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org.apache.commons.collections4.queue

## Class CircularFifoQueue<E>

* [java.lang.Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true)
  + [java.util.AbstractCollection](https://docs.oracle.com/javase/7/docs/api/java/util/AbstractCollection.html?is-external=true)<E>
    - org.apache.commons.collections4.queue.CircularFifoQueue<E>
* Type Parameters: E - the type of elements in this collection All Implemented Interfaces: [Serializable](https://docs.oracle.com/javase/7/docs/api/java/io/Serializable.html?is-external=true), [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E>, [Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<E>, [Queue](https://docs.oracle.com/javase/7/docs/api/java/util/Queue.html?is-external=true)<E>, [BoundedCollection](http://docs.google.com/org/apache/commons/collections4/BoundedCollection.html)<E>  
    
  public class CircularFifoQueue<E>  
  extends [AbstractCollection](https://docs.oracle.com/javase/7/docs/api/java/util/AbstractCollection.html?is-external=true)<E>  
  implements [Queue](https://docs.oracle.com/javase/7/docs/api/java/util/Queue.html?is-external=true)<E>, [BoundedCollection](http://docs.google.com/org/apache/commons/collections4/BoundedCollection.html)<E>, [Serializable](https://docs.oracle.com/javase/7/docs/api/java/io/Serializable.html?is-external=true)  
  CircularFifoQueue is a first-in first-out queue with a fixed size that replaces its oldest element if full.  
  The removal order of a [CircularFifoQueue](http://docs.google.com/org/apache/commons/collections4/queue/CircularFifoQueue.html) is based on the insertion order; elements are removed in the same order in which they were added. The iteration order is the same as the removal order.  
  The [add(Object)](http://docs.google.com/org/apache/commons/collections4/queue/CircularFifoQueue.html#add-E-), [remove()](http://docs.google.com/org/apache/commons/collections4/queue/CircularFifoQueue.html#remove--), [peek()](http://docs.google.com/org/apache/commons/collections4/queue/CircularFifoQueue.html#peek--), [poll()](http://docs.google.com/org/apache/commons/collections4/queue/CircularFifoQueue.html#poll--), [offer(Object)](http://docs.google.com/org/apache/commons/collections4/queue/CircularFifoQueue.html#offer-E-) operations all perform in constant time. All other operations perform in linear time or worse.  
  This queue prevents null objects from being added.Since: 4.0 See Also: [Serialized Form](http://docs.google.com/serialized-form.html#org.apache.commons.collections4.queue.CircularFifoQueue)

### Constructor SummaryConstructors

|  |
| --- |
| * + Constructor and Description |
| * + [CircularFifoQueue](http://docs.google.com/org/apache/commons/collections4/queue/CircularFifoQueue.html#CircularFifoQueue--)() Constructor that creates a queue with the default size of 32. |
| * + [CircularFifoQueue](http://docs.google.com/org/apache/commons/collections4/queue/CircularFifoQueue.html#CircularFifoQueue-java.util.Collection-)([Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<? extends [E](http://docs.google.com/org/apache/commons/collections4/queue/CircularFifoQueue.html)> coll) Constructor that creates a queue from the specified collection. |
| * + [CircularFifoQueue](http://docs.google.com/org/apache/commons/collections4/queue/CircularFifoQueue.html#CircularFifoQueue-int-)(int size) Constructor that creates a queue with the specified size. |

### Method SummaryAll Methods Instance Methods Concrete Methods

|  |  |
| --- | --- |
| * + Modifier and Type | * + Method and Description |
| * + boolean | * + [add](http://docs.google.com/org/apache/commons/collections4/queue/CircularFifoQueue.html#add-E-)([E](http://docs.google.com/org/apache/commons/collections4/queue/CircularFifoQueue.html) element) Adds the given element to this queue. |
| * + void | * + [clear](http://docs.google.com/org/apache/commons/collections4/queue/CircularFifoQueue.html#clear--)() Clears this queue. |
| * + [E](http://docs.google.com/org/apache/commons/collections4/queue/CircularFifoQueue.html) | * + [element](http://docs.google.com/org/apache/commons/collections4/queue/CircularFifoQueue.html#element--)() |
| * + [E](http://docs.google.com/org/apache/commons/collections4/queue/CircularFifoQueue.html) | * + [get](http://docs.google.com/org/apache/commons/collections4/queue/CircularFifoQueue.html#get-int-)(int index) Returns the element at the specified position in this queue. |
| * + boolean | * + [isAtFullCapacity](http://docs.google.com/org/apache/commons/collections4/queue/CircularFifoQueue.html#isAtFullCapacity--)() Returns true if the capacity limit of this queue has been reached, i.e. |
| * + boolean | * + [isEmpty](http://docs.google.com/org/apache/commons/collections4/queue/CircularFifoQueue.html#isEmpty--)() Returns true if this queue is empty; false otherwise. |
| * + boolean | * + [isFull](http://docs.google.com/org/apache/commons/collections4/queue/CircularFifoQueue.html#isFull--)() Returns true if this collection is full and no new elements can be added. |
| * + [Iterator](https://docs.oracle.com/javase/7/docs/api/java/util/Iterator.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/queue/CircularFifoQueue.html)> | * + [iterator](http://docs.google.com/org/apache/commons/collections4/queue/CircularFifoQueue.html#iterator--)() Returns an iterator over this queue's elements. |
| * + int | * + [maxSize](http://docs.google.com/org/apache/commons/collections4/queue/CircularFifoQueue.html#maxSize--)() Gets the maximum size of the collection (the bound). |
| * + boolean | * + [offer](http://docs.google.com/org/apache/commons/collections4/queue/CircularFifoQueue.html#offer-E-)([E](http://docs.google.com/org/apache/commons/collections4/queue/CircularFifoQueue.html) element) Adds the given element to this queue. |
| * + [E](http://docs.google.com/org/apache/commons/collections4/queue/CircularFifoQueue.html) | * + [peek](http://docs.google.com/org/apache/commons/collections4/queue/CircularFifoQueue.html#peek--)() |
| * + [E](http://docs.google.com/org/apache/commons/collections4/queue/CircularFifoQueue.html) | * + [poll](http://docs.google.com/org/apache/commons/collections4/queue/CircularFifoQueue.html#poll--)() |
| * + [E](http://docs.google.com/org/apache/commons/collections4/queue/CircularFifoQueue.html) | * + [remove](http://docs.google.com/org/apache/commons/collections4/queue/CircularFifoQueue.html#remove--)() |
| * + int | * + [size](http://docs.google.com/org/apache/commons/collections4/queue/CircularFifoQueue.html#size--)() Returns the number of elements stored in the queue. |

### Methods inherited from class java.util.[**AbstractCollection**](https://docs.oracle.com/javase/7/docs/api/java/util/AbstractCollection.html?is-external=true)[addAll](https://docs.oracle.com/javase/7/docs/api/java/util/AbstractCollection.html?is-external=true#addAll-java.util.Collection-), [contains](https://docs.oracle.com/javase/7/docs/api/java/util/AbstractCollection.html?is-external=true#contains-java.lang.Object-), [containsAll](https://docs.oracle.com/javase/7/docs/api/java/util/AbstractCollection.html?is-external=true#containsAll-java.util.Collection-), [remove](https://docs.oracle.com/javase/7/docs/api/java/util/AbstractCollection.html?is-external=true#remove-java.lang.Object-), [removeAll](https://docs.oracle.com/javase/7/docs/api/java/util/AbstractCollection.html?is-external=true#removeAll-java.util.Collection-), [retainAll](https://docs.oracle.com/javase/7/docs/api/java/util/AbstractCollection.html?is-external=true#retainAll-java.util.Collection-), [toArray](https://docs.oracle.com/javase/7/docs/api/java/util/AbstractCollection.html?is-external=true#toArray--), [toArray](https://docs.oracle.com/javase/7/docs/api/java/util/AbstractCollection.html?is-external=true#toArray-T:A-), [toString](https://docs.oracle.com/javase/7/docs/api/java/util/AbstractCollection.html?is-external=true#toString--)

### Methods inherited from class java.lang.[**Object**](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true)[clone](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true#clone--), [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--), [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.[**Collection**](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)[addAll](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true#addAll-java.util.Collection-), [contains](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true#contains-java.lang.Object-), [containsAll](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true#containsAll-java.util.Collection-), [equals](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true#equals-java.lang.Object-), [hashCode](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true#hashCode--), [parallelStream](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true#parallelStream--), [remove](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true#remove-java.lang.Object-), [removeAll](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true#removeAll-java.util.Collection-), [removeIf](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true#removeIf-java.util.function.Predicate-), [retainAll](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true#retainAll-java.util.Collection-), [spliterator](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true#spliterator--), [stream](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true#stream--), [toArray](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true#toArray--), [toArray](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true#toArray-T:A-)

### Methods inherited from interface java.lang.[**Iterable**](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)[forEach](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true#forEach-java.util.function.Consumer-)

### Constructor Detail

#### CircularFifoQueue public CircularFifoQueue() Constructor that creates a queue with the default size of 32.

#### CircularFifoQueue public CircularFifoQueue(int size) Constructor that creates a queue with the specified size.Parameters: size - the size of the queue (cannot be changed) Throws: [IllegalArgumentException](https://docs.oracle.com/javase/7/docs/api/java/lang/IllegalArgumentException.html?is-external=true) - if the size is < 1

#### CircularFifoQueue public CircularFifoQueue([Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<? extends [E](http://docs.google.com/org/apache/commons/collections4/queue/CircularFifoQueue.html)> coll) Constructor that creates a queue from the specified collection. The collection size also sets the queue size.Parameters: coll - the collection to copy into the queue, may not be null Throws: [NullPointerException](https://docs.oracle.com/javase/7/docs/api/java/lang/NullPointerException.html?is-external=true) - if the collection is null

### Method Detail

#### size public int size() Returns the number of elements stored in the queue.Specified by: [size](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true#size--) in interface [Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/queue/CircularFifoQueue.html)> Specified by: [size](https://docs.oracle.com/javase/7/docs/api/java/util/AbstractCollection.html?is-external=true#size--) in class [AbstractCollection](https://docs.oracle.com/javase/7/docs/api/java/util/AbstractCollection.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/queue/CircularFifoQueue.html)> Returns: this queue's size

#### isEmpty public boolean isEmpty() Returns true if this queue is empty; false otherwise.Specified by: [isEmpty](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true#isEmpty--) in interface [Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/queue/CircularFifoQueue.html)> Overrides: [isEmpty](https://docs.oracle.com/javase/7/docs/api/java/util/AbstractCollection.html?is-external=true#isEmpty--) in class [AbstractCollection](https://docs.oracle.com/javase/7/docs/api/java/util/AbstractCollection.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/queue/CircularFifoQueue.html)> Returns: true if this queue is empty

#### isFull public boolean isFull() Returns true if this collection is full and no new elements can be added. A CircularFifoQueue can never be full, thus this returns always false.Specified by: [isFull](http://docs.google.com/org/apache/commons/collections4/BoundedCollection.html#isFull--) in interface [BoundedCollection](http://docs.google.com/org/apache/commons/collections4/BoundedCollection.html)<[E](http://docs.google.com/org/apache/commons/collections4/queue/CircularFifoQueue.html)> Returns: always returns false

#### isAtFullCapacity public boolean isAtFullCapacity() Returns true if the capacity limit of this queue has been reached, i.e. the number of elements stored in the queue equals its maximum size.Returns: true if the capacity limit has been reached, false otherwise Since: 4.1

#### maxSize public int maxSize() Gets the maximum size of the collection (the bound).Specified by: [maxSize](http://docs.google.com/org/apache/commons/collections4/BoundedCollection.html#maxSize--) in interface [BoundedCollection](http://docs.google.com/org/apache/commons/collections4/BoundedCollection.html)<[E](http://docs.google.com/org/apache/commons/collections4/queue/CircularFifoQueue.html)> Returns: the maximum number of elements the collection can hold

#### clear public void clear() Clears this queue.Specified by: [clear](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true#clear--) in interface [Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/queue/CircularFifoQueue.html)> Overrides: [clear](https://docs.oracle.com/javase/7/docs/api/java/util/AbstractCollection.html?is-external=true#clear--) in class [AbstractCollection](https://docs.oracle.com/javase/7/docs/api/java/util/AbstractCollection.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/queue/CircularFifoQueue.html)>

#### add public boolean add([E](http://docs.google.com/org/apache/commons/collections4/queue/CircularFifoQueue.html) element) Adds the given element to this queue. If the queue is full, the least recently added element is discarded so that a new element can be inserted.Specified by: [add](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true#add-E-) in interface [Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/queue/CircularFifoQueue.html)> Specified by: [add](https://docs.oracle.com/javase/7/docs/api/java/util/Queue.html?is-external=true#add-E-) in interface [Queue](https://docs.oracle.com/javase/7/docs/api/java/util/Queue.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/queue/CircularFifoQueue.html)> Overrides: [add](https://docs.oracle.com/javase/7/docs/api/java/util/AbstractCollection.html?is-external=true#add-E-) in class [AbstractCollection](https://docs.oracle.com/javase/7/docs/api/java/util/AbstractCollection.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/queue/CircularFifoQueue.html)> Parameters: element - the element to add Returns: true, always Throws: [NullPointerException](https://docs.oracle.com/javase/7/docs/api/java/lang/NullPointerException.html?is-external=true) - if the given element is null

#### get public [E](http://docs.google.com/org/apache/commons/collections4/queue/CircularFifoQueue.html) get(int index) Returns the element at the specified position in this queue.Parameters: index - the position of the element in the queue Returns: the element at position index Throws: [NoSuchElementException](https://docs.oracle.com/javase/7/docs/api/java/util/NoSuchElementException.html?is-external=true) - if the requested position is outside the range [0, size)

#### offer public boolean offer([E](http://docs.google.com/org/apache/commons/collections4/queue/CircularFifoQueue.html) element) Adds the given element to this queue. If the queue is full, the least recently added element is discarded so that a new element can be inserted.Specified by: [offer](https://docs.oracle.com/javase/7/docs/api/java/util/Queue.html?is-external=true#offer-E-) in interface [Queue](https://docs.oracle.com/javase/7/docs/api/java/util/Queue.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/queue/CircularFifoQueue.html)> Parameters: element - the element to add Returns: true, always Throws: [NullPointerException](https://docs.oracle.com/javase/7/docs/api/java/lang/NullPointerException.html?is-external=true) - if the given element is null

#### poll public [E](http://docs.google.com/org/apache/commons/collections4/queue/CircularFifoQueue.html) poll()Specified by: [poll](https://docs.oracle.com/javase/7/docs/api/java/util/Queue.html?is-external=true#poll--) in interface [Queue](https://docs.oracle.com/javase/7/docs/api/java/util/Queue.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/queue/CircularFifoQueue.html)>

#### element public [E](http://docs.google.com/org/apache/commons/collections4/queue/CircularFifoQueue.html) element()Specified by: [element](https://docs.oracle.com/javase/7/docs/api/java/util/Queue.html?is-external=true#element--) in interface [Queue](https://docs.oracle.com/javase/7/docs/api/java/util/Queue.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/queue/CircularFifoQueue.html)>

#### peek public [E](http://docs.google.com/org/apache/commons/collections4/queue/CircularFifoQueue.html) peek()Specified by: [peek](https://docs.oracle.com/javase/7/docs/api/java/util/Queue.html?is-external=true#peek--) in interface [Queue](https://docs.oracle.com/javase/7/docs/api/java/util/Queue.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/queue/CircularFifoQueue.html)>

#### remove public [E](http://docs.google.com/org/apache/commons/collections4/queue/CircularFifoQueue.html) remove()Specified by: [remove](https://docs.oracle.com/javase/7/docs/api/java/util/Queue.html?is-external=true#remove--) in interface [Queue](https://docs.oracle.com/javase/7/docs/api/java/util/Queue.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/queue/CircularFifoQueue.html)>

#### iterator public [Iterator](https://docs.oracle.com/javase/7/docs/api/java/util/Iterator.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/queue/CircularFifoQueue.html)> iterator() Returns an iterator over this queue's elements.Specified by: [iterator](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true#iterator--) in interface [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/queue/CircularFifoQueue.html)> Specified by: [iterator](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true#iterator--) in interface [Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/queue/CircularFifoQueue.html)> Specified by: [iterator](https://docs.oracle.com/javase/7/docs/api/java/util/AbstractCollection.html?is-external=true#iterator--) in class [AbstractCollection](https://docs.oracle.com/javase/7/docs/api/java/util/AbstractCollection.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/queue/CircularFifoQueue.html)> Returns: an iterator over this queue's elements

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