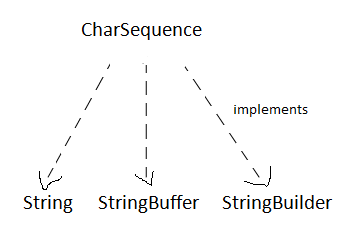
**Chapter 4 – Unit 2**

**Strings**

* **CharSequence Interface :** The CharSequence interface is used to represent the sequence of characters.
* String, [StringBuffer](https://www.javatpoint.com/StringBuffer-class) and [StringBuilder](https://www.javatpoint.com/StringBuilder-class) classes implement it. It means, we can create strings in Java by using these three classes.



* Strings, which are widely used in Java programming, are a sequence of characters. In Java programming language, strings are treated as objects.

**String class**

* String is a sequence of characters. In java, objects of String are immutable which means a constant and cannot be changed once created.

**String class methods**

* The java.lang.String class provides many useful methods to perform operations on sequence of char values.

|  |  |  |
| --- | --- | --- |
| **No.** | **Method** | **Description** |
| 1 | [char charAt(int index)](https://www.javatpoint.com/java-string-charat) | returns char value for the particular index |
| 2 | [int length()](https://www.javatpoint.com/java-string-length) | returns string length |
| 3 | [static String format(String format, Object... args)](https://www.javatpoint.com/java-string-format) | returns a formatted string. |
| 4 | [static String format(Locale l, String format, Object... args)](https://www.javatpoint.com/java-string-format) | returns formatted string with given locale. |
| 5 | [String substring(int beginIndex)](https://www.javatpoint.com/java-string-substring) | returns substring for given begin index. |
| 6 | [String substring(int beginIndex, int endIndex)](https://www.javatpoint.com/java-string-substring) | returns substring for given begin index and end index. |
| 7 | [boolean contains(CharSequence s)](https://www.javatpoint.com/java-string-contains) | returns true or false after matching the sequence of char value. |
| 8 | [static String join(CharSequence delimiter, CharSequence... elements)](https://www.javatpoint.com/java-string-join) | returns a joined string. |
| 9 | [static String join(CharSequence delimiter, Iterable<? extends CharSequence> elements)](https://www.javatpoint.com/java-string-join) | returns a joined string. |
| 10 | [boolean equals(Object another)](https://www.javatpoint.com/java-string-equals) | checks the equality of string with the given object. |
| 11 | [boolean isEmpty()](https://www.javatpoint.com/java-string-isempty) | checks if string is empty. |
| 12 | [String concat(String str)](https://www.javatpoint.com/java-string-concat) | concatenates the specified string. |
| 13 | [String replace(char old, char new)](https://www.javatpoint.com/java-string-replace) | replaces all occurrences of the specified char value. |
| 14 | [String replace(CharSequence old, CharSequence new)](https://www.javatpoint.com/java-string-replace) | replaces all occurrences of the specified CharSequence. |
| 15 | [static String equalsIgnoreCase(String another)](https://www.javatpoint.com/java-string-equalsignorecase) | compares another string. It doesn't check case. |
| 16 | [String[] split(String regex)](https://www.javatpoint.com/java-string-split) | returns a split string matching regex. |
| 17 | [String[] split(String regex, int limit)](https://www.javatpoint.com/java-string-split) | returns a split string matching regex and limit. |
| 18 | [String intern()](https://www.javatpoint.com/java-string-intern) | returns an interned string. |
| 19 | [int indexOf(int ch)](https://www.javatpoint.com/java-string-indexof) | returns the specified char value index. |
| 20 | [int indexOf(int ch, int fromIndex)](https://www.javatpoint.com/java-string-indexof) | returns the specified char value index starting with given index. |
| 21 | [int indexOf(String substring)](https://www.javatpoint.com/java-string-indexof) | returns the specified substring index. |
| 22 | [int indexOf(String substring, int fromIndex)](https://www.javatpoint.com/java-string-indexof) | returns the specified substring index starting with given index. |
| 23 | [String toLowerCase()](https://www.javatpoint.com/java-string-tolowercase) | returns a string in lowercase. |
| 24 | [String toLowerCase(Locale l)](https://www.javatpoint.com/java-string-tolowercase) | returns a string in lowercase using specified locale. |
| 25 | [String toUpperCase()](https://www.javatpoint.com/java-string-touppercase) | returns a string in uppercase. |
| 26 | [String toUpperCase(Locale l)](https://www.javatpoint.com/java-string-touppercase) | returns a string in uppercase using specified locale. |
| 27 | [String trim()](https://www.javatpoint.com/java-string-trim) | removes beginning and ending spaces of this string. |
| 28 | [static String valueOf(int value)](https://www.javatpoint.com/java-string-valueof) | converts given type into string. It is an overloaded method. |

**Stringbuffer class**

* StringBuffer class is used to create mutable (modifiable) String objects. The StringBuffer class in Java is the same as String class except it is mutable i.e. it can be changed.

**Important Constructors of StringBuffer Class**

|  |  |
| --- | --- |
| **Constructor** | **Description** |
| StringBuffer() | It creates an empty String buffer with the initial capacity of 16. |
| StringBuffer(String str) | It creates a String buffer with the specified string.. |
| StringBuffer(int capacity) | It creates an empty String buffer with the specified capacity as length. |

**Important methods of StringBuffer class**

|  |  |
| --- | --- |
| **Sr.No.** | **Method & Description** |
| 1 | [StringBuffer append(boolean b)](https://www.tutorialspoint.com/java/lang/stringbuffer_append_boolean.htm)  This method appends the string representation of the boolean argument to the sequence. |
| 2 | [StringBuffer append(char c)](https://www.tutorialspoint.com/java/lang/stringbuffer_append_char.htm)  This method appends the string representation of the char argument to this sequence. |
| 3 | [StringBuffer append(char[] str)](https://www.tutorialspoint.com/java/lang/stringbuffer_append_chararray.htm)  This method appends the string representation of the char array argument to this sequence. |
| 4 | [StringBuffer append(char[] str, int offset, int len)](https://www.tutorialspoint.com/java/lang/stringbuffer_append_chararray_len.htm)  This method appends the string representation of a subarray of the char array argument to this sequence. |
| 5 | [StringBuffer append(CharSequence s)](https://www.tutorialspoint.com/java/lang/stringbuffer_append_sequence.htm)  This method appends the specified CharSequence to this sequence. |
| 6 | [StringBuffer append(CharSequence s, int start, int end)](https://www.tutorialspoint.com/java/lang/stringbuffer_append_subsequence.htm)  This method appends a subsequence of the specified CharSequence to this sequence. |
| 7 | [StringBuffer append(double d)](https://www.tutorialspoint.com/java/lang/stringbuffer_append_double.htm)  This method appends the string representation of the double argument to this sequence. |
| 8 | [StringBuffer append(float f)](https://www.tutorialspoint.com/java/lang/stringbuffer_append_float.htm)  This method appends the string representation of the float argument to this sequence. |
| 9 | [StringBuffer append(int i)](https://www.tutorialspoint.com/java/lang/stringbuffer_append_int.htm)  This method appends the string representation of the int argument to this sequence. |
| 10 | [StringBuffer append(long lng)](https://www.tutorialspoint.com/java/lang/stringbuffer_append_long.htm)  This method appends the string representation of the long argument to this sequence. |
| 11 | [StringBuffer append(Object obj)](https://www.tutorialspoint.com/java/lang/stringbuffer_append_object.htm)  This method appends the string representation of the Object argument. |
| 12 | [StringBuffer append(String str)](https://www.tutorialspoint.com/java/lang/stringbuffer_append_string.htm)  This method appends the specified string to this character sequence. |
| 13 | [StringBuffer append(StringBuffer sb)](https://www.tutorialspoint.com/java/lang/stringbuffer_append_stringbuffer.htm)  This method appends the specified StringBuffer to this sequence. |
| 14 | [StringBuffer appendCodePoint(int codePoint)](https://www.tutorialspoint.com/java/lang/stringbuffer_appendcodepoint.htm)  This method appends the string representation of the codePoint argument to this sequence. |
| 15 | [int capacity()](https://www.tutorialspoint.com/java/lang/stringbuffer_capacity.htm)  This method returns the current capacity. |
| 16 | [char charAt(int index)](https://www.tutorialspoint.com/java/lang/stringbuffer_charat.htm)  This method returns the char value in this sequence at the specified index. |
| 17 | [int codePointAt(int index)](https://www.tutorialspoint.com/java/lang/stringbuffer_codepointat.htm)  This method returns the character (Unicode code point) at the specified index |
| 18 | [int codePointBefore(int index)](https://www.tutorialspoint.com/java/lang/stringbuffer_codepointbefore.htm)  This method returns the character (Unicode code point) before the specified index. |
| 19 | [int codePointCount(int beginIndex, int endIndex)](https://www.tutorialspoint.com/java/lang/stringbuffer_codepointcount.htm)  This method returns the number of Unicode code points in the specified text range of this sequence. |
| 20 | [StringBuffer delete(int start, int end)](https://www.tutorialspoint.com/java/lang/stringbuffer_delete.htm)  This method removes the characters in a substring of this sequence. |
| 21 | [StringBuffer deleteCharAt(int index)](https://www.tutorialspoint.com/java/lang/stringbuffer_deletecharat.htm)  This method removes the char at the specified position in this sequence. |
| 22 | [void ensureCapacity(int minimumCapacity)](https://www.tutorialspoint.com/java/lang/stringbuffer_ensurecapacity.htm)  This method ensures that the capacity is at least equal to the specified minimum. |
| 23 | [void getChars(int srcBegin, int srcEnd, char[] dst, int dstBegin)](https://www.tutorialspoint.com/java/lang/stringbuffer_getchars.htm)  This method characters are copied from this sequence into the destination character array dst. |
| 24 | [int indexOf(String str)](https://www.tutorialspoint.com/java/lang/stringbuffer_indexof_str.htm)  This method returns the index within this string of the first occurrence of the specified substring. |
| 25 | [int indexOf(String str, int fromIndex)](https://www.tutorialspoint.com/java/lang/stringbuffer_indexof_str_index.htm)  This method returns the index within this string of the first occurrence of the specified substring, starting at the specified index. |
| 26 | [StringBuffer insert(int offset, boolean b)](https://www.tutorialspoint.com/java/lang/stringbuffer_insert_boolean.htm)  This method inserts the string representation of the boolean argument into this sequence. |
| 27 | [StringBuffer insert(int offset, char c)](https://www.tutorialspoint.com/java/lang/stringbuffer_insert_char.htm)  This method inserts the string representation of the char argument into this sequence. |
| 28 | [StringBuffer insert(int offset, char[] str)](https://www.tutorialspoint.com/java/lang/stringbuffer_insert_chararray.htm)  This method inserts the string representation of the char array argument into this sequence. |
| 29 | [StringBuffer insert(int index, char[] str, int offset, int len)](https://www.tutorialspoint.com/java/lang/stringbuffer_insert_chararray_len.htm)  This method inserts the string representation of a subarray of the str array argument into this sequence. |
| 30 | [StringBuffer insert(int dstOffset, CharSequence s)](https://www.tutorialspoint.com/java/lang/stringbuffer_insert_sequence.htm)  This method inserts the specified CharSequence into this sequence. |
| 31 | [StringBuffer insert(int dstOffset, CharSequence s, int start, int end)](https://www.tutorialspoint.com/java/lang/stringbuffer_insert_subsequence.htm)  This method inserts a subsequence of the specified CharSequence into this sequence. |
| 32 | [StringBuffer insert(int offset, double d)](https://www.tutorialspoint.com/java/lang/stringbuffer_insert_double.htm)  This method inserts the string representation of the double argument into this sequence. |
| 33 | [StringBuffer insert(int offset, float f)](https://www.tutorialspoint.com/java/lang/stringbuffer_insert_float.htm)  This method inserts the string representation of the float argument into this sequence. |
| 34 | [StringBuffer insert(int offset, int i](https://www.tutorialspoint.com/java/lang/stringbuffer_insert_int.htm)  This method inserts the string representation of the second int argument into this sequence. |
| 35 | [StringBuffer insert(int offset, long l)](https://www.tutorialspoint.com/java/lang/stringbuffer_insert_long.htm)  This method inserts the string representation of the long argument into this sequence. |
| 36 | [StringBuffer insert(int offset, Object obj)](https://www.tutorialspoint.com/java/lang/stringbuffer_insert_object.htm)  This method inserts the string representation of the Object argument into this character sequence. |
| 37 | [StringBuffer insert(int offset, String str)](https://www.tutorialspoint.com/java/lang/stringbuffer_insert_string.htm)  This method inserts the string into this character sequence. |
| 38 | [int lastIndexOf(String str)](https://www.tutorialspoint.com/java/lang/stringbuffer_lastindexof.htm)  This method returns the index within this string of the rightmost occurrence of the specified substring. |
| 39 | [int lastIndexOf(String str, int fromIndex)](https://www.tutorialspoint.com/java/lang/stringbuffer_lastindexof_index.htm)  This method returns the index within this string of the last occurrence of the specified substring. |
| 40 | [int length()](https://www.tutorialspoint.com/java/lang/stringbuffer_length.htm)  This method returns the length (character count). |
| 41 | [int offsetByCodePoints(int index, int codePointOffset)](https://www.tutorialspoint.com/java/lang/stringbuffer_offsetbycodepoints.htm)  This method returns the index within this sequence that is offset from the given index by codePointOffset code points. |
| 42 | [StringBuffer replace(int start, int end, String str)](https://www.tutorialspoint.com/java/lang/stringbuffer_replace.htm)  This method replaces the characters in a substring of this sequence with characters in the specified String. |
| 43 | [StringBuffer reverse()](https://www.tutorialspoint.com/java/lang/stringbuffer_reverse.htm)  This method causes this character sequence to be replaced by the reverse of the sequence. |
| 44 | [void setCharAt(int index, char ch)](https://www.tutorialspoint.com/java/lang/stringbuffer_setcharat.htm)  The character at the specified index is set to ch. |
| 45 | [void setLength(int newLength)](https://www.tutorialspoint.com/java/lang/stringbuffer_setlength.htm)  This method sets the length of the character sequence. |
| 46 | [CharSequence subSequence(int start, int end)](https://www.tutorialspoint.com/java/lang/stringbuffer_subsequence.htm)  This method returns a new character sequence that is a subsequence of this sequence. |
| 47 | [String substring(int start)](https://www.tutorialspoint.com/java/lang/stringbuffer_substring.htm)  This method returns a new String that contains a subsequence of characters currently contained in this character sequence. |
| 48 | [String substring(int start, int end)](https://www.tutorialspoint.com/java/lang/stringbuffer_substring_end.htm)  This method returns a new String that contains a subsequence of characters currently contained in this sequence. |
| 49 | [String toString()](https://www.tutorialspoint.com/java/lang/stringbuffer_tostring.htm)  This method returns a string representing the data in this sequence. |
| 50 | [void trimToSize()](https://www.tutorialspoint.com/java/lang/stringbuffer_trimtosize.htm)  This method attempts to reduce storage used for the character sequence. |

**Difference between String and StringBuffer**

* There are many differences between String and StringBuffer. A list of differences between String and StringBuffer are given below:

|  |  |  |
| --- | --- | --- |
| **No.** | **String** | **StringBuffer** |
| 1) | The String class is immutable. | The StringBuffer class is mutable. |
| 2) | String is slow and consumes more memory when we concatenate too many strings because every time it creates new instance. | StringBuffer is fast and consumes less memory when we concatenate t strings. |
| 3) | String class overrides the equals() method of Object class. So you can compare the contents of two strings by equals() method. | StringBuffer class doesn't override the equals() method of Object class. |
| 4) | String class is slower while performing concatenation operation. | StringBuffer class is faster while performing concatenation operation. |
| 5) | String class uses String constant pool. | StringBuffer uses Heap memory |

**Command-line arguments**