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org.apache.commons.collections4

## Class IterableUtils

* [java.lang.Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true)
  + org.apache.commons.collections4.IterableUtils
* public class IterableUtils  
  extends [Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true)
* Provides utility methods and decorators for [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true) instances.  
  **Note**: this util class has been designed for fail-fast argument checking.
  + all decorator methods are **NOT** null-safe wrt the provided Iterable argument, i.e. they will throw a [NullPointerException](https://docs.oracle.com/javase/7/docs/api/java/lang/NullPointerException.html?is-external=true) if a null Iterable is passed as argument.
  + all other utility methods are null-safe wrt the provided Iterable argument, i.e. they will treat a null Iterable the same way as an empty one. Other arguments which are null, e.g. a [Predicate](http://docs.google.com/org/apache/commons/collections4/Predicate.html), will result in a [NullPointerException](https://docs.oracle.com/javase/7/docs/api/java/lang/NullPointerException.html?is-external=true). Exception: passing a null [Comparator](https://docs.oracle.com/javase/7/docs/api/java/util/Comparator.html?is-external=true) is equivalent to a Comparator with natural ordering.

Since: 4.1

### Constructor SummaryConstructors

|  |
| --- |
| * + Constructor and Description |
| * + [IterableUtils](http://docs.google.com/org/apache/commons/collections4/IterableUtils.html#IterableUtils--)() |

### Method SummaryAll Methods Static Methods Concrete Methods

|  |  |
| --- | --- |
| * + Modifier and Type | * + Method and Description |
| * + static <E> [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> | * + [boundedIterable](http://docs.google.com/org/apache/commons/collections4/IterableUtils.html#boundedIterable-java.lang.Iterable-long-)([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> iterable, long maxSize) Returns a view of the given iterable that contains at most the given number of elements. |
| * + static <E> [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> | * + [chainedIterable](http://docs.google.com/org/apache/commons/collections4/IterableUtils.html#chainedIterable-java.lang.Iterable...-)([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<? extends E>... iterables) Combines the provided iterables into a single iterable. |
| * + static <E> [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> | * + [chainedIterable](http://docs.google.com/org/apache/commons/collections4/IterableUtils.html#chainedIterable-java.lang.Iterable-java.lang.Iterable-)([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<? extends E> a, [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<? extends E> b) Combines two iterables into a single iterable. |
| * + static <E> [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> | * + [chainedIterable](http://docs.google.com/org/apache/commons/collections4/IterableUtils.html#chainedIterable-java.lang.Iterable-java.lang.Iterable-java.lang.Iterable-)([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<? extends E> a, [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<? extends E> b, [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<? extends E> c) Combines three iterables into a single iterable. |
| * + static <E> [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> | * + [chainedIterable](http://docs.google.com/org/apache/commons/collections4/IterableUtils.html#chainedIterable-java.lang.Iterable-java.lang.Iterable-java.lang.Iterable-java.lang.Iterable-)([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<? extends E> a, [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<? extends E> b, [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<? extends E> c, [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<? extends E> d) Combines four iterables into a single iterable. |
| * + static <E> [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> | * + [collatedIterable](http://docs.google.com/org/apache/commons/collections4/IterableUtils.html#collatedIterable-java.util.Comparator-java.lang.Iterable-java.lang.Iterable-)([Comparator](https://docs.oracle.com/javase/7/docs/api/java/util/Comparator.html?is-external=true)<? super E> comparator, [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<? extends E> a, [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<? extends E> b) Combines the two provided iterables into an ordered iterable using the provided comparator. |
| * + static <E> [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> | * + [collatedIterable](http://docs.google.com/org/apache/commons/collections4/IterableUtils.html#collatedIterable-java.lang.Iterable-java.lang.Iterable-)([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<? extends E> a, [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<? extends E> b) Combines the two provided iterables into an ordered iterable using natural ordering. |
| * + static <E> boolean | * + [contains](http://docs.google.com/org/apache/commons/collections4/IterableUtils.html#contains-java.lang.Iterable-E-org.apache.commons.collections4.Equator-)([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<? extends E> iterable, E object, [Equator](http://docs.google.com/org/apache/commons/collections4/Equator.html)<? super E> equator) Checks if the object is contained in the given iterable. |
| * + static <E> boolean | * + [contains](http://docs.google.com/org/apache/commons/collections4/IterableUtils.html#contains-java.lang.Iterable-java.lang.Object-)([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> iterable, [Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) object) Checks if the object is contained in the given iterable. |
| * + static <E> long | * + [countMatches](http://docs.google.com/org/apache/commons/collections4/IterableUtils.html#countMatches-java.lang.Iterable-org.apache.commons.collections4.Predicate-)([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> input, [Predicate](http://docs.google.com/org/apache/commons/collections4/Predicate.html)<? super E> predicate) Counts the number of elements in the input iterable that match the predicate. |
| * + static <E> [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> | * + [emptyIfNull](http://docs.google.com/org/apache/commons/collections4/IterableUtils.html#emptyIfNull-java.lang.Iterable-)([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> iterable) Returns an immutable empty iterable if the argument is null, or the argument itself otherwise. |
| * + static <E> [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> | * + [emptyIterable](http://docs.google.com/org/apache/commons/collections4/IterableUtils.html#emptyIterable--)() Gets an empty iterable. |
| * + static <E> [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> | * + [filteredIterable](http://docs.google.com/org/apache/commons/collections4/IterableUtils.html#filteredIterable-java.lang.Iterable-org.apache.commons.collections4.Predicate-)([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> iterable, [Predicate](http://docs.google.com/org/apache/commons/collections4/Predicate.html)<? super E> predicate) Returns a view of the given iterable that only contains elements matching the provided predicate. |
| * + static <E> E | * + [find](http://docs.google.com/org/apache/commons/collections4/IterableUtils.html#find-java.lang.Iterable-org.apache.commons.collections4.Predicate-)([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> iterable, [Predicate](http://docs.google.com/org/apache/commons/collections4/Predicate.html)<? super E> predicate) Finds the first element in the given iterable which matches the given predicate. |
| * + static <T> T | * + [first](http://docs.google.com/org/apache/commons/collections4/IterableUtils.html#first-java.lang.Iterable-)([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<T> iterable) Shortcut for get(iterator, 0). |
| * + static <E> void | * + [forEach](http://docs.google.com/org/apache/commons/collections4/IterableUtils.html#forEach-java.lang.Iterable-org.apache.commons.collections4.Closure-)([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> iterable, [Closure](http://docs.google.com/org/apache/commons/collections4/Closure.html)<? super E> closure) Applies the closure to each element of the provided iterable. |
| * + static <E> E | * + [forEachButLast](http://docs.google.com/org/apache/commons/collections4/IterableUtils.html#forEachButLast-java.lang.Iterable-org.apache.commons.collections4.Closure-)([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> iterable, [Closure](http://docs.google.com/org/apache/commons/collections4/Closure.html)<? super E> closure) Executes the given closure on each but the last element in the iterable. |
| * + static <E,T extends E> int | * + [frequency](http://docs.google.com/org/apache/commons/collections4/IterableUtils.html#frequency-java.lang.Iterable-T-)([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> iterable, T obj) Returns the number of occurrences of the provided object in the iterable. |
| * + static <T> T | * + [get](http://docs.google.com/org/apache/commons/collections4/IterableUtils.html#get-java.lang.Iterable-int-)([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<T> iterable, int index) Returns the index-th value in the iterable's [Iterator](https://docs.oracle.com/javase/7/docs/api/java/util/Iterator.html?is-external=true), throwing IndexOutOfBoundsException if there is no such element. |
| * + static <E> int | * + [indexOf](http://docs.google.com/org/apache/commons/collections4/IterableUtils.html#indexOf-java.lang.Iterable-org.apache.commons.collections4.Predicate-)([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> iterable, [Predicate](http://docs.google.com/org/apache/commons/collections4/Predicate.html)<? super E> predicate) Returns the index of the first element in the specified iterable that matches the given predicate. |
| * + static boolean | * + [isEmpty](http://docs.google.com/org/apache/commons/collections4/IterableUtils.html#isEmpty-java.lang.Iterable-)([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<?> iterable) Answers true if the provided iterable is empty. |
| * + static <E> [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> | * + [loopingIterable](http://docs.google.com/org/apache/commons/collections4/IterableUtils.html#loopingIterable-java.lang.Iterable-)([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> iterable) Returns a view of the given iterable which will cycle infinitely over its elements. |
| * + static <E> boolean | * + [matchesAll](http://docs.google.com/org/apache/commons/collections4/IterableUtils.html#matchesAll-java.lang.Iterable-org.apache.commons.collections4.Predicate-)([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> iterable, [Predicate](http://docs.google.com/org/apache/commons/collections4/Predicate.html)<? super E> predicate) Answers true if a predicate is true for every element of an iterable. |
| * + static <E> boolean | * + [matchesAny](http://docs.google.com/org/apache/commons/collections4/IterableUtils.html#matchesAny-java.lang.Iterable-org.apache.commons.collections4.Predicate-)([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> iterable, [Predicate](http://docs.google.com/org/apache/commons/collections4/Predicate.html)<? super E> predicate) Answers true if a predicate is true for any element of the iterable. |
| * + static <O,R extends [Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<O>> [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<R> | * + [partition](http://docs.google.com/org/apache/commons/collections4/IterableUtils.html#partition-java.lang.Iterable-org.apache.commons.collections4.Factory-org.apache.commons.collections4.Predicate...-)([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<? extends O> iterable, [Factory](http://docs.google.com/org/apache/commons/collections4/Factory.html)<R> partitionFactory, [Predicate](http://docs.google.com/org/apache/commons/collections4/Predicate.html)<? super O>... predicates) Partitions all elements from iterable into separate output collections, based on the evaluation of the given predicates. |
| * + static <O> [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<[List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<O>> | * + [partition](http://docs.google.com/org/apache/commons/collections4/IterableUtils.html#partition-java.lang.Iterable-org.apache.commons.collections4.Predicate...-)([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<? extends O> iterable, [Predicate](http://docs.google.com/org/apache/commons/collections4/Predicate.html)<? super O>... predicates) Partitions all elements from iterable into separate output collections, based on the evaluation of the given predicates. |
| * + static <O> [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<[List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<O>> | * + [partition](http://docs.google.com/org/apache/commons/collections4/IterableUtils.html#partition-java.lang.Iterable-org.apache.commons.collections4.Predicate-)([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<? extends O> iterable, [Predicate](http://docs.google.com/org/apache/commons/collections4/Predicate.html)<? super O> predicate) Partitions all elements from iterable into separate output collections, based on the evaluation of the given predicate. |
| * + static <E> [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> | * + [reversedIterable](http://docs.google.com/org/apache/commons/collections4/IterableUtils.html#reversedIterable-java.lang.Iterable-)([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> iterable) Returns a reversed view of the given iterable. |
| * + static int | * + [size](http://docs.google.com/org/apache/commons/collections4/IterableUtils.html#size-java.lang.Iterable-)([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<?> iterable) Returns the number of elements contained in the given iterator. |
| * + static <E> [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> | * + [skippingIterable](http://docs.google.com/org/apache/commons/collections4/IterableUtils.html#skippingIterable-java.lang.Iterable-long-)([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> iterable, long elementsToSkip) Returns a view of the given iterable that skips the first N elements. |
| * + static <E> [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<E> | * + [toList](http://docs.google.com/org/apache/commons/collections4/IterableUtils.html#toList-java.lang.Iterable-)([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> iterable) Gets a new list with the contents of the provided iterable. |
| * + static <E> [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/IterableUtils.html#toString-java.lang.Iterable-)([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> iterable) Returns a string representation of the elements of the specified iterable. |
| * + static <E> [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/IterableUtils.html#toString-java.lang.Iterable-org.apache.commons.collections4.Transformer-)([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> iterable, [Transformer](http://docs.google.com/org/apache/commons/collections4/Transformer.html)<? super E,[String](https://docs.oracle.com/javase/7/docs/api/java/lang/String.html?is-external=true)> transformer) Returns a string representation of the elements of the specified iterable. |
| * + static <E> [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/IterableUtils.html#toString-java.lang.Iterable-org.apache.commons.collections4.Transformer-java.lang.String-java.lang.String-java.lang.String-)([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> iterable, [Transformer](http://docs.google.com/org/apache/commons/collections4/Transformer.html)<? super E,[String](https://docs.oracle.com/javase/7/docs/api/java/lang/String.html?is-external=true)> transformer, [String](https://docs.oracle.com/javase/7/docs/api/java/lang/String.html?is-external=true) delimiter, [String](https://docs.oracle.com/javase/7/docs/api/java/lang/String.html?is-external=true) prefix, [String](https://docs.oracle.com/javase/7/docs/api/java/lang/String.html?is-external=true) suffix) Returns a string representation of the elements of the specified iterable. |
| * + static <I,O> [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<O> | * + [transformedIterable](http://docs.google.com/org/apache/commons/collections4/IterableUtils.html#transformedIterable-java.lang.Iterable-org.apache.commons.collections4.Transformer-)([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<I> iterable, [Transformer](http://docs.google.com/org/apache/commons/collections4/Transformer.html)<? super I,? extends O> transformer) Returns a transformed view of the given iterable where all of its elements have been transformed by the provided transformer. |
| * + static <E> [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> | * + [uniqueIterable](http://docs.google.com/org/apache/commons/collections4/IterableUtils.html#uniqueIterable-java.lang.Iterable-)([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> iterable) Returns a unique view of the given iterable. |
| * + static <E> [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> | * + [unmodifiableIterable](http://docs.google.com/org/apache/commons/collections4/IterableUtils.html#unmodifiableIterable-java.lang.Iterable-)([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> iterable) Returns an unmodifiable view of the given iterable. |
| * + static <E> [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> | * + [zippingIterable](http://docs.google.com/org/apache/commons/collections4/IterableUtils.html#zippingIterable-java.lang.Iterable-java.lang.Iterable...-)([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<? extends E> first, [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<? extends E>... others) Interleaves two iterables into a single iterable. |
| * + static <E> [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> | * + [zippingIterable](http://docs.google.com/org/apache/commons/collections4/IterableUtils.html#zippingIterable-java.lang.Iterable-java.lang.Iterable-)([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<? extends E> a, [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<? extends E> b) Interleaves two iterables into a single iterable. |

### 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--), [equals](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true#equals-java.lang.Object-), [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--), [hashCode](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true#hashCode--), [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--), [toString](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true#toString--), [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-)

### Constructor Detail

#### IterableUtils public IterableUtils()

### Method Detail

#### emptyIterable public static <E> [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> emptyIterable() Gets an empty iterable. This iterable does not contain any elements.Type Parameters: E - the element type Returns: an empty iterable

#### chainedIterable public static <E> [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> chainedIterable([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<? extends E> a, [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<? extends E> b) Combines two iterables into a single iterable. The returned iterable has an iterator that traverses the elements in a, followed by the elements in b. The source iterators are not polled until necessary. The returned iterable's iterator supports remove() when the corresponding input iterator supports it.Type Parameters: E - the element type Parameters: a - the first iterable, may not be null b - the second iterable, may not be null Returns: a new iterable, combining the provided iterables Throws: [NullPointerException](https://docs.oracle.com/javase/7/docs/api/java/lang/NullPointerException.html?is-external=true) - if either a or b is null

#### chainedIterable public static <E> [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> chainedIterable([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<? extends E> a, [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<? extends E> b, [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<? extends E> c) Combines three iterables into a single iterable. The returned iterable has an iterator that traverses the elements in a, followed by the elements in b and c. The source iterators are not polled until necessary. The returned iterable's iterator supports remove() when the corresponding input iterator supports it.Type Parameters: E - the element type Parameters: a - the first iterable, may not be null b - the second iterable, may not be null c - the third iterable, may not be null Returns: a new iterable, combining the provided iterables Throws: [NullPointerException](https://docs.oracle.com/javase/7/docs/api/java/lang/NullPointerException.html?is-external=true) - if either of the provided iterables is null

#### chainedIterable public static <E> [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> chainedIterable([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<? extends E> a, [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<? extends E> b, [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<? extends E> c, [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<? extends E> d) Combines four iterables into a single iterable. The returned iterable has an iterator that traverses the elements in a, followed by the elements in b, c and d. The source iterators are not polled until necessary. The returned iterable's iterator supports remove() when the corresponding input iterator supports it.Type Parameters: E - the element type Parameters: a - the first iterable, may not be null b - the second iterable, may not be null c - the third iterable, may not be null d - the fourth iterable, may not be null Returns: a new iterable, combining the provided iterables Throws: [NullPointerException](https://docs.oracle.com/javase/7/docs/api/java/lang/NullPointerException.html?is-external=true) - if either of the provided iterables is null

#### chainedIterable public static <E> [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> chainedIterable([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<? extends E>... iterables) Combines the provided iterables into a single iterable. The returned iterable has an iterator that traverses the elements in the order of the arguments, i.e. iterables[0], iterables[1], .... The source iterators are not polled until necessary. The returned iterable's iterator supports remove() when the corresponding input iterator supports it.Type Parameters: E - the element type Parameters: iterables - the iterables to combine, may not be null Returns: a new iterable, combining the provided iterables Throws: [NullPointerException](https://docs.oracle.com/javase/7/docs/api/java/lang/NullPointerException.html?is-external=true) - if either of the provided iterables is null

#### collatedIterable public static <E> [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> collatedIterable([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<? extends E> a, [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<? extends E> b) Combines the two provided iterables into an ordered iterable using natural ordering. The returned iterable's iterator supports remove() when the corresponding input iterator supports it.Type Parameters: E - the element type Parameters: a - the first iterable, may not be null b - the second iterable, may not be null Returns: a filtered view on the specified iterable Throws: [NullPointerException](https://docs.oracle.com/javase/7/docs/api/java/lang/NullPointerException.html?is-external=true) - if either of the provided iterables is null

#### collatedIterable public static <E> [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> collatedIterable([Comparator](https://docs.oracle.com/javase/7/docs/api/java/util/Comparator.html?is-external=true)<? super E> comparator, [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<? extends E> a, [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<? extends E> b) Combines the two provided iterables into an ordered iterable using the provided comparator. If the comparator is null, natural ordering will be used. The returned iterable's iterator supports remove() when the corresponding input iterator supports it.Type Parameters: E - the element type Parameters: comparator - the comparator defining an ordering over the elements, may be null, in which case natural ordering will be used a - the first iterable, may not be null b - the second iterable, may not be null Returns: a filtered view on the specified iterable Throws: [NullPointerException](https://docs.oracle.com/javase/7/docs/api/java/lang/NullPointerException.html?is-external=true) - if either of the provided iterables is null

#### filteredIterable public static <E> [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> filteredIterable([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> iterable, [Predicate](http://docs.google.com/org/apache/commons/collections4/Predicate.html)<? super E> predicate) Returns a view of the given iterable that only contains elements matching the provided predicate. The returned iterable's iterator supports remove() when the corresponding input iterator supports it.Type Parameters: E - the element type Parameters: iterable - the iterable to filter, may not be null predicate - the predicate used to filter elements, may not be null Returns: a filtered view on the specified iterable Throws: [NullPointerException](https://docs.oracle.com/javase/7/docs/api/java/lang/NullPointerException.html?is-external=true) - if either iterable or predicate is null

#### boundedIterable public static <E> [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> boundedIterable([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> iterable, long maxSize) Returns a view of the given iterable that contains at most the given number of elements. The returned iterable's iterator supports remove() when the corresponding input iterator supports it.Type Parameters: E - the element type Parameters: iterable - the iterable to limit, may not be null maxSize - the maximum number of elements, must not be negative Returns: a bounded view on the specified iterable Throws: [IllegalArgumentException](https://docs.oracle.com/javase/7/docs/api/java/lang/IllegalArgumentException.html?is-external=true) - if maxSize is negative [NullPointerException](https://docs.oracle.com/javase/7/docs/api/java/lang/NullPointerException.html?is-external=true) - if iterable is null

#### loopingIterable public static <E> [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> loopingIterable([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> iterable) Returns a view of the given iterable which will cycle infinitely over its elements. The returned iterable's iterator supports remove() if iterable.iterator() does. After remove() is called, subsequent cycles omit the removed element, which is no longer in iterable. The iterator's hasNext() method returns true until iterable is empty.Type Parameters: E - the element type Parameters: iterable - the iterable to loop, may not be null Returns: a view of the iterable, providing an infinite loop over its elements Throws: [NullPointerException](https://docs.oracle.com/javase/7/docs/api/java/lang/NullPointerException.html?is-external=true) - if iterable is null

#### reversedIterable public static <E> [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> reversedIterable([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> iterable) Returns a reversed view of the given iterable. In case the provided iterable is a [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true) instance, a [ReverseListIterator](http://docs.google.com/org/apache/commons/collections4/iterators/ReverseListIterator.html) will be used to reverse the traversal order, otherwise an intermediate [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true) needs to be created. The returned iterable's iterator supports remove() if the provided iterable is a [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true) instance.Type Parameters: E - the element type Parameters: iterable - the iterable to use, may not be null Returns: a reversed view of the specified iterable Throws: [NullPointerException](https://docs.oracle.com/javase/7/docs/api/java/lang/NullPointerException.html?is-external=true) - if iterable is null See Also: [ReverseListIterator](http://docs.google.com/org/apache/commons/collections4/iterators/ReverseListIterator.html)

#### skippingIterable public static <E> [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> skippingIterable([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> iterable, long elementsToSkip) Returns a view of the given iterable that skips the first N elements. The returned iterable's iterator supports remove() when the corresponding input iterator supports it.Type Parameters: E - the element type Parameters: iterable - the iterable to use, may not be null elementsToSkip - the number of elements to skip from the start, must not be negative Returns: a view of the specified iterable, skipping the first N elements Throws: [IllegalArgumentException](https://docs.oracle.com/javase/7/docs/api/java/lang/IllegalArgumentException.html?is-external=true) - if elementsToSkip is negative [NullPointerException](https://docs.oracle.com/javase/7/docs/api/java/lang/NullPointerException.html?is-external=true) - if iterable is null

#### transformedIterable public static <I,O> [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<O> transformedIterable([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<I> iterable, [Transformer](http://docs.google.com/org/apache/commons/collections4/Transformer.html)<? super I,? extends O> transformer) Returns a transformed view of the given iterable where all of its elements have been transformed by the provided transformer. The returned iterable's iterator supports remove() when the corresponding input iterator supports it.Type Parameters: I - the input element type O - the output element type Parameters: iterable - the iterable to transform, may not be null transformer - the transformer, must not be null Returns: a transformed view of the specified iterable Throws: [NullPointerException](https://docs.oracle.com/javase/7/docs/api/java/lang/NullPointerException.html?is-external=true) - if either iterable or transformer is null

#### uniqueIterable public static <E> [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> uniqueIterable([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> iterable) Returns a unique view of the given iterable. The returned iterable's iterator supports remove() when the corresponding input iterator supports it. Calling remove() will only remove a single element from the underlying iterator.Type Parameters: E - the element type Parameters: iterable - the iterable to use, may not be null Returns: a unique view of the specified iterable Throws: [NullPointerException](https://docs.oracle.com/javase/7/docs/api/java/lang/NullPointerException.html?is-external=true) - if iterable is null

#### unmodifiableIterable public static <E> [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> unmodifiableIterable([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> iterable) Returns an unmodifiable view of the given iterable. The returned iterable's iterator does not support remove().Type Parameters: E - the element type Parameters: iterable - the iterable to use, may not be null Returns: an unmodifiable view of the specified iterable Throws: [NullPointerException](https://docs.oracle.com/javase/7/docs/api/java/lang/NullPointerException.html?is-external=true) - if iterable is null

#### zippingIterable public static <E> [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> zippingIterable([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<? extends E> a, [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<? extends E> b) Interleaves two iterables into a single iterable. The returned iterable has an iterator that traverses the elements in a and b in alternating order. The source iterators are not polled until necessary. The returned iterable's iterator supports remove() when the corresponding input iterator supports it.Type Parameters: E - the element type Parameters: a - the first iterable, may not be null b - the second iterable, may not be null Returns: a new iterable, interleaving the provided iterables Throws: [NullPointerException](https://docs.oracle.com/javase/7/docs/api/java/lang/NullPointerException.html?is-external=true) - if either a or b is null

#### zippingIterable public static <E> [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> zippingIterable([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<? extends E> first, [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<? extends E>... others) Interleaves two iterables into a single iterable. The returned iterable has an iterator that traverses the elements in a and b in alternating order. The source iterators are not polled until necessary. The returned iterable's iterator supports remove() when the corresponding input iterator supports it.Type Parameters: E - the element type Parameters: first - the first iterable, may not be null others - the array of iterables to interleave, may not be null Returns: a new iterable, interleaving the provided iterables Throws: [NullPointerException](https://docs.oracle.com/javase/7/docs/api/java/lang/NullPointerException.html?is-external=true) - if either of the provided iterables is null

#### emptyIfNull public static <E> [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> emptyIfNull([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> iterable) Returns an immutable empty iterable if the argument is null, or the argument itself otherwise.Type Parameters: E - the element type Parameters: iterable - the iterable, may be null Returns: an empty iterable if the argument is null

#### forEach public static <E> void forEach([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> iterable, [Closure](http://docs.google.com/org/apache/commons/collections4/Closure.html)<? super E> closure) Applies the closure to each element of the provided iterable.Type Parameters: E - the element type Parameters: iterable - the iterator to use, may be null closure - the closure to apply to each element, may not be null Throws: [NullPointerException](https://docs.oracle.com/javase/7/docs/api/java/lang/NullPointerException.html?is-external=true) - if closure is null

#### forEachButLast public static <E> E forEachButLast([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> iterable, [Closure](http://docs.google.com/org/apache/commons/collections4/Closure.html)<? super E> closure) Executes the given closure on each but the last element in the iterable. If the input iterable is null no change is made.Type Parameters: E - the type of object the [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true) contains Parameters: iterable - the iterable to get the input from, may be null closure - the closure to perform, may not be null Returns: the last element in the iterable, or null if iterable is null or empty

#### find public static <E> E find([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> iterable, [Predicate](http://docs.google.com/org/apache/commons/collections4/Predicate.html)<? super E> predicate) Finds the first element in the given iterable which matches the given predicate. A null or empty iterator returns null.Type Parameters: E - the element type Parameters: iterable - the iterable to search, may be null predicate - the predicate to use, may not be null Returns: the first element of the iterable which matches the predicate or null if none could be found Throws: [NullPointerException](https://docs.oracle.com/javase/7/docs/api/java/lang/NullPointerException.html?is-external=true) - if predicate is null

#### indexOf public static <E> int indexOf([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> iterable, [Predicate](http://docs.google.com/org/apache/commons/collections4/Predicate.html)<? super E> predicate) Returns the index of the first element in the specified iterable that matches the given predicate. A null or empty iterable returns -1.Type Parameters: E - the element type Parameters: iterable - the iterable to search, may be null predicate - the predicate to use, may not be null Returns: the index of the first element which matches the predicate or -1 if none matches Throws: [NullPointerException](https://docs.oracle.com/javase/7/docs/api/java/lang/NullPointerException.html?is-external=true) - if predicate is null

#### matchesAll public static <E> boolean matchesAll([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> iterable, [Predicate](http://docs.google.com/org/apache/commons/collections4/Predicate.html)<? super E> predicate) Answers true if a predicate is true for every element of an iterable. A null or empty iterable returns true.Type Parameters: E - the type of object the [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true) contains Parameters: iterable - the [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true) to use, may be null predicate - the predicate to use, may not be null Returns: true if every element of the collection matches the predicate or if the collection is empty, false otherwise Throws: [NullPointerException](https://docs.oracle.com/javase/7/docs/api/java/lang/NullPointerException.html?is-external=true) - if predicate is null

#### matchesAny public static <E> boolean matchesAny([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> iterable, [Predicate](http://docs.google.com/org/apache/commons/collections4/Predicate.html)<? super E> predicate) Answers true if a predicate is true for any element of the iterable. A null or empty iterable returns false.Type Parameters: E - the type of object the [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true) contains Parameters: iterable - the [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true) to use, may be null predicate - the predicate to use, may not be null Returns: true if any element of the collection matches the predicate, false otherwise Throws: [NullPointerException](https://docs.oracle.com/javase/7/docs/api/java/lang/NullPointerException.html?is-external=true) - if predicate is null

#### countMatches public static <E> long countMatches([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> input, [Predicate](http://docs.google.com/org/apache/commons/collections4/Predicate.html)<? super E> predicate) Counts the number of elements in the input iterable that match the predicate. A null iterable matches no elements.Type Parameters: E - the type of object the [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true) contains Parameters: input - the [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true) to get the input from, may be null predicate - the predicate to use, may not be null Returns: the number of matches for the predicate in the collection Throws: [NullPointerException](https://docs.oracle.com/javase/7/docs/api/java/lang/NullPointerException.html?is-external=true) - if predicate is null

#### isEmpty public static boolean isEmpty([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<?> iterable) Answers true if the provided iterable is empty. A null iterable returns true.Parameters: iterable - the [to use](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true), may be null Returns: true if the iterable is null or empty, false otherwise

#### contains public static <E> boolean contains([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> iterable, [Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) object) Checks if the object is contained in the given iterable. A null or empty iterable returns false.Type Parameters: E - the type of object the [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true) contains Parameters: iterable - the iterable to check, may be null object - the object to check Returns: true if the object is contained in the iterable, false otherwise

#### contains public static <E> boolean contains([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<? extends E> iterable, E object, [Equator](http://docs.google.com/org/apache/commons/collections4/Equator.html)<? super E> equator) Checks if the object is contained in the given iterable. Object equality is tested with an equator unlike [contains(Iterable, Object)](http://docs.google.com/org/apache/commons/collections4/IterableUtils.html#contains-java.lang.Iterable-java.lang.Object-) which uses [Object.equals(Object)](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true#equals-java.lang.Object-). A null or empty iterable returns false. A null object will not be passed to the equator, instead a [NullPredicate](http://docs.google.com/org/apache/commons/collections4/functors/NullPredicate.html) will be used.Type Parameters: E - the type of object the [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true) contains Parameters: iterable - the iterable to check, may be null object - the object to check equator - the equator to use to check, may not be null Returns: true if the object is contained in the iterable, false otherwise Throws: [NullPointerException](https://docs.oracle.com/javase/7/docs/api/java/lang/NullPointerException.html?is-external=true) - if equator is null

#### frequency public static <E,T extends E> int frequency([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> iterable, T obj) Returns the number of occurrences of the provided object in the iterable.Type Parameters: E - the element type that the [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true) may contain T - the element type of the object to find Parameters: iterable - the [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true) to search obj - the object to find the cardinality of Returns: the number of occurrences of obj in iterable

#### get public static <T> T get([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<T> iterable, int index) Returns the index-th value in the iterable's [Iterator](https://docs.oracle.com/javase/7/docs/api/java/util/Iterator.html?is-external=true), throwing IndexOutOfBoundsException if there is no such element. If the [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true) is a [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true), then it will use [List.get(int)](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true#get-int-).Type Parameters: T - the type of object in the [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true). Parameters: iterable - the [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true) to get a value from, may be null index - the index to get Returns: the object 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

#### first public static <T> T first([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<T> iterable) Shortcut for get(iterator, 0). Returns the first value in the iterable's [Iterator](https://docs.oracle.com/javase/7/docs/api/java/util/Iterator.html?is-external=true), throwing IndexOutOfBoundsException if there is no such element. If the [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true) is a [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true), then it will use [List.get(int)](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true#get-int-).Type Parameters: T - the type of object in the [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true). Parameters: iterable - the [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true) to get a value from, may be null Returns: the first object Throws: [IndexOutOfBoundsException](https://docs.oracle.com/javase/7/docs/api/java/lang/IndexOutOfBoundsException.html?is-external=true) - if the request is invalid Since: 4.2

#### size public static int size([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<?> iterable) Returns the number of elements contained in the given iterator. A null or empty iterator returns 0.Parameters: iterable - the iterable to check, may be null Returns: the number of elements contained in the iterable

#### partition public static <O> [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<[List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<O>> partition([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<? extends O> iterable, [Predicate](http://docs.google.com/org/apache/commons/collections4/Predicate.html)<? super O> predicate) Partitions all elements from iterable into separate output collections, based on the evaluation of the given predicate. For each predicate, the result will contain a list holding all elements of the input iterable matching the predicate. The last list will hold all elements which didn't match any predicate: [C1, R] = partition(I, P1) with I = input P1 = first predicate C1 = collection of elements matching P1 R = collection of elements rejected by all predicates If the input iterable is null, the same is returned as for an empty iterable. Example: for an input list [1, 2, 3, 4, 5] calling partition with a predicate [x < 3] will result in the following output: [[1, 2], [3, 4, 5]].Type Parameters: O - the type of object the [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true) contains Parameters: iterable - the iterable to partition, may be null predicate - the predicate to use, may not be null Returns: a list containing the output collections Throws: [NullPointerException](https://docs.oracle.com/javase/7/docs/api/java/lang/NullPointerException.html?is-external=true) - if predicate is null

#### partition public static <O> [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<[List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<O>> partition([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<? extends O> iterable, [Predicate](http://docs.google.com/org/apache/commons/collections4/Predicate.html)<? super O>... predicates) Partitions all elements from iterable into separate output collections, based on the evaluation of the given predicates. For each predicate, the result will contain a list holding all elements of the input iterable matching the predicate. The last list will hold all elements which didn't match any predicate: [C1, C2, R] = partition(I, P1, P2) with I = input P1 = first predicate P2 = second predicate C1 = collection of elements matching P1 C2 = collection of elements matching P2 R = collection of elements rejected by all predicates **Note**: elements are only added to the output collection of the first matching predicate, determined by the order of arguments. If the input iterable is null, the same is returned as for an empty iterable. Example: for an input list [1, 2, 3, 4, 5] calling partition with predicates [x < 3] and [x < 5] will result in the following output: [[1, 2], [3, 4], [5]].Type Parameters: O - the type of object the [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true) contains Parameters: iterable - the collection to get the input from, may be null predicates - the predicates to use, may not be null Returns: a list containing the output collections Throws: [NullPointerException](https://docs.oracle.com/javase/7/docs/api/java/lang/NullPointerException.html?is-external=true) - if any predicate is null

#### partition public static <O,R extends [Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<O>> [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<R> partition([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<? extends O> iterable, [Factory](http://docs.google.com/org/apache/commons/collections4/Factory.html)<R> partitionFactory, [Predicate](http://docs.google.com/org/apache/commons/collections4/Predicate.html)<? super O>... predicates) Partitions all elements from iterable into separate output collections, based on the evaluation of the given predicates. For each predicate, the returned list will contain a collection holding all elements of the input iterable matching the predicate. The last collection contained in the list will hold all elements which didn't match any predicate: [C1, C2, R] = partition(I, P1, P2) with I = input P1 = first predicate P2 = second predicate C1 = collection of elements matching P1 C2 = collection of elements matching P2 R = collection of elements rejected by all predicates **Note**: elements are only added to the output collection of the first matching predicate, determined by the order of arguments. If the input iterable is null, the same is returned as for an empty iterable. If no predicates have been provided, all elements of the input collection will be added to the rejected collection. Example: for an input list [1, 2, 3, 4, 5] calling partition with predicates [x < 3] and [x < 5] will result in the following output: [[1, 2], [3, 4], [5]].Type Parameters: O - the type of object the [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true) contains R - the type of the output [Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true) Parameters: iterable - the collection to get the input from, may be null partitionFactory - the factory used to create the output collections predicates - the predicates to use, may not be null Returns: a list containing the output collections Throws: [NullPointerException](https://docs.oracle.com/javase/7/docs/api/java/lang/NullPointerException.html?is-external=true) - if any predicate is null

#### toList public static <E> [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<E> toList([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> iterable) Gets a new list with the contents of the provided iterable.Type Parameters: E - the element type Parameters: iterable - the iterable to use, may be null Returns: a list of the iterator contents

#### toString public static <E> [String](https://docs.oracle.com/javase/7/docs/api/java/lang/String.html?is-external=true) toString([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> iterable) Returns a string representation of the elements of the specified iterable. The string representation consists of a list of the iterable's elements, enclosed in square brackets ("[]"). Adjacent elements are separated by the characters ", " (a comma followed by a space). Elements are converted to strings as by String.valueOf(Object).Type Parameters: E - the element type Parameters: iterable - the iterable to convert to a string, may be null Returns: a string representation of iterable

#### toString public static <E> [String](https://docs.oracle.com/javase/7/docs/api/java/lang/String.html?is-external=true) toString([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> iterable, [Transformer](http://docs.google.com/org/apache/commons/collections4/Transformer.html)<? super E,[String](https://docs.oracle.com/javase/7/docs/api/java/lang/String.html?is-external=true)> transformer) Returns a string representation of the elements of the specified iterable. The string representation consists of a list of the iterable's elements, enclosed in square brackets ("[]"). Adjacent elements are separated by the characters ", " (a comma followed by a space). Elements are converted to strings as by using the provided transformer.Type Parameters: E - the element type Parameters: iterable - the iterable to convert to a string, may be null transformer - the transformer used to get a string representation of an element Returns: a string representation of iterable Throws: [NullPointerException](https://docs.oracle.com/javase/7/docs/api/java/lang/NullPointerException.html?is-external=true) - if transformer is null

#### toString public static <E> [String](https://docs.oracle.com/javase/7/docs/api/java/lang/String.html?is-external=true) toString([Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E> iterable, [Transformer](http://docs.google.com/org/apache/commons/collections4/Transformer.html)<? super E,[String](https://docs.oracle.com/javase/7/docs/api/java/lang/String.html?is-external=true)> transformer, [String](https://docs.oracle.com/javase/7/docs/api/java/lang/String.html?is-external=true) delimiter, [String](https://docs.oracle.com/javase/7/docs/api/java/lang/String.html?is-external=true) prefix, [String](https://docs.oracle.com/javase/7/docs/api/java/lang/String.html?is-external=true) suffix) Returns a string representation of the elements of the specified iterable. The string representation consists of a list of the iterable's elements, enclosed by the provided prefix and suffix. Adjacent elements are separated by the provided delimiter. Elements are converted to strings as by using the provided transformer.Type Parameters: E - the element type Parameters: iterable - the iterable to convert to a string, may be null transformer - the transformer used to get a string representation of an element delimiter - the string to delimit elements prefix - the prefix, prepended to the string representation suffix - the suffix, appended to the string representation Returns: a string representation of iterable Throws: [NullPointerException](https://docs.oracle.com/javase/7/docs/api/java/lang/NullPointerException.html?is-external=true) - if either transformer, delimiter, prefix or suffix is null

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