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org.apache.commons.collections4.map

## Class ListOrderedMap<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.ListOrderedMap<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>, [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>, [OrderedMap](http://docs.google.com/org/apache/commons/collections4/OrderedMap.html)<K,V>, [Put](http://docs.google.com/org/apache/commons/collections4/Put.html)<K,V>  
    
  public class ListOrderedMap<K,V>  
  extends [AbstractMapDecorator](http://docs.google.com/org/apache/commons/collections4/map/AbstractMapDecorator.html)<K,V>  
  implements [OrderedMap](http://docs.google.com/org/apache/commons/collections4/OrderedMap.html)<K,V>, [Serializable](https://docs.oracle.com/javase/7/docs/api/java/io/Serializable.html?is-external=true)  
  Decorates a Map to ensure that the order of addition is retained using a List to maintain order.  
  The order will be used via the iterators and toArray methods on the views. The order is also returned by the MapIterator. The orderedMapIterator() method accesses an iterator that can iterate both forwards and backwards through the map. In addition, non-interface methods are provided to access the map by index.  
  If an object is added to the Map for a second time, it will remain in the original position in the iteration.  
  **Note that ListOrderedMap 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.synchronizedMap(Map)](https://docs.oracle.com/javase/7/docs/api/java/util/Collections.html?is-external=true#synchronizedMap-java.util.Map-). This class may throw exceptions when accessed by concurrent threads without synchronization.  
  **Note that ListOrderedMap doesn't work with** [**IdentityHashMap**](https://docs.oracle.com/javase/7/docs/api/java/util/IdentityHashMap.html?is-external=true)**,** [**CaseInsensitiveMap**](http://docs.google.com/org/apache/commons/collections4/map/CaseInsensitiveMap.html)**, or similar maps that violate the general contract of** [**Map**](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true)**.** The ListOrderedMap (or, more precisely, the underlying List) is relying on [equals()](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true#equals-java.lang.Object-). This is fine, as long as the decorated Map is also based on [equals()](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true#equals-java.lang.Object-), and [hashCode()](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true#hashCode--), which [IdentityHashMap](https://docs.oracle.com/javase/7/docs/api/java/util/IdentityHashMap.html?is-external=true), and [CaseInsensitiveMap](http://docs.google.com/org/apache/commons/collections4/map/CaseInsensitiveMap.html) don't: The former uses ==, and the latter uses [equals()](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true#equals-java.lang.Object-) on a lower-cased key.  
  This class is [Serializable](https://docs.oracle.com/javase/7/docs/api/java/io/Serializable.html?is-external=true) starting with Commons Collections 3.1.Since: 3.0 See Also: [Serialized Form](http://docs.google.com/serialized-form.html#org.apache.commons.collections4.map.ListOrderedMap)

### 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)>

### Constructor SummaryConstructors

|  |  |
| --- | --- |
| * + Modifier | * + Constructor and Description |
|  | * + [ListOrderedMap](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html#ListOrderedMap--)() Constructs a new empty ListOrderedMap that decorates a HashMap. |
| * + protected | * + [ListOrderedMap](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html#ListOrderedMap-java.util.Map-)([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/map/ListOrderedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html)> map) Constructor that wraps (not copies). |

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

|  |  |
| --- | --- |
| * + Modifier and Type | * + Method and Description |
| * + [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html)> | * + [asList](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html#asList--)() Gets an unmodifiable List view of the keys which changes as the map changes. |
| * + void | * + [clear](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.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/map/ListOrderedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html)>> | * + [entrySet](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html#entrySet--)() Gets a view over the entries in the map. |
| * + [K](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html) | * + [firstKey](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html#firstKey--)() Gets the first key in this map by insert order. |
| * + [K](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html) | * + [get](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html#get-int-)(int index) Gets the key at the specified index. |
| * + [V](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html) | * + [getValue](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html#getValue-int-)(int index) Gets the value at the specified index. |
| * + int | * + [indexOf](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html#indexOf-java.lang.Object-)([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) key) Gets the index of the specified key. |
| * + [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html)> | * + [keyList](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html#keyList--)() Gets a view over the keys in the map as a List. |
| * + [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/map/ListOrderedMap.html)> | * + [keySet](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html#keySet--)() Gets a view over the keys in the map. |
| * + [K](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html) | * + [lastKey](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html#lastKey--)() Gets the last key in this map by insert order. |
| * + static <K,V> [ListOrderedMap](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html)<K,V> | * + [listOrderedMap](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html#listOrderedMap-java.util.Map-)([Map](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true)<K,V> map) Factory method to create an ordered map. |
| * + [OrderedMapIterator](http://docs.google.com/org/apache/commons/collections4/OrderedMapIterator.html)<[K](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html)> | * + [mapIterator](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html#mapIterator--)() Obtains a MapIterator over the map. |
| * + [K](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html) | * + [nextKey](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html#nextKey-java.lang.Object-)([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) key) Gets the next key to the one specified using insert order. |
| * + [K](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html) | * + [previousKey](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html#previousKey-java.lang.Object-)([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) key) Gets the previous key to the one specified using insert order. |
| * + [V](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html) | * + [put](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html#put-int-K-V-)(int index, [K](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html) key, [V](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html) value) Puts a key-value mapping into the map at the specified index. |
| * + [V](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html) | * + [put](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html#put-K-V-)([K](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html) key, [V](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.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/map/ListOrderedMap.html#putAll-int-java.util.Map-)(int index, [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/map/ListOrderedMap.html),? extends [V](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html)> map) Puts the values contained in a supplied Map into the Map starting at the specified index. |
| * + void | * + [putAll](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.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/map/ListOrderedMap.html),? extends [V](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html)> map) |
| * + [V](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html) | * + [remove](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html#remove-int-)(int index) Removes the element at the specified index. |
| * + [V](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html) | * + [remove](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html#remove-java.lang.Object-)([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) key) |
| * + [V](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html) | * + [setValue](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html#setValue-int-V-)(int index, [V](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html) value) Sets the value at the specified index. |
| * + [String](https://docs.oracle.com/javase/7/docs/api/java/lang/String.html?is-external=true) | * + [toString](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html#toString--)() Returns the Map as a string. |
| * + [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html)> | * + [valueList](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html#valueList--)() Gets a view over the values in the map as a List. |
| * + [Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html)> | * + [values](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html#values--)() Gets a view over the values in the map. |

### 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-), [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--), [size](http://docs.google.com/org/apache/commons/collections4/map/AbstractMapDecorator.html#size--)

### 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--)

### Constructor Detail

#### ListOrderedMap public ListOrderedMap() Constructs a new empty ListOrderedMap that decorates a HashMap.Since: 3.1

#### ListOrderedMap protected ListOrderedMap([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/map/ListOrderedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html)> map) Constructor that wraps (not copies).Parameters: map - the map to decorate, must not be null Throws: [NullPointerException](https://docs.oracle.com/javase/7/docs/api/java/lang/NullPointerException.html?is-external=true) - if map is null

### Method Detail

#### listOrderedMap public static <K,V> [ListOrderedMap](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html)<K,V> listOrderedMap([Map](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true)<K,V> map) Factory method to create an ordered map. An ArrayList is used to retain order.Type Parameters: K - the key type V - the value type Parameters: map - the map to decorate, must not be null Returns: a new list ordered 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

#### mapIterator public [OrderedMapIterator](http://docs.google.com/org/apache/commons/collections4/OrderedMapIterator.html)<[K](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.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/map/ListOrderedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html)> Specified by: [mapIterator](http://docs.google.com/org/apache/commons/collections4/OrderedMap.html#mapIterator--) in interface [OrderedMap](http://docs.google.com/org/apache/commons/collections4/OrderedMap.html)<[K](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html)> Overrides: [mapIterator](http://docs.google.com/org/apache/commons/collections4/map/AbstractIterableMap.html#mapIterator--) in class [AbstractIterableMap](http://docs.google.com/org/apache/commons/collections4/map/AbstractIterableMap.html)<[K](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html)> Returns: a map iterator

#### firstKey public [K](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html) firstKey() Gets the first key in this map by insert order.Specified by: [firstKey](http://docs.google.com/org/apache/commons/collections4/OrderedMap.html#firstKey--) in interface [OrderedMap](http://docs.google.com/org/apache/commons/collections4/OrderedMap.html)<[K](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html)> Returns: the first key currently in this map Throws: [NoSuchElementException](https://docs.oracle.com/javase/7/docs/api/java/util/NoSuchElementException.html?is-external=true) - if this map is empty

#### lastKey public [K](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html) lastKey() Gets the last key in this map by insert order.Specified by: [lastKey](http://docs.google.com/org/apache/commons/collections4/OrderedMap.html#lastKey--) in interface [OrderedMap](http://docs.google.com/org/apache/commons/collections4/OrderedMap.html)<[K](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html)> Returns: the last key currently in this map Throws: [NoSuchElementException](https://docs.oracle.com/javase/7/docs/api/java/util/NoSuchElementException.html?is-external=true) - if this map is empty

#### nextKey public [K](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html) nextKey([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) key) Gets the next key to the one specified using insert order. This method performs a list search to find the key and is O(n).Specified by: [nextKey](http://docs.google.com/org/apache/commons/collections4/OrderedMap.html#nextKey-K-) in interface [OrderedMap](http://docs.google.com/org/apache/commons/collections4/OrderedMap.html)<[K](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html)> Parameters: key - the key to find previous for Returns: the next key, null if no match or at start

#### previousKey public [K](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html) previousKey([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) key) Gets the previous key to the one specified using insert order. This method performs a list search to find the key and is O(n).Specified by: [previousKey](http://docs.google.com/org/apache/commons/collections4/OrderedMap.html#previousKey-K-) in interface [OrderedMap](http://docs.google.com/org/apache/commons/collections4/OrderedMap.html)<[K](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html)> Parameters: key - the key to find previous for Returns: the previous key, null if no match or at start

#### put public [V](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html) put([K](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html) key, [V](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.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/map/ListOrderedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.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/map/ListOrderedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.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/map/ListOrderedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.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/map/ListOrderedMap.html),? extends [V](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html)> map)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/map/ListOrderedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.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/map/ListOrderedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.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/map/ListOrderedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html)> Parameters: map - 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-)

#### putAll public void putAll(int index, [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/map/ListOrderedMap.html),? extends [V](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html)> map) Puts the values contained in a supplied Map into the Map starting at the specified index.Parameters: index - the index in the Map to start at. map - the Map containing the entries to be added. Throws: [IndexOutOfBoundsException](https://docs.oracle.com/javase/7/docs/api/java/lang/IndexOutOfBoundsException.html?is-external=true) - if the index is out of range [0, size]

#### remove public [V](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.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/map/ListOrderedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.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/map/ListOrderedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.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/map/ListOrderedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.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-)

#### 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/map/ListOrderedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.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/map/ListOrderedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.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/map/ListOrderedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html)> See Also: [Map.clear()](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#clear--)

#### 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/map/ListOrderedMap.html)> keySet() Gets a view over the keys in the map. The Collection will be ordered by object insertion into the map.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/map/ListOrderedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.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/map/ListOrderedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.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/map/ListOrderedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html)> Returns: the fully modifiable collection view over the keys See Also: [keyList()](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html#keyList--)

#### keyList public [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html)> keyList() Gets a view over the keys in the map as a List. The List will be ordered by object insertion into the map. The List is unmodifiable.Returns: the unmodifiable list view over the keys Since: 3.2 See Also: [keySet()](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html#keySet--)

#### values public [Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html)> values() Gets a view over the values in the map. The Collection will be ordered by object insertion into the map. From Commons Collections 3.2, this Collection can be cast to a list, see [valueList()](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html#valueList--)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/map/ListOrderedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.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/map/ListOrderedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html)> Overrides: [values](http://docs.google.com/org/apache/commons/collections4/map/AbstractMapDecorator.html#values--) in class [AbstractMapDecorator](http://docs.google.com/org/apache/commons/collections4/map/AbstractMapDecorator.html)<[K](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html)> Returns: the fully modifiable collection view over the values See Also: [valueList()](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html#valueList--)

#### valueList public [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<[V](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html)> valueList() Gets a view over the values in the map as a List. The List will be ordered by object insertion into the map. The List supports remove and set, but does not support add.Returns: the partially modifiable list view over the values Since: 3.2 See Also: [values()](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html#values--)

#### 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/map/ListOrderedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html)>> entrySet() Gets a view over the entries in the map. The Set will be ordered by object insertion into the map.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/map/ListOrderedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.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/map/ListOrderedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.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/map/ListOrderedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html)> Returns: the fully modifiable set view over the entries See Also: [Map.entrySet()](https://docs.oracle.com/javase/7/docs/api/java/util/Map.html?is-external=true#entrySet--)

#### toString public [String](https://docs.oracle.com/javase/7/docs/api/java/lang/String.html?is-external=true) toString() Returns the Map as a string.Overrides: [toString](http://docs.google.com/org/apache/commons/collections4/map/AbstractMapDecorator.html#toString--) in class [AbstractMapDecorator](http://docs.google.com/org/apache/commons/collections4/map/AbstractMapDecorator.html)<[K](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html),[V](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html)> Returns: the Map as a String

#### get public [K](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html) get(int index) Gets the key at the specified index.Parameters: index - the index to retrieve Returns: the key at the specified index Throws: [IndexOutOfBoundsException](https://docs.oracle.com/javase/7/docs/api/java/lang/IndexOutOfBoundsException.html?is-external=true) - if the index is invalid

#### getValue public [V](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html) getValue(int index) Gets the value at the specified index.Parameters: index - the index to retrieve Returns: the key at the specified index Throws: [IndexOutOfBoundsException](https://docs.oracle.com/javase/7/docs/api/java/lang/IndexOutOfBoundsException.html?is-external=true) - if the index is invalid

#### indexOf public int indexOf([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) key) Gets the index of the specified key.Parameters: key - the key to find the index of Returns: the index, or -1 if not found

#### setValue public [V](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html) setValue(int index, [V](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html) value) Sets the value at the specified index.Parameters: index - the index of the value to set value - the new value to set Returns: the previous value at that index Throws: [IndexOutOfBoundsException](https://docs.oracle.com/javase/7/docs/api/java/lang/IndexOutOfBoundsException.html?is-external=true) - if the index is invalid Since: 3.2

#### put public [V](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html) put(int index, [K](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html) key, [V](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html) value) Puts a key-value mapping into the map at the specified index. If the map already contains the key, then the original mapping is removed and the new mapping added at the specified index. The remove may change the effect of the index. The index is always calculated relative to the original state of the map. Thus the steps are: (1) remove the existing key-value mapping, then (2) insert the new key-value mapping at the position it would have been inserted had the remove not occurred.Parameters: index - the index at which the mapping should be inserted key - the key value - the value Returns: the value previously mapped to the key Throws: [IndexOutOfBoundsException](https://docs.oracle.com/javase/7/docs/api/java/lang/IndexOutOfBoundsException.html?is-external=true) - if the index is out of range [0, size] Since: 3.2

#### remove public [V](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html) remove(int index) Removes the element at the specified index.Parameters: index - the index of the object to remove Returns: the removed value, or null if none existed Throws: [IndexOutOfBoundsException](https://docs.oracle.com/javase/7/docs/api/java/lang/IndexOutOfBoundsException.html?is-external=true) - if the index is invalid

#### asList public [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<[K](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html)> asList() Gets an unmodifiable List view of the keys which changes as the map changes. The returned list is unmodifiable because changes to the values of the list (using [ListIterator.set(Object)](https://docs.oracle.com/javase/7/docs/api/java/util/ListIterator.html?is-external=true#set-E-)) will effectively remove the value from the list and reinsert that value at the end of the list, which is an unexpected side effect of changing the value of a list. This occurs because changing the key, changes when the mapping is added to the map and thus where it appears in the list. An alternative to this method is to use the better named [keyList()](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html#keyList--) or [keySet()](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html#keySet--).Returns: The ordered list of keys. See Also: [keyList()](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html#keyList--), [keySet()](http://docs.google.com/org/apache/commons/collections4/map/ListOrderedMap.html#keySet--)

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