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org.apache.commons.collections4.map

## Class TransformedSortedMap<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.map.TransformedMap](http://docs.google.com/org/apache/commons/collections4/map/TransformedMap.html)<K,V>
        + org.apache.commons.collections4.map.TransformedSortedMap<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: [Serializable](https://docs.oracle.com/javase/7/docs/api/java/io/Serializable.html?is-external=true), [Map](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true)<K,V>, [SortedMap](https://docs.oracle.com/javase/7/docs/api/java/util/SortedMap.html?is-external=true)<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>  
    
  public class TransformedSortedMap<K,V>  
  extends [TransformedMap](http://docs.google.com/org/apache/commons/collections4/map/TransformedMap.html)<K,V>  
  implements [SortedMap](https://docs.oracle.com/javase/7/docs/api/java/util/SortedMap.html?is-external=true)<K,V>  
  Decorates another SortedMap to transform objects that are added.  
  The Map put methods and Map.Entry setValue method are affected by this class. Thus objects must be removed or searched for using their transformed form. For example, if the transformation converts Strings to Integers, you must use the Integer form to remove objects.  
  **Note that TransformedSortedMap is not synchronized and is not thread-safe.** If you wish to use this map from multiple threads concurrently, you must use appropriate synchronization. The simplest approach is to wrap this map using [Collections.synchronizedSortedMap(java.util.SortedMap<K, V>)](https://docs.oracle.com/javase/7/docs/api/java/util/Collections.html?is-external=true#synchronizedSortedMap-java.util.SortedMap-). This class may throw exceptions when accessed by concurrent threads without synchronization.  
  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.map.TransformedSortedMap)

### 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)>

### Field Summary

### Fields inherited from class org.apache.commons.collections4.map.[**TransformedMap**](http://docs.google.com/org/apache/commons/collections4/map/TransformedMap.html)[keyTransformer](http://docs.google.com/org/apache/commons/collections4/map/TransformedMap.html#keyTransformer), [valueTransformer](http://docs.google.com/org/apache/commons/collections4/map/TransformedMap.html#valueTransformer)

### Constructor SummaryConstructors

|  |  |
| --- | --- |
| * + Modifier | * + Constructor and Description |
| * + protected | * + [TransformedSortedMap](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html#TransformedSortedMap-java.util.SortedMap-org.apache.commons.collections4.Transformer-org.apache.commons.collections4.Transformer-)([SortedMap](https://docs.oracle.com/javase/7/docs/api/java/util/SortedMap.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html)> map, [Transformer](http://docs.google.com/org/apache/commons/collections4/Transformer.html)<? super [K](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html),? extends [K](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html)> keyTransformer, [Transformer](http://docs.google.com/org/apache/commons/collections4/Transformer.html)<? super [V](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html),? extends [V](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html)> valueTransformer) Constructor that wraps (not copies). |

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

|  |  |
| --- | --- |
| * + Modifier and Type | * + Method and Description |
| * + [Comparator](https://docs.oracle.com/javase/7/docs/api/java/util/Comparator.html?is-external=true)<? super [K](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html)> | * + [comparator](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html#comparator--)() |
| * + [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,V>> | * + [entrySet](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html#entrySet--)() |
| * + [K](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html) | * + [firstKey](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html#firstKey--)() |
| * + protected [SortedMap](https://docs.oracle.com/javase/7/docs/api/java/util/SortedMap.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html)> | * + [getSortedMap](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html#getSortedMap--)() Gets the map being decorated. |
| * + [SortedMap](https://docs.oracle.com/javase/7/docs/api/java/util/SortedMap.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html)> | * + [headMap](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html#headMap-K-)([K](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html) toKey) |
| * + [K](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html) | * + [lastKey](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html#lastKey--)() |
| * + [SortedMap](https://docs.oracle.com/javase/7/docs/api/java/util/SortedMap.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html)> | * + [subMap](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html#subMap-K-K-)([K](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html) fromKey, [K](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html) toKey) |
| * + [SortedMap](https://docs.oracle.com/javase/7/docs/api/java/util/SortedMap.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html)> | * + [tailMap](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html#tailMap-K-)([K](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html) fromKey) |
| * + static <K,V> [TransformedSortedMap](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html)<K,V> | * + [transformedSortedMap](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html#transformedSortedMap-java.util.SortedMap-org.apache.commons.collections4.Transformer-org.apache.commons.collections4.Transformer-)([SortedMap](https://docs.oracle.com/javase/7/docs/api/java/util/SortedMap.html?is-external=true)<K,V> map, [Transformer](http://docs.google.com/org/apache/commons/collections4/Transformer.html)<? super K,? extends K> keyTransformer, [Transformer](http://docs.google.com/org/apache/commons/collections4/Transformer.html)<? super V,? extends V> valueTransformer) Factory method to create a transforming sorted map that will transform existing contents of the specified map. |
| * + static <K,V> [TransformedSortedMap](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html)<K,V> | * + [transformingSortedMap](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html#transformingSortedMap-java.util.SortedMap-org.apache.commons.collections4.Transformer-org.apache.commons.collections4.Transformer-)([SortedMap](https://docs.oracle.com/javase/7/docs/api/java/util/SortedMap.html?is-external=true)<K,V> map, [Transformer](http://docs.google.com/org/apache/commons/collections4/Transformer.html)<? super K,? extends K> keyTransformer, [Transformer](http://docs.google.com/org/apache/commons/collections4/Transformer.html)<? super V,? extends V> valueTransformer) Factory method to create a transforming sorted map. |

### Methods inherited from class org.apache.commons.collections4.map.[**TransformedMap**](http://docs.google.com/org/apache/commons/collections4/map/TransformedMap.html)[checkSetValue](http://docs.google.com/org/apache/commons/collections4/map/TransformedMap.html#checkSetValue-V-), [isSetValueChecking](http://docs.google.com/org/apache/commons/collections4/map/TransformedMap.html#isSetValueChecking--), [put](http://docs.google.com/org/apache/commons/collections4/map/TransformedMap.html#put-K-V-), [putAll](http://docs.google.com/org/apache/commons/collections4/map/TransformedMap.html#putAll-java.util.Map-), [transformedMap](http://docs.google.com/org/apache/commons/collections4/map/TransformedMap.html#transformedMap-java.util.Map-org.apache.commons.collections4.Transformer-org.apache.commons.collections4.Transformer-), [transformingMap](http://docs.google.com/org/apache/commons/collections4/map/TransformedMap.html#transformingMap-java.util.Map-org.apache.commons.collections4.Transformer-org.apache.commons.collections4.Transformer-), [transformKey](http://docs.google.com/org/apache/commons/collections4/map/TransformedMap.html#transformKey-K-), [transformMap](http://docs.google.com/org/apache/commons/collections4/map/TransformedMap.html#transformMap-java.util.Map-), [transformValue](http://docs.google.com/org/apache/commons/collections4/map/TransformedMap.html#transformValue-V-)

### Methods inherited from class org.apache.commons.collections4.map.[**AbstractMapDecorator**](http://docs.google.com/org/apache/commons/collections4/map/AbstractMapDecorator.html)[clear](http://docs.google.com/org/apache/commons/collections4/map/AbstractMapDecorator.html#clear--), [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-), [decorated](http://docs.google.com/org/apache/commons/collections4/map/AbstractMapDecorator.html#decorated--), [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--), [keySet](http://docs.google.com/org/apache/commons/collections4/map/AbstractMapDecorator.html#keySet--), [remove](http://docs.google.com/org/apache/commons/collections4/map/AbstractMapDecorator.html#remove-java.lang.Object-), [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--), [values](http://docs.google.com/org/apache/commons/collections4/map/AbstractMapDecorator.html#values--)

### Methods inherited from class org.apache.commons.collections4.map.[**AbstractIterableMap**](http://docs.google.com/org/apache/commons/collections4/map/AbstractIterableMap.html)[mapIterator](http://docs.google.com/org/apache/commons/collections4/map/AbstractIterableMap.html#mapIterator--)

### 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.[**SortedMap**](https://docs.oracle.com/javase/7/docs/api/java/util/SortedMap.html?is-external=true)[entrySet](https://docs.oracle.com/javase/7/docs/api/java/util/SortedMap.html?is-external=true#entrySet--), [keySet](https://docs.oracle.com/javase/7/docs/api/java/util/SortedMap.html?is-external=true#keySet--), [values](https://docs.oracle.com/javase/7/docs/api/java/util/SortedMap.html?is-external=true#values--)

### Methods inherited from interface java.util.[**Map**](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true)[clear](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#clear--), [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-), [put](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#put-K-V-), [putAll](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#putAll-java.util.Map-), [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-), [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--)

### Constructor Detail

#### TransformedSortedMap protected TransformedSortedMap([SortedMap](https://docs.oracle.com/javase/7/docs/api/java/util/SortedMap.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html)> map, [Transformer](http://docs.google.com/org/apache/commons/collections4/Transformer.html)<? super [K](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html),? extends [K](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html)> keyTransformer, [Transformer](http://docs.google.com/org/apache/commons/collections4/Transformer.html)<? super [V](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html),? extends [V](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html)> valueTransformer) Constructor that wraps (not copies). If there are any elements already in the collection being decorated, they are NOT transformed.Parameters: map - the map to decorate, must not be null keyTransformer - the predicate to validate the keys, null means no transformation valueTransformer - the predicate to validate to values, null means no transformation Throws: [NullPointerException](https://docs.oracle.com/javase/7/docs/api/java/lang/NullPointerException.html?is-external=true) - if the map is null

### Method Detail

#### transformingSortedMap public static <K,V> [TransformedSortedMap](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html)<K,V> transformingSortedMap([SortedMap](https://docs.oracle.com/javase/7/docs/api/java/util/SortedMap.html?is-external=true)<K,V> map, [Transformer](http://docs.google.com/org/apache/commons/collections4/Transformer.html)<? super K,? extends K> keyTransformer, [Transformer](http://docs.google.com/org/apache/commons/collections4/Transformer.html)<? super V,? extends V> valueTransformer) Factory method to create a transforming sorted map. If there are any elements already in the map being decorated, they are NOT transformed. Contrast this with [transformedSortedMap(SortedMap, Transformer, Transformer)](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html#transformedSortedMap-java.util.SortedMap-org.apache.commons.collections4.Transformer-org.apache.commons.collections4.Transformer-).Type Parameters: K - the key type V - the value type Parameters: map - the map to decorate, must not be null keyTransformer - the predicate to validate the keys, null means no transformation valueTransformer - the predicate to validate to values, null means no transformation Returns: a new transformed sorted map Throws: [NullPointerException](https://docs.oracle.com/javase/7/docs/api/java/lang/NullPointerException.html?is-external=true) - if the map is null Since: 4.0

#### transformedSortedMap public static <K,V> [TransformedSortedMap](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html)<K,V> transformedSortedMap([SortedMap](https://docs.oracle.com/javase/7/docs/api/java/util/SortedMap.html?is-external=true)<K,V> map, [Transformer](http://docs.google.com/org/apache/commons/collections4/Transformer.html)<? super K,? extends K> keyTransformer, [Transformer](http://docs.google.com/org/apache/commons/collections4/Transformer.html)<? super V,? extends V> valueTransformer) Factory method to create a transforming sorted map that will transform existing contents of the specified map. If there are any elements already in the map being decorated, they will be transformed by this method. Contrast this with [transformingSortedMap(SortedMap, Transformer, Transformer)](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html#transformingSortedMap-java.util.SortedMap-org.apache.commons.collections4.Transformer-org.apache.commons.collections4.Transformer-).Type Parameters: K - the key type V - the value type Parameters: map - the map to decorate, must not be null keyTransformer - the transformer to use for key conversion, null means no transformation valueTransformer - the transformer to use for value conversion, null means no transformation Returns: a new transformed sorted map Throws: [NullPointerException](https://docs.oracle.com/javase/7/docs/api/java/lang/NullPointerException.html?is-external=true) - if map is null Since: 4.0

#### getSortedMap protected [SortedMap](https://docs.oracle.com/javase/7/docs/api/java/util/SortedMap.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html)> getSortedMap() Gets the map being decorated.Returns: the decorated map

#### firstKey public [K](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html) firstKey()Specified by: [firstKey](https://docs.oracle.com/javase/7/docs/api/java/util/SortedMap.html?is-external=true#firstKey--) in interface [SortedMap](https://docs.oracle.com/javase/7/docs/api/java/util/SortedMap.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html)>

#### lastKey public [K](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html) lastKey()Specified by: [lastKey](https://docs.oracle.com/javase/7/docs/api/java/util/SortedMap.html?is-external=true#lastKey--) in interface [SortedMap](https://docs.oracle.com/javase/7/docs/api/java/util/SortedMap.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html)>

#### comparator public [Comparator](https://docs.oracle.com/javase/7/docs/api/java/util/Comparator.html?is-external=true)<? super [K](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html)> comparator()Specified by: [comparator](https://docs.oracle.com/javase/7/docs/api/java/util/SortedMap.html?is-external=true#comparator--) in interface [SortedMap](https://docs.oracle.com/javase/7/docs/api/java/util/SortedMap.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html)>

#### subMap public [SortedMap](https://docs.oracle.com/javase/7/docs/api/java/util/SortedMap.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html)> subMap([K](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html) fromKey, [K](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html) toKey)Specified by: [subMap](https://docs.oracle.com/javase/7/docs/api/java/util/SortedMap.html?is-external=true#subMap-K-K-) in interface [SortedMap](https://docs.oracle.com/javase/7/docs/api/java/util/SortedMap.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html)>

#### headMap public [SortedMap](https://docs.oracle.com/javase/7/docs/api/java/util/SortedMap.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html)> headMap([K](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html) toKey)Specified by: [headMap](https://docs.oracle.com/javase/7/docs/api/java/util/SortedMap.html?is-external=true#headMap-K-) in interface [SortedMap](https://docs.oracle.com/javase/7/docs/api/java/util/SortedMap.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html)>

#### tailMap public [SortedMap](https://docs.oracle.com/javase/7/docs/api/java/util/SortedMap.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html)> tailMap([K](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html) fromKey)Specified by: [tailMap](https://docs.oracle.com/javase/7/docs/api/java/util/SortedMap.html?is-external=true#tailMap-K-) in interface [SortedMap](https://docs.oracle.com/javase/7/docs/api/java/util/SortedMap.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/TransformedSortedMap.html)>

#### 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,V>> 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,V> 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,V> 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,V> 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--)

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