

Lesson 04 Demo 01

Implementing String Methods

Objective: To implement the essential aspects of JavaScript strings, encompassing syntax variations, properties, and methods for a comprehensive understanding of string manipulation

Tools required: Visual Studio Code and Node.js

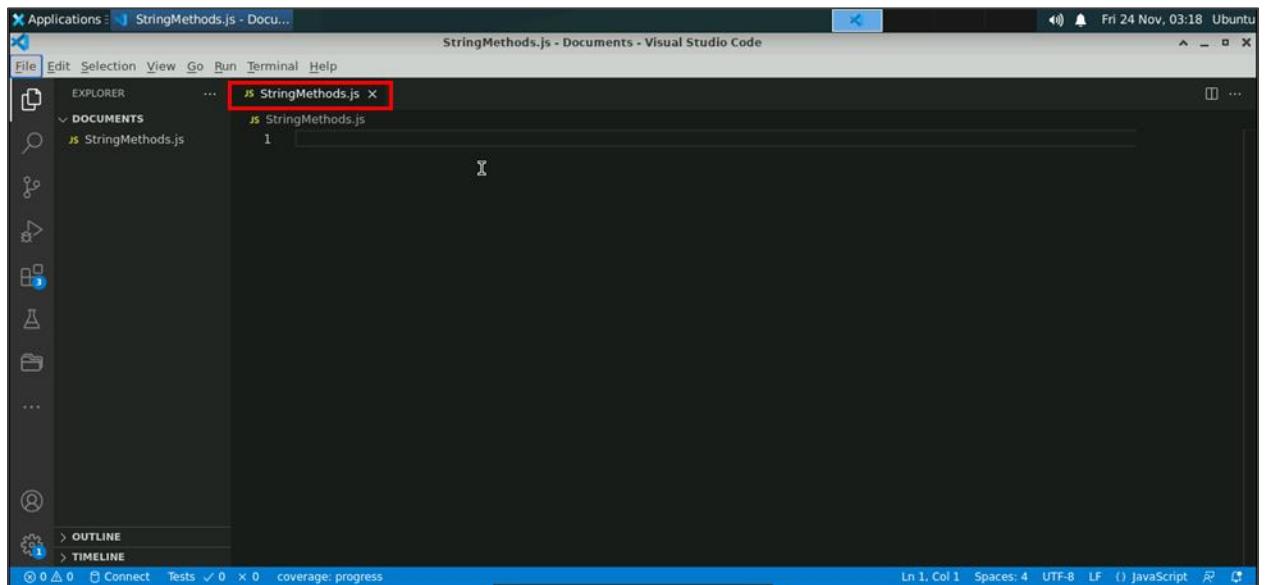
Prerequisites: A basic understanding of string properties and methods in JavaScript

Steps to be followed:

1. Create and execute the JS file

Step 1: Create and execute the JS file

1.1 Open the Visual Studio Code editor and create a JavaScript file named **StringMethods.js**.



1.2 Enter the code below into the **StringMethods.js** file:

```
// Single quotes (' '), double quotes (" "), or template literals (``)
let singleQuotesString = 'Single Quotes String';
let doubleQuotesString = "Double Quotes String";
let templateLiteralString = `Template Literal String`;

console.log("Single Quotes String:", singleQuotesString);
console.log("Double Quotes String:", doubleQuotesString);
console.log("Template Literal String:", templateLiteralString);

// String Objects, Indexing
let myStringObject = new String("Hello, World!");

console.log("String Object:", myStringObject);

// Accessing individual characters using indexing
let firstCharacter = myStringLiteral[0];
let lastCharacter = myStringLiteral[myStringLiteral.length - 1];
console.log("First Character:", firstCharacter);
console.log("Last Character:", lastCharacter);

// String Properties
// Demonstrating string properties
let stringLength = myString.length;
let stringConstructor = myString.constructor;
let stringPrototype = myString.constructor.prototype;

console.log("String Length:", stringLength);
console.log("String Constructor:", stringConstructor);
console.log("String Prototype:", stringPrototype);

// String Methods
// 1. charAt() - Returns the character at the specified index
let charAtIndex = myString.charAt(7);
console.log("Character at Index 7:", charAtIndex);

// 2. charCodeAt() - Returns the Unicode value of the character at the specified index
let charCodeAtIndex = myString.charCodeAt(7);
console.log("Unicode of Character at Index 7:", charCodeAtIndex);

// 3. concat() - Concatenates two or more strings
let additionalString = " Have a great day!";
let concatenatedString = myString.concat(additionalString);
```

```
console.log("Concatenated String:", concatenatedString);

// 4. indexOf() - Find the index of a specific character or substring
let indexOfComma = myString.indexOf(",");
console.log("Index of comma:", indexOfComma);

// 5. lastIndexOf() - Returns the index of the last occurrence of a specified value in a string
let lastIndexOfSpace = myString.lastIndexOf(" ");
console.log("Last Index of Space:", lastIndexOfSpace);

// 6. search() - Searches a string for a specified value and returns the position of the match
let searchResult = myString.search("World");
console.log("Search Result for 'World':", searchResult);

// 7. match() - Retrieves the result of matching a string against a regular expression
let matchResult = myString.match(/o/g);
console.log("Match Result for 'o':", matchResult);

// 8. replace() - Replaces a substring with another string
let replacedString = myString.replace("World", "Universe");
console.log("Replaced String:", replacedString);

// 9. substr() - Extracts a specified number of characters from a string, starting at a specified index
let substrResult = myString.substr(7, 5);
console.log("Substring Result:", substrResult);

// 10. substring() - Extracts characters from a string, between two specified indices
let substringResult = myString.substring(7, 12);
console.log("Substring Result:", substringResult);

// 11. slice() - Extracts a section of a string and returns it as a new string
let slicedString = myString.slice(7, 12);
console.log("Sliced String:", slicedString);

// 12. toLowerCase() - Converts a string to lowercase
let lowerCaseString = myString.toLowerCase();
console.log("Lowercase String:", lowerCaseString);
```

```

// 13. toLocaleLowerCase() - Converts a string to lowercase, according to the host's
locale
let localeLowerCaseString = myString.toLocaleLowerCase();
console.log("Locale Lowercase String:", localeLowerCaseString);

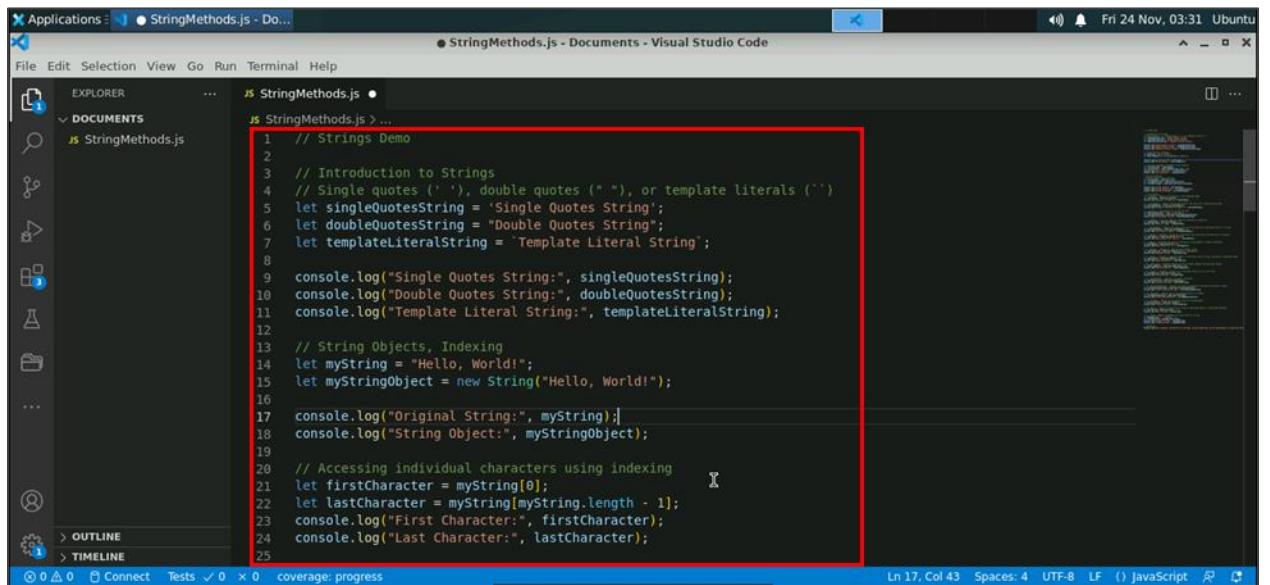
// 14. toString() - Returns the string representation of an object
let stringRepresentation = myString.toString();
console.log("String Representation:", stringRepresentation);

// 15. valueOf() - Returns the primitive value of a String object
let primitiveValue = myString.valueOf();
console.log("Primitive Value:", primitiveValue);

// 16. split() - Splits a string into an array of substrings based on a specified separator
let splitString = myString.split(", ");
console.log("Split String:", splitString);

// 17. trim() - Removes whitespace from both ends of a string
let spacedString = " Trim Me ";
let trimmedString = spacedString.trim();
console.log("Original String:", spacedString);
console.log("Trimmed String:", trimmedString);

```



The screenshot shows the Visual Studio Code interface with the following details:

- Title Bar:** Applications - StringMethods.js - Do... | StringMethods.js - Documents - Visual Studio Code | Fri 24 Nov, 03:31 | Ubuntu
- File Menu:** File Edit Selection View Go Run Terminal Help
- Explorer Bar:** DOCUMENTS (StringMethods.js)
- Editor Area:** The code editor displays the following JavaScript code, with lines 17 through 24 highlighted by a red box:

```

17 // Accessing individual characters using indexing
18 let firstCharacter = myString[0];
19 let lastCharacter = myString[myString.length - 1];
20 console.log("First Character:", firstCharacter);
21 console.log("Last Character:", lastCharacter);
22

```
- Bottom Status Bar:** Ln 17, Col 43 | Spaces: 4 | UTF-8 | LF | () JavaScript | Coverage: progress

A screenshot of the Visual Studio Code interface. The title bar says "StringMethods.js - Do...". The menu bar includes File, Edit, Selection, View, Go, Run, Terminal, Help. The left sidebar has an Explorer icon, DOCUMENTS folder containing "StringMethods.js", and icons for Search, Open, Save, and others. The main area shows the code for "StringMethods.js":

```
84 console.log("Lowercase String:", lowerCaseString);
85
86 // 13. toLocaleLowerCase() - Converts a string to lowercase, according to the host's locale
87 let localeLowerCaseString = myString.toLocaleLowerCase();
88 console.log("Locale Lowercase String:", localeLowerCaseString);
89
90 // 14. toString() - Returns the string representation of an object
91 let stringRepresentation = myString.toString();
92 console.log("String Representation:", stringRepresentation);
93
94 // 15. valueOf() - Returns the primitive value of a String object
95 let primitiveValue = myString.valueOf();
96 console.log("Primitive Value:", primitiveValue);
97
98 // 16. split() - Splits a string into an array of substrings based on a specified separator
99 let splitString = myString.split(",");
100 console.log("Split String:", splitString);
101
102 // 17. trim() - Removes whitespace from both ends of a string
103 let spacedString = " Trim Me ";
104 let trimmedString = spacedString.trim();
105 console.log("Original String:", spacedString);
106 console.log("Trimmed String:", trimmedString);
107
```

The code from line 84 to 106 is highlighted with a red rectangle. The status bar at the bottom shows "Ln 107, Col 1 Spaces: 4 UTF-8 LF () JavaScript".

1.3 Save the file and execute the command given below in the terminal to run it:

node StringMethods.js

A screenshot of the Visual Studio Code interface. The title bar says "StringMethods.js - Do...". The menu bar includes File, Edit, Selection, View, Go, Run, Terminal, Help. The left sidebar has an Explorer icon, DOCUMENTS folder containing "StringMethods.js", and icons for Search, Open, Save, and others. The right side shows the terminal tab with the command "node StringMethods.js" entered and its output displayed:

```
● labuser@ubuntu2204:~/Documents/ node StringMethods.js
Single Quotes String: Single Quotes String
Double Quotes String: Double Quotes String
Template Literal String: Template Literal String
Original String: Hello, World!
String Object: [String: 'Hello, World!']
First Character: H
Last Character: !
String Length: 13
String Constructor: [Function: String]
String Prototype: {}
Character at Index 7: W
Unicode of Character at Index 7: 87
Concatenated String: Hello, World! Have a great day!
Index of comma: 5
Last Index of Space: 6
Search Result for 'World': 7
Match Result for 'o': [ 'o', 'o' ]
Replaced String: Hello, Universe!
Substring Result: World
Substring Result: World
Sliced String: World
Lowercase String: hello, world!
Locale Lowercase String: hello, world!
String Representation: Hello, World!
Primitive Value: Hello, World!
Split String: [ 'Hello', 'World!' ]
Original String: Trim Me
Trimmed String: Trim Me
labuser@ubuntu2204:~/Documents$
```

The command "node StringMethods.js" is highlighted with a red box. The status bar at the bottom shows "Ln 93, Col 1 Spaces: 4 UTF-8 LF () JavaScript".

The provided code demonstrates string creation with various quotes and explores properties like length. It uses string methods for manipulation, including indexing, searching, and case conversion in JavaScript.

By following the above steps, you have successfully demonstrated the usage of diverse string creation methods and properties, such as length, and various manipulation techniques for effective string handling in JavaScript.