

## interface Iterable<T>

**Iterator<T>** **iterator()** Returns an iterator over elements of type T.

**void** **forEach(Consumer<? super T> action)** Performs the given action for each element of this **Iterable**

## public interface Collection<E> extends Iterable<E>

**boolean** **add(E e)** Ensures that this collection contains the specified element.

**boolean** **addAll(Collection<? extends E> c)** Adds all of the elements in the specified collection to this collection.

**void** **clear()** Removes all of the elements from this collection.

**boolean** **contains(Object o)** Returns true if this collection contains the specified element.

**boolean** **containsAll(Collection<?> c)** Returns true if this collection contains all of the elements in the specified collection.

**boolean** **isEmpty()** Returns true if this collection contains no elements.

**boolean** **remove(Object o)** Removes a single instance of the specified element from this collection, if it is present.

**boolean** **removeAll(Collection<?> c)** Removes all of this collection's elements that are also contained in the specified collection.

**boolean** **removeIf(Predicate<? super E> filter)** Removes all of the elements of this collection that satisfy the given predicate.

**boolean** **retainAll(Collection<?> c)**

Retains only the elements in this collection that are contained in the specified collection.

**int** **size()** Returns the number of elements in this collection.

**Stream<E>** **stream()** Returns a sequential Stream with this collection as its source.

## interface List<E> extends Collection<E>

**void** **add(int index, E element)** Inserts the specified element at the specified position in this list.

**boolean** **addAll(int index, Collection<? extends E> c)** Inserts all of the elements in the specified collection into this list at the specified position.

**E** **get(int index)** Returns the element at the specified position in this list.

**int** **indexOf(Object o)** Returns the index of the first occurrence of the specified element in this list, or -1 if it does not contain the element.

**int** **lastIndexOf(Object o)** Returns the index of the last occurrence of the specified element in this list, or -1 if it does not contain the element.

**E** **remove(int index)** Removes the element at the specified position in this list.

**E** **set(int index, E element)** Replaces the element at the specified position in this list with the specified element.

**void** **sort(Comparator<? super E> c)** Sorts this list according to the order induced by the specified **Comparator**.

## interface Map<K,V>

**void** **clear()** Removes all of the mappings from this map.

**boolean** **containsKey(Object key)** Returns true if this map contains a mapping for the specified key.

**V** **get(Object key)** Returns the value to which the specified key is mapped, or null if this map contains no mapping for the key.

**boolean** **isEmpty()** Returns true if this map contains no key-value mappings.

**Set<K>** **keySet()** Returns a **Set** view of the keys contained in this map.

**V** **put(K key, V value)** Associates the specified value with the specified key in this map.

**void** **putAll(Map<? extends K,? extends V> m)** Copies all of the mappings from the specified map to this map.

**V** **remove(Object key)** Removes the mapping for a key from this map if it is present.

**int** **size()** Returns the number of key-value mappings in this map.

## class String implements Comparable<String>

**char** **charAt(int index)** Returns the char value at the specified index.

**boolean** **contains(String s)** Returns true if and only if this string contains the specified string.

**boolean** **endsWith(String suffix)** Tests if this string ends with the specified suffix.

**static String** **format(String format, Object... args)** Returns a formatted string using the specified format string and arguments.

**int** **indexOf(int ch)** Returns the index within this string of the first occurrence of the specified character.

**int** **indexOf(int ch, int fromIndex)** Returns the index within this string of the first occurrence of the specified character, starting the search at the specified index.

**int** **indexOf(String str)** Returns the index within this string of the first occurrence of the specified substring.

**int** **indexOf(String str, int fromIndex)** Returns the index within this string of the first occurrence of the specified substring, starting at the specified index.

**boolean** **isEmpty()** Returns true if, and only if, **length()** is 0.

int	<b>lastIndexOf(int ch)</b> Returns the index within this string of the last occurrence of the specified character.
int	<b>lastIndexOf(int ch, int fromIndex)</b> Returns the index within this string of the last occurrence of the specified character, searching backward starting at the specified index.
int	<b>lastIndexOf(String str)</b> Returns the index within this string of the last occurrence of the specified substring.
int	<b>lastIndexOf(String str, int fromIndex)</b> Returns the index within this string of the last occurrence of the specified substring, searching backward starting at the specified index.
int	<b>length()</b> Returns the length of this string.
String	<b>replace(String target, String replacement)</b> Replaces each substring of this string that matches the literal target string with the specified literal replacement string.
String[]	<b>split(String regex)</b> Splits this string around matches of the given <b>regular expression</b> .
boolean	<b>startsWith(String prefix)</b> Tests if this string starts with the specified prefix.
String	<b>substring(int beginIndex)</b> Returns a string that is a substring of this string.
String	<b>substring(int beginIndex, int endIndex)</b> Returns a string that is a substring of this string.
String	<b>toLowerCase()</b> Converts all of the characters in this String to lower case using the rules of the default locale.
String	<b>toUpperCase()</b> Converts all of the characters in this String to upper case using the rules of the default locale.
String	<b>trim()</b> Returns a string whose value is this string, with any leading and trailing whitespace removed.

## class Scanner

**Scanner(InputStream source)**

Constructs a new Scanner that produces values scanned from the specified input stream.

void **close()** Closes this scanner.

boolean **hasNext()** Returns true if this scanner has another token in its input.

boolean **hasNextBoolean()** Returns true if the next token in this scanner's input can be interpreted as a boolean value using a case insensitive pattern created from the string "true|false".

boolean **hasNextDouble()** Returns true if the next token in this scanner's input can be interpreted as a double using **nextDouble()**.

boolean **hasNextInt()** Returns true if the next token in this scanner's input can be interpreted as an int using **nextInt()**.

boolean **hasNextLine()** Returns true if there is another line in the input of this scanner.

String **next()** Finds and returns the next complete token from this scanner.

boolean **nextBoolean()** Scans the next token of the input into a boolean value and returns that value.

double **nextDouble()** Scans the next token of the input as a double.

int **nextInt()** Scans the next token of the input as an int.

String **nextLine()** Advances this scanner past the current line and returns the input that was skipped.

## Functional interfaces

Predicate<T> boolean **test(T t)** Evaluates this predicate on the given argument.

Supplier<T> T **get()** Gets a result.

Consumer<T> void **accept(T t)** Performs this operation on the given argument.

Function<T,R> R **apply(T t)** Applies this function to the given argument.

UnaryOperator<T> T **apply(T t)** Applies this function to the given argument.

BiFunction<T1,T2,R> R **apply(T1 t1, T2 t2)** Applies this function to the given arguments.

BinaryOperator<T> T **apply(T t1, T t2)** Applies this function to the given arguments.

## interface Stream<T>

boolean **allMatch(Predicate<? super T> predicate)** Returns whether all elements of this stream match the provided predicate.

boolean **anyMatch(Predicate<? super T> predicate)** Returns whether any elements of this stream match the provided predicate.

<R,A> R **collect(Collector<? super T,A,R> collector)** Performs a **mutable reduction** operation on the elements of this stream using a Collector.

Stream<T> **filter(Predicate<? super T> predicate)** Returns a stream consisting of the elements of this stream that match the given predicate.

void **forEach(Consumer<? super T> action)** Performs an action for each element of this stream.

Stream<R> **map(Function<? super T,? extends R> mapper)** Returns a stream consisting of the results of applying the given function to the elements of this stream.

T **reduce(T identity, BinaryOperator<T> accumulator)** Performs a **reduction** on the elements of this stream, using the provided identity value and an **associative** accumulation function, and returns the reduced value.

**Stream<T> sorted()** Returns a stream consisting of the elements of this stream, sorted according to natural order.  
**Stream<T> sorted(Comparator<? super T> comparator)** Returns a stream consisting of the elements of this stream, sorted according to the provided Comparator.

## **class Assert**

### **protected Assert()**

Protect constructor since it is a static only class

Many of the methods below can be called with a variety of parameters.

static void **assertEquals**(java.lang.Object expected, java.lang.Object actual) Asserts that two objects are equal.

static void **assertNotNull**(java.lang.Object object) Asserts that an object isn't null.

static void **assertNull**(java.lang.Object object) Asserts that an object is null.

static void **assertTrue**(boolean condition) Asserts that a condition is true.

static void **assertFalse**(boolean condition) Asserts that a condition is false.

static void **fail**() Fails a test with no message. With a String as a parameter it fails with the given string as message.