String Methods in JavaScript

JavaScript provides many built-in methods to **work with strings** — to inspect, modify, or extract information from them.

All string methods return a **new string** or value. The original string remains unchanged.

1. `length`

Returns the number of characters in the string.

```
let text = "JavaScript";
console.log(text.length); // 10
```

2. `toUpperCase()` and `toLowerCase()`

Convert a string to upper or lower case.

```
let name = "Ali";
console.log(name.toUpperCase()); // "ALI"
console.log(name.toLowerCase()); // "ali"
```

3. `trim()`

Removes extra whitespace from both ends of a string.

```
let input = "   Hello World   ";
console.log(input.trim()); // "Hello World"
```

4. includes()

Checks if a string contains another string.

```
let msg = "Learn JavaScript";
console.log(msg.includes("Java")); // true
console.log(msg.includes("Python")); // false
```

5. indexOf() and lastIndexOf()

Returns the index of the first/last occurrence of a substring. Returns -1 if not found.

```
let str = "banana";
console.log(str.indexOf("a")); // 1
console.log(str.lastIndexOf("a")); // 5
```

6. startsWith() and endsWith()

Check if a string starts or ends with a specific value.

```
let title = "Frontend Developer";
console.log(title.startsWith("Front")); // true
console.log(title.endsWith("Dev")); // false
```

7. `slice(start, end)`

Extracts part of a string. `end` is not included.

```
let word = "JavaScript";
console.log(word.slice(0, 4)); // "Java"
console.log(word.slice(4));    // "Script"
```

8. `substring(start, end)`

Similar to `slice()`, but cannot accept negative indexes.

```
let text = "Coding";
console.log(text.substring(0, 3)); // "Cod"
```

9. `replace(old, new)`

Replaces the first occurrence of a substring.

```
let msg = "I love Python";
console.log(msg.replace("Python", "JavaScript")); // "I love JavaScript"
```

Note: Only the first match is replaced. To replace all, use a regular expression with `/g`.

```
let msg = "apple apple apple";
console.log(msg.replace(/apple/g, "banana")); // "banana banana banana"
```

10. `split(separator)`

Splits a string into an array based on the given separator.

```javascript
let data = "HTML,CSS,JavaScript";

let parts = data.split(",");

console.log(parts); // ["HTML", "CSS", "JavaScript"]
```

11. `charAt(index)`

Returns the character at a specific position.

```javascript
let lang = "JavaScript";

console.log(lang.charAt(0)); // "J"
```

12. `repeat(count)`

Repeats a string multiple times.

```javascript
let wow = "ha";

console.log(wow.repeat(3)); // "hahaha"
```

Summary

Method	Description
`.length`	String length
`.toUpperCase()`	Convert to uppercase

Method	Description
`.toLowerCase()`	Convert to lowercase
`.trim()`	Remove spaces from both ends
`.includes()`	Check if string contains a value
`.indexOf()`	Index of first occurrence
`.lastIndexOf()`	Index of last occurrence
`.startsWith()`	Check if string starts with a substring
`.endsWith()`	Check if string ends with a substring
`.slice()`	Extract part of a string
`.replace()`	Replace a part of the string
`.split()`	Convert string to array
`.charAt()`	Get character at specific position
`.repeat()`	Repeat a string multiple times