

Java String, StringBuilder, and StringBuffer Cheat Sheet

Java String Functions

Basic Functions

Function	Description	Example
<code>length()</code>	Returns the length of string	<code>"hello".length()</code> → 5
<code>toUpperCase()</code>	Converts to uppercase	<code>"hello".toUpperCase()</code> → HELLO
<code>toLowerCase()</code>	Converts to lowercase	<code>"HELLO".toLowerCase()</code> → hello
<code>charAt()</code>	Returns character at a specific index	<code>"hello".charAt(1)</code> → e
<code>substring()</code>	Returns a substring from the original string	<code>"hello".substring(1, 4)</code> → ell
<code>concat()</code>	Concatenates two strings	<code>"hello".concat(" world")</code> → hello world
<code>isLetter()</code>	Checks if the character is a letter	<code>Character.isLetter('a')</code> → true
<code>isDigit()</code>	Checks if the character is a digit	<code>Character.isDigit('5')</code> → true
<code>isLetterOrDigit()</code>	Checks if the character is a letter or a digit	<code>Character.isLetterOrDigit('A')</code> → true
<code>isWhitespace()</code>	Checks if the character is a whitespace	<code>Character.isWhitespace(' ')</code> → true
<code>isUpperCase()</code>	Checks if the character is uppercase	<code>Character.isUpperCase('A')</code> → true
<code>isLowerCase()</code>	Checks if the character is lowercase	<code>Character.isLowerCase('a')</code> → true
<code>matches()</code>	Checks if the string matches a regex pattern	<code>"abc123".matches(".*\\d.*")</code> → true
<code>contains()</code>	Checks if the string contains a specific substring	<code>"hello123".contains("123")</code> → true
<code>isAlphabetic()</code>	Checks if the character is alphabetic	<code>Character.isAlphabetic('a')</code> → true
<code>isAlphanumeric()</code>	Checks if the string contains only letters and digits	<code>"abc123".matches("[a-zA-Z0-9]+")</code> → true

Function	Description	Example
<code>hasSpecialCharacter()</code>	Checks if the string contains special characters	<code>"abc@123".matches(".*[^a-zA-Z0-9].*") → true</code>

🔍 Searching and Matching

Function	Description	Example
<code>indexOf()</code>	Returns the index of the first occurrence of a character or substring	<code>"hello".indexOf('l') → 2</code>
<code>lastIndexOf()</code>	Returns the last occurrence index of a character or substring	<code>"hello".lastIndexOf('l') → 3</code>
<code>contains()</code>	Checks if a string contains a particular substring	<code>"hello".contains("ll") → true</code>
<code>startsWith()</code>	Checks if a string starts with a substring	<code>"hello".startsWith("he") → true</code>
<code>endsWith()</code>	Checks if a string ends with a substring	<code>"hello".endsWith("o") → true</code>

✂ String Modification

Function	Description	Example
<code>replace()</code>	Replaces characters or substrings	<code>"hello".replace('l', 'p') → heppo</code>
<code>trim()</code>	Removes leading and trailing spaces	<code>" hello ".trim() → hello</code>
<code>replaceAll()</code>	Replaces all occurrences of a regex pattern	<code>"hello123".replaceAll("[0-9]", "") → hello</code>
<code>split()</code>	Splits the string into an array based on a delimiter	<code>"a,b,c".split(",") → {a, b, c}</code>



Java StringBuilder & StringBuffer Functions

✅ What are StringBuilder and StringBuffer?

- **StringBuilder**: Mutable, **faster**, but **not thread-safe**.
 - **StringBuffer**: Mutable, **slower**, but **thread-safe**.
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Common Functions List

Function	Description	Example
<code>append()</code>	Adds a string at the end	<code>sb.append(" world")</code> → hello world
<code>insert()</code>	Inserts a string at a specific index	<code>sb.insert(5, " Java")</code> → hello Java world
<code>replace()</code>	Replaces part of the string between start and end indexes	<code>sb.replace(0, 5, "Hi")</code> → Hi Java world
<code>delete()</code>	Deletes characters between start and end indexes	<code>sb.delete(2, 5)</code> → Hiworld
<code>deleteCharAt()</code>	Deletes character at a specific index	<code>sb.deleteCharAt(4)</code> → helo
<code>reverse()</code>	Reverses the string	<code>sb.reverse()</code> → olleh
<code>capacity()</code>	Returns current capacity	<code>sb.capacity()</code> → 16 (default)
<code>length()</code>	Returns the length of the string	<code>sb.length()</code> → 5
<code>charAt()</code>	Returns character at a specific index	<code>sb.charAt(1)</code> → e
<code>setCharAt()</code>	Sets a character at a specific index	<code>sb.setCharAt(1, 'a')</code> → hallo
<code>substring()</code>	Returns part of the string	<code>sb.substring(0, 5)</code> → hello
<code>toString()</code>	Converts to String	<code>sb.toString()</code> → "hello"

💡 Example Code for Both:

```
public class Main {
    public static void main(String[] args) {
        StringBuilder sb = new StringBuilder("hello");
        StringBuffer sbf = new StringBuffer("hello");

        sb.append(" world");           // hello world
        sb.insert(5, " Java");         // hello Java world
        sb.reverse();                  // dlrow avaJ olleh

        sbf.append(" world");          // hello world
        sbf.insert(5, " Java");         // hello Java world
        sbf.reverse();                 // dlrow avaJ olleh

        System.out.println(sb);
        System.out.println(sbf);
    }
}
```

🚀 Difference Between String, StringBuilder, and StringBuffer

Feature	String	StringBuilder	StringBuffer
Mutability	Immutable	Mutable	Mutable
Performance	Slow	Fast	Slow
Thread Safety	Thread-safe	Not thread-safe	Thread-safe