iterator over all elements in the MultiSet

#### size int size() Returns the total number of items in the MultiSet.Specified by: [size](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true#size--) in interface [Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/MultiSet.html)> Returns: the total size of the multiset

#### containsAll boolean containsAll([Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<?> coll) Returns true if the MultiSet contains at least one occurrence for each element contained in the given collection.Specified by: [containsAll](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true#containsAll-java.util.Collection-) in interface [Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/MultiSet.html)> Parameters: coll - the collection to check against Returns: true if the MultiSet contains all the collection

#### removeAll boolean removeAll([Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<?> coll) Remove all occurrences of all elements from this MultiSet represented in the given collection.Specified by: [removeAll](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true#removeAll-java.util.Collection-) in interface [Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/MultiSet.html)> Parameters: coll - the collection of elements to remove Returns: true if this call changed the multiset

#### retainAll boolean retainAll([Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<?> coll) Remove any elements of this MultiSet that are not contained in the given collection.Specified by: [retainAll](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true#retainAll-java.util.Collection-) in interface [Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/MultiSet.html)> Parameters: coll - the collection of elements to retain Returns: true if this call changed the multiset

#### equals boolean equals([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) obj) Compares this MultiSet to another object. This MultiSet equals another object if it is also a MultiSet that contains the same number of occurrences of the same elements.Specified by: [equals](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true#equals-java.lang.Object-) in interface [Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/MultiSet.html)> Overrides: [equals](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true#equals-java.lang.Object-) in class [Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) Parameters: obj - the object to compare to Returns: true if equal

#### hashCode int hashCode() Gets a hash code for the MultiSet compatible with the definition of equals. The hash code is defined as the sum total of a hash code for each element. The per element hash code is defined as (e==null ? 0 : e.hashCode()) ^ noOccurances).Specified by: [hashCode](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true#hashCode--) in interface [Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/MultiSet.html)> Overrides: [hashCode](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true#hashCode--) in class [Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) Returns: the hash code of the MultiSet

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