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org.apache.commons.collections4.bidimap

## Class UnmodifiableBidiMap<K,V>

* [java.lang.Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true)
  + [org.apache.commons.collections4.map.AbstractIterableMap](http://docs.google.com/org/apache/commons/collections4/map/AbstractIterableMap.html)<K,V>
    - [org.apache.commons.collections4.map.AbstractMapDecorator](http://docs.google.com/org/apache/commons/collections4/map/AbstractMapDecorator.html)<K,V>
      * [org.apache.commons.collections4.bidimap.AbstractBidiMapDecorator](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractBidiMapDecorator.html)<K,V>
        + org.apache.commons.collections4.bidimap.UnmodifiableBidiMap<K,V>
* Type Parameters: K - the type of the keys in this map V - the type of the values in this map All Implemented Interfaces: [Map](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true)<K,V>, [BidiMap](http://docs.google.com/org/apache/commons/collections4/BidiMap.html)<K,V>, [Get](http://docs.google.com/org/apache/commons/collections4/Get.html)<K,V>, [IterableGet](http://docs.google.com/org/apache/commons/collections4/IterableGet.html)<K,V>, [IterableMap](http://docs.google.com/org/apache/commons/collections4/IterableMap.html)<K,V>, [Put](http://docs.google.com/org/apache/commons/collections4/Put.html)<K,V>, [Unmodifiable](http://docs.google.com/org/apache/commons/collections4/Unmodifiable.html)  
    
  public final class UnmodifiableBidiMap<K,V>  
  extends [AbstractBidiMapDecorator](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractBidiMapDecorator.html)<K,V>  
  implements [Unmodifiable](http://docs.google.com/org/apache/commons/collections4/Unmodifiable.html)  
  Decorates another [BidiMap](http://docs.google.com/org/apache/commons/collections4/BidiMap.html) to ensure it can't be altered.  
  Attempts to modify it will result in an UnsupportedOperationException.Since: 3.0

### Nested Class Summary

### Nested classes/interfaces inherited from interface java.util.[**Map**](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true)[Map.Entry](https://docs.oracle.com/javase/7/docs/api/java/util/Map.Entry.html?is-external=true)<[K](https://docs.oracle.com/javase/7/docs/api/java/util/Map.Entry.html?is-external=true),[V](https://docs.oracle.com/javase/7/docs/api/java/util/Map.Entry.html?is-external=true)>

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

|  |  |
| --- | --- |
| * + Modifier and Type | * + Method and Description |
| * + void | * + [clear](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html#clear--)() |
| * + [Set](https://docs.oracle.com/javase/7/docs/api/java/util/Set.html?is-external=true)<[Map.Entry](https://docs.oracle.com/javase/7/docs/api/java/util/Map.Entry.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html)>> | * + [entrySet](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html#entrySet--)() |
| * + [BidiMap](http://docs.google.com/org/apache/commons/collections4/BidiMap.html)<[V](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html),[K](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html)> | * + [inverseBidiMap](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html#inverseBidiMap--)() Gets a view of this map where the keys and values are reversed. |
| * + [Set](https://docs.oracle.com/javase/7/docs/api/java/util/Set.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html)> | * + [keySet](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html#keySet--)() |
| * + [MapIterator](http://docs.google.com/org/apache/commons/collections4/MapIterator.html)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html)> | * + [mapIterator](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html#mapIterator--)() Obtains a MapIterator over the map. |
| * + [V](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html) | * + [put](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html#put-K-V-)([K](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html) key, [V](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html) value) Note that the return type is Object, rather than V as in the Map interface. |
| * + void | * + [putAll](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html#putAll-java.util.Map-)([Map](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true)<? extends [K](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html),? extends [V](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html)> mapToCopy) |
| * + [V](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html) | * + [remove](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html#remove-java.lang.Object-)([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) key) |
| * + [K](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html) | * + [removeValue](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html#removeValue-java.lang.Object-)([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) value) Removes the key-value pair that is currently mapped to the specified value (optional operation). |
| * + static <K,V> [BidiMap](http://docs.google.com/org/apache/commons/collections4/BidiMap.html)<K,V> | * + [unmodifiableBidiMap](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html#unmodifiableBidiMap-org.apache.commons.collections4.BidiMap-)([BidiMap](http://docs.google.com/org/apache/commons/collections4/BidiMap.html)<? extends K,? extends V> map) Factory method to create an unmodifiable map. |
| * + [Set](https://docs.oracle.com/javase/7/docs/api/java/util/Set.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html)> | * + [values](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html#values--)() Returns a [Set](https://docs.oracle.com/javase/7/docs/api/java/util/Set.html?is-external=true) view of the values contained in this map. |

### Methods inherited from class org.apache.commons.collections4.bidimap.[**AbstractBidiMapDecorator**](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractBidiMapDecorator.html)[decorated](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractBidiMapDecorator.html#decorated--), [getKey](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractBidiMapDecorator.html#getKey-java.lang.Object-)

### Methods inherited from class org.apache.commons.collections4.map.[**AbstractMapDecorator**](http://docs.google.com/org/apache/commons/collections4/map/AbstractMapDecorator.html)[containsKey](http://docs.google.com/org/apache/commons/collections4/map/AbstractMapDecorator.html#containsKey-java.lang.Object-), [containsValue](http://docs.google.com/org/apache/commons/collections4/map/AbstractMapDecorator.html#containsValue-java.lang.Object-), [equals](http://docs.google.com/org/apache/commons/collections4/map/AbstractMapDecorator.html#equals-java.lang.Object-), [get](http://docs.google.com/org/apache/commons/collections4/map/AbstractMapDecorator.html#get-java.lang.Object-), [hashCode](http://docs.google.com/org/apache/commons/collections4/map/AbstractMapDecorator.html#hashCode--), [isEmpty](http://docs.google.com/org/apache/commons/collections4/map/AbstractMapDecorator.html#isEmpty--), [size](http://docs.google.com/org/apache/commons/collections4/map/AbstractMapDecorator.html#size--), [toString](http://docs.google.com/org/apache/commons/collections4/map/AbstractMapDecorator.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 java.util.[**Map**](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true)[compute](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#compute-K-java.util.function.BiFunction-), [computeIfAbsent](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#computeIfAbsent-K-java.util.function.Function-), [computeIfPresent](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#computeIfPresent-K-java.util.function.BiFunction-), [containsKey](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#containsKey-java.lang.Object-), [containsValue](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#containsValue-java.lang.Object-), [equals](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#equals-java.lang.Object-), [forEach](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#forEach-java.util.function.BiConsumer-), [get](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#get-java.lang.Object-), [getOrDefault](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#getOrDefault-java.lang.Object-V-), [hashCode](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#hashCode--), [isEmpty](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#isEmpty--), [merge](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#merge-K-V-java.util.function.BiFunction-), [putIfAbsent](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#putIfAbsent-K-V-), [remove](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#remove-java.lang.Object-java.lang.Object-), [replace](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#replace-K-V-), [replace](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#replace-K-V-V-), [replaceAll](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#replaceAll-java.util.function.BiFunction-), [size](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#size--)

### Methods inherited from interface org.apache.commons.collections4.[**Get**](http://docs.google.com/org/apache/commons/collections4/Get.html)[containsKey](http://docs.google.com/org/apache/commons/collections4/Get.html#containsKey-java.lang.Object-), [containsValue](http://docs.google.com/org/apache/commons/collections4/Get.html#containsValue-java.lang.Object-), [get](http://docs.google.com/org/apache/commons/collections4/Get.html#get-java.lang.Object-), [isEmpty](http://docs.google.com/org/apache/commons/collections4/Get.html#isEmpty--), [size](http://docs.google.com/org/apache/commons/collections4/Get.html#size--)

### Method Detail

#### unmodifiableBidiMap public static <K,V> [BidiMap](http://docs.google.com/org/apache/commons/collections4/BidiMap.html)<K,V> unmodifiableBidiMap([BidiMap](http://docs.google.com/org/apache/commons/collections4/BidiMap.html)<? extends K,? extends V> map) Factory method to create an unmodifiable map. If the map passed in is already unmodifiable, it is returned.Type Parameters: K - the key type V - the value type Parameters: map - the map to decorate, must not be null Returns: an unmodifiable BidiMap Throws: [NullPointerException](https://docs.oracle.com/javase/7/docs/api/java/lang/NullPointerException.html?is-external=true) - if map is null Since: 4.0

#### clear public void clear()Specified by: [clear](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#clear--) in interface [Map](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html)> Specified by: [clear](http://docs.google.com/org/apache/commons/collections4/Put.html#clear--) in interface [Put](http://docs.google.com/org/apache/commons/collections4/Put.html)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html)> Overrides: [clear](http://docs.google.com/org/apache/commons/collections4/map/AbstractMapDecorator.html#clear--) in class [AbstractMapDecorator](http://docs.google.com/org/apache/commons/collections4/map/AbstractMapDecorator.html)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html)> See Also: [Map.clear()](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#clear--)

#### put public [V](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html) put([K](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html) key, [V](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html) value) Description copied from interface: [Put](http://docs.google.com/org/apache/commons/collections4/Put.html#put-K-V-) Note that the return type is Object, rather than V as in the Map interface. See the class Javadoc for further info.Specified by: [put](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#put-K-V-) in interface [Map](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html)> Specified by: [put](http://docs.google.com/org/apache/commons/collections4/BidiMap.html#put-K-V-) in interface [BidiMap](http://docs.google.com/org/apache/commons/collections4/BidiMap.html)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html)> Specified by: [put](http://docs.google.com/org/apache/commons/collections4/Put.html#put-K-V-) in interface [Put](http://docs.google.com/org/apache/commons/collections4/Put.html)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html)> Overrides: [put](http://docs.google.com/org/apache/commons/collections4/map/AbstractMapDecorator.html#put-K-V-) in class [AbstractMapDecorator](http://docs.google.com/org/apache/commons/collections4/map/AbstractMapDecorator.html)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html)> Parameters: key - key with which the specified value is to be associated value - value to be associated with the specified key Returns: the previous value associated with key, or null if there was no mapping for key. (A null return can also indicate that the map previously associated null with key, if the implementation supports null values.) See Also: [Map.put(Object, Object)](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#put-K-V-)

#### putAll public void putAll([Map](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true)<? extends [K](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html),? extends [V](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html)> mapToCopy)Specified by: [putAll](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#putAll-java.util.Map-) in interface [Map](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html)> Specified by: [putAll](http://docs.google.com/org/apache/commons/collections4/Put.html#putAll-java.util.Map-) in interface [Put](http://docs.google.com/org/apache/commons/collections4/Put.html)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html)> Overrides: [putAll](http://docs.google.com/org/apache/commons/collections4/map/AbstractMapDecorator.html#putAll-java.util.Map-) in class [AbstractMapDecorator](http://docs.google.com/org/apache/commons/collections4/map/AbstractMapDecorator.html)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html)> Parameters: mapToCopy - mappings to be stored in this map See Also: [Map.putAll(Map)](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#putAll-java.util.Map-)

#### remove public [V](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html) remove([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) key)Specified by: [remove](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#remove-java.lang.Object-) in interface [Map](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html)> Specified by: [remove](http://docs.google.com/org/apache/commons/collections4/Get.html#remove-java.lang.Object-) in interface [Get](http://docs.google.com/org/apache/commons/collections4/Get.html)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html)> Overrides: [remove](http://docs.google.com/org/apache/commons/collections4/map/AbstractMapDecorator.html#remove-java.lang.Object-) in class [AbstractMapDecorator](http://docs.google.com/org/apache/commons/collections4/map/AbstractMapDecorator.html)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html)> Parameters: key - key whose mapping is to be removed from the map Returns: the previous value associated with key, or null if there was no mapping for key. See Also: [Map.remove(Object)](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#remove-java.lang.Object-)

#### entrySet public [Set](https://docs.oracle.com/javase/7/docs/api/java/util/Set.html?is-external=true)<[Map.Entry](https://docs.oracle.com/javase/7/docs/api/java/util/Map.Entry.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html)>> entrySet()Specified by: [entrySet](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#entrySet--) in interface [Map](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html)> Specified by: [entrySet](http://docs.google.com/org/apache/commons/collections4/Get.html#entrySet--) in interface [Get](http://docs.google.com/org/apache/commons/collections4/Get.html)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html)> Overrides: [entrySet](http://docs.google.com/org/apache/commons/collections4/map/AbstractMapDecorator.html#entrySet--) in class [AbstractMapDecorator](http://docs.google.com/org/apache/commons/collections4/map/AbstractMapDecorator.html)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html)> Returns: a set view of the mappings contained in this map See Also: [Map.entrySet()](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#entrySet--)

#### keySet public [Set](https://docs.oracle.com/javase/7/docs/api/java/util/Set.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html)> keySet()Specified by: [keySet](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#keySet--) in interface [Map](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html)> Specified by: [keySet](http://docs.google.com/org/apache/commons/collections4/Get.html#keySet--) in interface [Get](http://docs.google.com/org/apache/commons/collections4/Get.html)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html)> Overrides: [keySet](http://docs.google.com/org/apache/commons/collections4/map/AbstractMapDecorator.html#keySet--) in class [AbstractMapDecorator](http://docs.google.com/org/apache/commons/collections4/map/AbstractMapDecorator.html)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html)> Returns: a set view of the keys contained in this map See Also: [Map.keySet()](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#keySet--)

#### values public [Set](https://docs.oracle.com/javase/7/docs/api/java/util/Set.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html)> values() Description copied from interface: [BidiMap](http://docs.google.com/org/apache/commons/collections4/BidiMap.html#values--) Returns a [Set](https://docs.oracle.com/javase/7/docs/api/java/util/Set.html?is-external=true) view of the values contained in this map. The set is backed by the map, so changes to the map are reflected in the set, and vice-versa. If the map is modified while an iteration over the set is in progress (except through the iterator's own remove operation), the results of the iteration are undefined. The set supports element removal, which removes the corresponding mapping from the map, via the Iterator.remove, Collection.remove, removeAll, retainAll and clear operations. It does not support the add or addAll operations.Specified by: [values](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#values--) in interface [Map](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html)> Specified by: [values](http://docs.google.com/org/apache/commons/collections4/BidiMap.html#values--) in interface [BidiMap](http://docs.google.com/org/apache/commons/collections4/BidiMap.html)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html)> Specified by: [values](http://docs.google.com/org/apache/commons/collections4/Get.html#values--) in interface [Get](http://docs.google.com/org/apache/commons/collections4/Get.html)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html)> Overrides: [values](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractBidiMapDecorator.html#values--) in class [AbstractBidiMapDecorator](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractBidiMapDecorator.html)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html)> Returns: a collection view of the values contained in this map See Also: [Map.values()](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#values--)

#### removeValue public [K](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html) removeValue([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) value) Description copied from interface: [BidiMap](http://docs.google.com/org/apache/commons/collections4/BidiMap.html#removeValue-java.lang.Object-) Removes the key-value pair that is currently mapped to the specified value (optional operation). If the value is not contained in the map, null is returned. Implementations should seek to make this method perform equally as well as remove(Object).Specified by: [removeValue](http://docs.google.com/org/apache/commons/collections4/BidiMap.html#removeValue-java.lang.Object-) in interface [BidiMap](http://docs.google.com/org/apache/commons/collections4/BidiMap.html)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html)> Overrides: [removeValue](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractBidiMapDecorator.html#removeValue-java.lang.Object-) in class [AbstractBidiMapDecorator](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractBidiMapDecorator.html)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html)> Parameters: value - the value to find the key-value pair for Returns: the key that was removed, null if nothing removed

#### mapIterator public [MapIterator](http://docs.google.com/org/apache/commons/collections4/MapIterator.html)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html)> mapIterator() Description copied from class: [AbstractIterableMap](http://docs.google.com/org/apache/commons/collections4/map/AbstractIterableMap.html#mapIterator--) Obtains a MapIterator over the map. A map iterator is an efficient way of iterating over maps. There is no need to access the entry set or use Map Entry objects. IterableMap<String,Integer> map = new HashedMap<String,Integer>(); MapIterator<String,Integer> it = map.mapIterator(); while (it.hasNext()) { String key = it.next(); Integer value = it.getValue(); it.setValue(value + 1); } Specified by: [mapIterator](http://docs.google.com/org/apache/commons/collections4/IterableGet.html#mapIterator--) in interface [IterableGet](http://docs.google.com/org/apache/commons/collections4/IterableGet.html)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html)> Overrides: [mapIterator](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractBidiMapDecorator.html#mapIterator--) in class [AbstractBidiMapDecorator](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractBidiMapDecorator.html)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html)> Returns: a map iterator

#### inverseBidiMap public [BidiMap](http://docs.google.com/org/apache/commons/collections4/BidiMap.html)<[V](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html),[K](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html)> inverseBidiMap() Description copied from interface: [BidiMap](http://docs.google.com/org/apache/commons/collections4/BidiMap.html#inverseBidiMap--) Gets a view of this map where the keys and values are reversed. Changes to one map will be visible in the other and vice versa. This enables both directions of the map to be accessed as a Map. Implementations should seek to avoid creating a new object every time this method is called. See AbstractMap.values() etc. Calling this method on the inverse map should return the original.Specified by: [inverseBidiMap](http://docs.google.com/org/apache/commons/collections4/BidiMap.html#inverseBidiMap--) in interface [BidiMap](http://docs.google.com/org/apache/commons/collections4/BidiMap.html)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html)> Overrides: [inverseBidiMap](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractBidiMapDecorator.html#inverseBidiMap--) in class [AbstractBidiMapDecorator](http://docs.google.com/org/apache/commons/collections4/bidimap/AbstractBidiMapDecorator.html)<[K](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html),[V](http://docs.google.com/org/apache/commons/collections4/bidimap/UnmodifiableBidiMap.html)> Returns: an inverted bidirectional map

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