

JavaScript Functions and Events

Module 5 - String Built-in Functions in JavaScript



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Strings in JavaScript

In JavaScript, strings are sequences of characters enclosed in either single quotes ('), double quotes ("), or backticks (`). They are used to represent textual data and can be manipulated in various ways using built-in string methods.



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Here are the different types of string literals in JavaScript:

Single Quotes:

```
let str = 'Hello, World!';
```

Double Quotes:

```
let str = "Hello, World!";
```

Template Literals (Backticks):

```
let str = `Hello, World!`;
```

What are Template Literals?

- Template literals are just a special way to work with strings in JavaScript. Instead of using single or double quotes for strings, you use backticks (` `).
- They allow you to insert variables or expressions directly inside a string using ``${}``.

Backtick

A backtick (`) is a special character that looks like this: ` . It is different from the regular single quote (') and double quote ("), which are typically used to define strings in JavaScript.

How to Type a Backtick:

On most keyboards, you can find the backtick key below the Esc key on the left side of your keyboard, next to the number 1. It shares the key with the tilde (~) symbol. To type a backtick, just press the key without the Shift key.

Why is the \$ Sign Important?

The \$ sign is used inside a template literal to tell JavaScript that you're going to insert something like a variable or an expression into your string.

Solved Example 1: JavaScript program using template literals

Ques: Write a JavaScript program using template literals (backticks) to display a personalized message that includes a person's name and age. Use variables to store



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the name and age, and embed them into the string using ``${}``. The webpage should have a light purple background (`#e59feb`).

Solution:

```
<!DOCTYPE html>
<html lang="en">
<head>
  <title>Template Literals Example</title>
</head>
<body bgcolor="e59feb">
  <h1>Using Template Literals in JavaScript</h1>

  <script>
    // Declare variables
    let name = "Jagriti Mehta";
    let age = 30;

    // Create a message using template literals
    let message = `Hello, my name is ${name} and I am ${age} years old.`;

    // Display the message on the webpage using document.write
    document.write(message);

    // Also log the message in the console (optional)
    console.log(message);
  </script>
</body>
</html>
```

OUTPUT:

Using Template Literals in JavaScript

Hello, my name is Jagriti Mehta and I am 30 years old.

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Explanation of the code:

Two variables are declared:

- name is assigned the value "Jagriti Mehta".
- age is assigned the value 30.

A string is created using template literals (backticks `).

- The `${}` syntax dynamically embeds the values of the name and age variables into the string.

The value of message becomes:

Hello, my name is Jagriti Mehta and I am 30 years old.

Solved Example 2: JavaScript program to Print a Personalized Message without Functions

Ques: Create an HTML document that performs the following tasks:

Prompts the user to input the following details:

- Their name
- Their father's name
- Their age
- Their school name

After collecting the input, generate a personalized passage that includes the following:

- A greeting with their name.
- Their age and father's name.
- Their school name.
- A motivational message: "Hope you are fine. We are doing Strings in JavaScript. Keep Practicing and Enjoy your Learning."

Display the passage dynamically on the webpage using `document.write()`. The passage should include some words in bold for emphasis.

Add styling to the webpage:

- Set the background color to light yellow (#f3f571).
- Use the Arial font family.
- Add padding and line spacing for better readability.

Solution:

```
<!DOCTYPE html>
<html lang="en">
<head>
  <title>Personalized Message</title>
```

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```

<style>
  body {
    background-color: #f3f571; /* Light yellow background */
    font-family: Arial, sans-serif;
    padding: 20px;
    line-height: 1.6;
  }
  h1 {
    color: #333;
  }
</style>
</head>
<body>
  <h1>Personalized Message</h1>
  <script>
    // Prompt the user for details
    let name = prompt("Enter your name:");
    let fatherName = prompt("Enter your father's name:");
    let age = prompt("Enter your age:");
    let schoolName = prompt("Enter your school name:");

    // Create a passage using the entered details
    let passage = `
      Hello, my name is <b>${name}</b>. I am <b>${age}</b> years old.
      My father's name is <b>${fatherName}</b>, and I study at
      <b>${schoolName}</b>.
      It's wonderful to share my details with you! Hope you are fine. We are
      doing Strings in Java Script. Keep Practising and Enjoy your Learning.
    `;

    // Display the passage on the webpage
    document.write(passage);
  </script>
</body>
</html>

```

OUTPUT:

Personalized Message

Hello, my name is **ABC USD**. I am **23** years old.
My father's name is **JHG UYT**, and I study at **XYZ Public School**.
It's wonderful to share my details with you! Hope you are fine.
We are doing Strings in Java Script. Keep Practising and Enjoy your Learning.

What are Built-in Functions in JavaScript?

Built-in functions are pre-defined functions provided by JavaScript that perform specific tasks. These functions are part of the JavaScript standard library, making it easier for developers to carry out common operations without having to write complex code.

Examples of Built-in Functions in JavaScript:

- General Functions: alert(), prompt(), console.log(), parseInt(), isNaN().
- Math Functions: Math.abs(), Math.sqrt(), Math.round().
- String Functions: toUpperCase(), toLowerCase(), substring().

Examples of Built-in String Functions:

1. toUpperCase()

Converts all characters in a string to uppercase.
Example: "hello".toUpperCase() → "HELLO"

Example:

```
<!DOCTYPE html>
<html lang="en">
<head>
  <title>toUpperCase Example</title>
</head>
```

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```
<body>
  <script>
    let str = "hello world";
    let upperCaseStr = str.toUpperCase();
    document.write(`Original String: ${str}<br>Uppercase String:
    ${upperCaseStr}`);
  </script>
</body>
</html>
```

OUTPUT:
Original String: hello world
Uppercase String: HELLO WORLD

- 2. Power: Math.pow(base, exponent) toLowerCase()**
- Converts all characters in a string to lowercase.
 - Example: "HELLO".toLowerCase() → "hello"

Example:

```
<!DOCTYPE html>
<html lang="en">
<head>
  <title>toLowerCase Example</title>
</head>
<body>
  <script>
    let str = "HELLO WORLD";
    let lowerCaseStr = str.toLowerCase();
    document.write(`Original String: ${str}<br>Lowercase String:
    ${lowerCaseStr}`);
  </script>
</body>
</html>
```

OUTPUT:
Original String: HELLO WORLD
Lowercase String: hello world

- 3. charAt()**
- Returns the character at a specific index in the string.
Example: "JavaScript".charAt(4) → "S"

Example:

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```
<!DOCTYPE html>
<html lang="en">
<head>
  <title>charAt Example</title>
</head>
<body>
  <script>
    let str = "JavaScript";
    let char = str.charAt(4);
    document.write(`The character at index 4 in "${str}" is: ${char}`);
  </script>
</body>
</html>
```

OUTPUT:
The character at index 4 in "JavaScript" is: S

4. substring()
Extracts characters between two specified indices.
Example: "JavaScript".substring(0, 4) → "Java"

Example:

```
<!DOCTYPE html>
<html lang="en">
<head>
  <title>substring Example</title>
</head>
<body>
  <script>
    let str = "JavaScript";
    let subStr = str.substring(0, 4);
    document.write(`Original String: ${str}<br>Substring (0-4): ${subStr}`);
  </script>
</body>
</html>
```

OUTPUT:
Original String: JavaScript
Substring (0-4): Java

5. replace()
Replaces a specified value in a string with another value.

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Example: "I love JavaScript".replace("JavaScript", "coding") → "I love coding"

Example:

```
<!DOCTYPE html>
<html lang="en">
<head>
  <title>replace Example</title>
</head>
<body>
  <script>
    let str = "I love JavaScript!";
    let replacedStr = str.replace("JavaScript", "coding");
    document.write(`Original String: ${str}<br>Replaced String: ${replacedStr}`);
  </script>
</body>
</html>
```

OUTPUT:

Original String: I love JavaScript!
Replaced String: I love coding!

6. concat()

Joins two or more strings into one.
Example: "Hello".concat(" ", "World!") → "Hello World!"

Example:

```
<!DOCTYPE html>
<html lang="en">
<head>
  <title>concat Example</title>
</head>
<body>
  <script>
    let str1 = "Hello";
    let str2 = "World";
    let result = str1.concat(" ", str2, "!");
    document.write(`Concatenated String: ${result}`);
  </script>
</body>
</html>
```

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OUTPUT:

Concatenated String: Hello, World!

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Length Property in JavaScript Strings:

The length property in JavaScript is used to determine the number of characters in a string, including spaces and special characters.

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Syntax

string.length

- string: The string variable or value for which you want to determine the length.
- It does not include parentheses because it's a property, not a method.

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Assignment

Ques 1: Combine two strings "Hello" and "World" into "Hello World" using concat().

Ques 2: Prompt the user to enter a word and display:

- Whether the word contains the substring "code" using includes().
- The word with the first letter capitalized (using substring() and toUpperCase()).

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Ques 3: Prompt the user to enter a sentence and display:

- The sentence with the word "bad" replaced with "good" using replace().
- The length of the sentence using length.

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Ques 4: Prompt the user to enter a string and display:

- The string in all lowercase using toLowerCase().
- The substring starting from index 3 to index 8 using substring()

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