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org.apache.commons.collections4.bag

## Class PredicatedBag<E>

* [java.lang.Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true)
  + [org.apache.commons.collections4.collection.AbstractCollectionDecorator](http://docs.google.com/org/apache/commons/collections4/collection/AbstractCollectionDecorator.html)<E>
    - [org.apache.commons.collections4.collection.PredicatedCollection](http://docs.google.com/org/apache/commons/collections4/collection/PredicatedCollection.html)<E>
      * org.apache.commons.collections4.bag.PredicatedBag<E>
* Type Parameters: E - the type of elements in this bag All Implemented Interfaces: [Serializable](https://docs.oracle.com/javase/7/docs/api/java/io/Serializable.html?is-external=true), [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E>, [Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<E>, [Bag](http://docs.google.com/org/apache/commons/collections4/Bag.html)<E> Direct Known Subclasses: [PredicatedSortedBag](http://docs.google.com/org/apache/commons/collections4/bag/PredicatedSortedBag.html)  
    
  public class PredicatedBag<E>  
  extends [PredicatedCollection](http://docs.google.com/org/apache/commons/collections4/collection/PredicatedCollection.html)<E>  
  implements [Bag](http://docs.google.com/org/apache/commons/collections4/Bag.html)<E>  
  Decorates another [Bag](http://docs.google.com/org/apache/commons/collections4/Bag.html) to validate that additions match a specified predicate.  
  This bag exists to provide validation for the decorated bag. It is normally created to decorate an empty bag. If an object cannot be added to the bag, an [IllegalArgumentException](https://docs.oracle.com/javase/7/docs/api/java/lang/IllegalArgumentException.html?is-external=true) is thrown.  
  One usage would be to ensure that no null entries are added to the bag.  
   Bag bag = PredicatedBag.predicatedBag(new HashBag(), NotNullPredicate.INSTANCE);  
     
  This class is Serializable from Commons Collections 3.1.Since: 3.0 See Also: [Serialized Form](http://docs.google.com/serialized-form.html#org.apache.commons.collections4.bag.PredicatedBag)

### Nested Class Summary

### Nested classes/interfaces inherited from class org.apache.commons.collections4.collection.[**PredicatedCollection**](http://docs.google.com/org/apache/commons/collections4/collection/PredicatedCollection.html)[PredicatedCollection.Builder](http://docs.google.com/org/apache/commons/collections4/collection/PredicatedCollection.Builder.html)<[E](http://docs.google.com/org/apache/commons/collections4/collection/PredicatedCollection.Builder.html)>

### Field Summary

### Fields inherited from class org.apache.commons.collections4.collection.[**PredicatedCollection**](http://docs.google.com/org/apache/commons/collections4/collection/PredicatedCollection.html)[predicate](http://docs.google.com/org/apache/commons/collections4/collection/PredicatedCollection.html#predicate)

### Constructor SummaryConstructors

|  |  |
| --- | --- |
| * + Modifier | * + Constructor and Description |
| * + protected | * + [PredicatedBag](http://docs.google.com/org/apache/commons/collections4/bag/PredicatedBag.html#PredicatedBag-org.apache.commons.collections4.Bag-org.apache.commons.collections4.Predicate-)([Bag](http://docs.google.com/org/apache/commons/collections4/Bag.html)<[E](http://docs.google.com/org/apache/commons/collections4/bag/PredicatedBag.html)> bag, [Predicate](http://docs.google.com/org/apache/commons/collections4/Predicate.html)<? super [E](http://docs.google.com/org/apache/commons/collections4/bag/PredicatedBag.html)> predicate) Constructor that wraps (not copies). |

### Method SummaryAll Methods Static Methods Instance Methods Concrete Methods

|  |  |
| --- | --- |
| * + Modifier and Type | * + Method and Description |
| * + boolean | * + [add](http://docs.google.com/org/apache/commons/collections4/bag/PredicatedBag.html#add-E-int-)([E](http://docs.google.com/org/apache/commons/collections4/bag/PredicatedBag.html) object, int count) Adds nCopies copies of the specified object to the Bag. |
| * + protected [Bag](http://docs.google.com/org/apache/commons/collections4/Bag.html)<[E](http://docs.google.com/org/apache/commons/collections4/bag/PredicatedBag.html)> | * + [decorated](http://docs.google.com/org/apache/commons/collections4/bag/PredicatedBag.html#decorated--)() Gets the decorated bag. |
| * + boolean | * + [equals](http://docs.google.com/org/apache/commons/collections4/bag/PredicatedBag.html#equals-java.lang.Object-)([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) object) |
| * + int | * + [getCount](http://docs.google.com/org/apache/commons/collections4/bag/PredicatedBag.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 (cardinality) of the given object currently in the bag. |
| * + int | * + [hashCode](http://docs.google.com/org/apache/commons/collections4/bag/PredicatedBag.html#hashCode--)() |
| * + static <E> [PredicatedBag](http://docs.google.com/org/apache/commons/collections4/bag/PredicatedBag.html)<E> | * + [predicatedBag](http://docs.google.com/org/apache/commons/collections4/bag/PredicatedBag.html#predicatedBag-org.apache.commons.collections4.Bag-org.apache.commons.collections4.Predicate-)([Bag](http://docs.google.com/org/apache/commons/collections4/Bag.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. |
| * + boolean | * + [remove](http://docs.google.com/org/apache/commons/collections4/bag/PredicatedBag.html#remove-java.lang.Object-int-)([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) object, int count) Removes nCopies copies of the specified object from the Bag. |
| * + [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/bag/PredicatedBag.html)> | * + [uniqueSet](http://docs.google.com/org/apache/commons/collections4/bag/PredicatedBag.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 Bag. |

### Methods inherited from class org.apache.commons.collections4.collection.[**PredicatedCollection**](http://docs.google.com/org/apache/commons/collections4/collection/PredicatedCollection.html)[add](http://docs.google.com/org/apache/commons/collections4/collection/PredicatedCollection.html#add-E-), [addAll](http://docs.google.com/org/apache/commons/collections4/collection/PredicatedCollection.html#addAll-java.util.Collection-), [builder](http://docs.google.com/org/apache/commons/collections4/collection/PredicatedCollection.html#builder-org.apache.commons.collections4.Predicate-), [notNullBuilder](http://docs.google.com/org/apache/commons/collections4/collection/PredicatedCollection.html#notNullBuilder--), [predicatedCollection](http://docs.google.com/org/apache/commons/collections4/collection/PredicatedCollection.html#predicatedCollection-java.util.Collection-org.apache.commons.collections4.Predicate-), [validate](http://docs.google.com/org/apache/commons/collections4/collection/PredicatedCollection.html#validate-E-)

### Methods inherited from class org.apache.commons.collections4.collection.[**AbstractCollectionDecorator**](http://docs.google.com/org/apache/commons/collections4/collection/AbstractCollectionDecorator.html)[clear](http://docs.google.com/org/apache/commons/collections4/collection/AbstractCollectionDecorator.html#clear--), [contains](http://docs.google.com/org/apache/commons/collections4/collection/AbstractCollectionDecorator.html#contains-java.lang.Object-), [containsAll](http://docs.google.com/org/apache/commons/collections4/collection/AbstractCollectionDecorator.html#containsAll-java.util.Collection-), [isEmpty](http://docs.google.com/org/apache/commons/collections4/collection/AbstractCollectionDecorator.html#isEmpty--), [iterator](http://docs.google.com/org/apache/commons/collections4/collection/AbstractCollectionDecorator.html#iterator--), [remove](http://docs.google.com/org/apache/commons/collections4/collection/AbstractCollectionDecorator.html#remove-java.lang.Object-), [removeAll](http://docs.google.com/org/apache/commons/collections4/collection/AbstractCollectionDecorator.html#removeAll-java.util.Collection-), [removeIf](http://docs.google.com/org/apache/commons/collections4/collection/AbstractCollectionDecorator.html#removeIf-java.util.function.Predicate-), [retainAll](http://docs.google.com/org/apache/commons/collections4/collection/AbstractCollectionDecorator.html#retainAll-java.util.Collection-), [setCollection](http://docs.google.com/org/apache/commons/collections4/collection/AbstractCollectionDecorator.html#setCollection-java.util.Collection-), [size](http://docs.google.com/org/apache/commons/collections4/collection/AbstractCollectionDecorator.html#size--), [toArray](http://docs.google.com/org/apache/commons/collections4/collection/AbstractCollectionDecorator.html#toArray--), [toArray](http://docs.google.com/org/apache/commons/collections4/collection/AbstractCollectionDecorator.html#toArray-T:A-), [toString](http://docs.google.com/org/apache/commons/collections4/collection/AbstractCollectionDecorator.html#toString--)

### 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--), [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--), [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--), [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 org.apache.commons.collections4.[**Bag**](http://docs.google.com/org/apache/commons/collections4/Bag.html)[add](http://docs.google.com/org/apache/commons/collections4/Bag.html#add-E-), [containsAll](http://docs.google.com/org/apache/commons/collections4/Bag.html#containsAll-java.util.Collection-), [iterator](http://docs.google.com/org/apache/commons/collections4/Bag.html#iterator--), [remove](http://docs.google.com/org/apache/commons/collections4/Bag.html#remove-java.lang.Object-), [removeAll](http://docs.google.com/org/apache/commons/collections4/Bag.html#removeAll-java.util.Collection-), [retainAll](http://docs.google.com/org/apache/commons/collections4/Bag.html#retainAll-java.util.Collection-), [size](http://docs.google.com/org/apache/commons/collections4/Bag.html#size--)

### 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-)

### Constructor Detail

#### PredicatedBag protected PredicatedBag([Bag](http://docs.google.com/org/apache/commons/collections4/Bag.html)<[E](http://docs.google.com/org/apache/commons/collections4/bag/PredicatedBag.html)> bag, [Predicate](http://docs.google.com/org/apache/commons/collections4/Predicate.html)<? super [E](http://docs.google.com/org/apache/commons/collections4/bag/PredicatedBag.html)> predicate) Constructor that wraps (not copies). If there are any elements already in the bag being decorated, they are validated.Parameters: bag - the bag to decorate, must not be null predicate - the predicate to use for validation, must not be null Throws: [NullPointerException](https://docs.oracle.com/javase/7/docs/api/java/lang/NullPointerException.html?is-external=true) - if bag or predicate is null [IllegalArgumentException](https://docs.oracle.com/javase/7/docs/api/java/lang/IllegalArgumentException.html?is-external=true) - if the bag contains invalid elements

### Method Detail

#### predicatedBag public static <E> [PredicatedBag](http://docs.google.com/org/apache/commons/collections4/bag/PredicatedBag.html)<E> predicatedBag([Bag](http://docs.google.com/org/apache/commons/collections4/Bag.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. If there are any elements already in the bag being decorated, they are validated.Type Parameters: E - the type of the elements in the bag Parameters: bag - the bag to decorate, must not be null predicate - the predicate to use for validation, must not be null Returns: a new predicated Bag Throws: [NullPointerException](https://docs.oracle.com/javase/7/docs/api/java/lang/NullPointerException.html?is-external=true) - if bag or predicate is null [IllegalArgumentException](https://docs.oracle.com/javase/7/docs/api/java/lang/IllegalArgumentException.html?is-external=true) - if the bag contains invalid elements Since: 4.0

#### decorated protected [Bag](http://docs.google.com/org/apache/commons/collections4/Bag.html)<[E](http://docs.google.com/org/apache/commons/collections4/bag/PredicatedBag.html)> decorated() Gets the decorated bag.Overrides: [decorated](http://docs.google.com/org/apache/commons/collections4/collection/AbstractCollectionDecorator.html#decorated--) in class [AbstractCollectionDecorator](http://docs.google.com/org/apache/commons/collections4/collection/AbstractCollectionDecorator.html)<[E](http://docs.google.com/org/apache/commons/collections4/bag/PredicatedBag.html)> Returns: the decorated bag

#### equals public boolean equals([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) object)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/bag/PredicatedBag.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)

#### hashCode public int hashCode()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/bag/PredicatedBag.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)

#### add public boolean add([E](http://docs.google.com/org/apache/commons/collections4/bag/PredicatedBag.html) object, int count) Description copied from interface: [Bag](http://docs.google.com/org/apache/commons/collections4/Bag.html#add-E-int-) Adds nCopies copies of the specified object to the Bag. If the object is already in the [Bag.uniqueSet()](http://docs.google.com/org/apache/commons/collections4/Bag.html#uniqueSet--) then increment its count as reported by [Bag.getCount(Object)](http://docs.google.com/org/apache/commons/collections4/Bag.html#getCount-java.lang.Object-). Otherwise add it to the [Bag.uniqueSet()](http://docs.google.com/org/apache/commons/collections4/Bag.html#uniqueSet--) and report its count as nCopies.Specified by: [add](http://docs.google.com/org/apache/commons/collections4/Bag.html#add-E-int-) in interface [Bag](http://docs.google.com/org/apache/commons/collections4/Bag.html)<[E](http://docs.google.com/org/apache/commons/collections4/bag/PredicatedBag.html)> Parameters: object - the object to add count - the number of copies to add Returns: true if the object was not already in the uniqueSet

#### remove public boolean remove([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) object, int count) Description copied from interface: [Bag](http://docs.google.com/org/apache/commons/collections4/Bag.html#remove-java.lang.Object-int-) Removes nCopies copies of the specified object from the Bag. If the number of copies to remove is greater than the actual number of copies in the Bag, no error is thrown.Specified by: [remove](http://docs.google.com/org/apache/commons/collections4/Bag.html#remove-java.lang.Object-int-) in interface [Bag](http://docs.google.com/org/apache/commons/collections4/Bag.html)<[E](http://docs.google.com/org/apache/commons/collections4/bag/PredicatedBag.html)> Parameters: object - the object to remove count - the number of copies to remove Returns: true if this call changed the collection

#### uniqueSet public [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/bag/PredicatedBag.html)> uniqueSet() Description copied from interface: [Bag](http://docs.google.com/org/apache/commons/collections4/Bag.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 Bag. Uniqueness constraints are the same as those in [Set](https://docs.oracle.com/javase/7/docs/api/java/util/Set.html?is-external=true).Specified by: [uniqueSet](http://docs.google.com/org/apache/commons/collections4/Bag.html#uniqueSet--) in interface [Bag](http://docs.google.com/org/apache/commons/collections4/Bag.html)<[E](http://docs.google.com/org/apache/commons/collections4/bag/PredicatedBag.html)> Returns: the Set of unique Bag elements

#### getCount public int getCount([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) object) Description copied from interface: [Bag](http://docs.google.com/org/apache/commons/collections4/Bag.html#getCount-java.lang.Object-) Returns the number of occurrences (cardinality) of the given object currently in the bag. If the object does not exist in the bag, return 0.Specified by: [getCount](http://docs.google.com/org/apache/commons/collections4/Bag.html#getCount-java.lang.Object-) in interface [Bag](http://docs.google.com/org/apache/commons/collections4/Bag.html)<[E](http://docs.google.com/org/apache/commons/collections4/bag/PredicatedBag.html)> Parameters: object - the object to search for Returns: the number of occurrences of the object, zero if not found

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