**JavaScript String Functions**

In automation testing, JavaScript string functions are widely used for **validation, assertions, and manipulating test data**. Below is a table with some essential string functions, their explanations, and examples.

Let name =”My name”

| **Function** | **Description** | **Example** | **Output** |
| --- | --- | --- | --- |
| Length | Returns the length of the string. | let str = "Automation"; console.log(str.length); | 10 |
| toLowerCase() | Converts all characters to lowercase. Useful for case-insensitive comparisons. | console.log("TESTING".toLowerCase()); | "testing" |
| toUpperCase() | Converts all characters to uppercase. | console.log("testing".toUpperCase()); | "TESTING" |
| trim() | Removes leading and trailing spaces. Useful for form input validation. | console.log(" test ".trim()); | "test" |
| includes(substring) | Checks if a string contains a specific substring. Used for assertions. | console.log("Automation Testing".includes("Test")); | true |
| startsWith(substring) | Checks if a string starts with a specific substring. | console.log("Selenium".startsWith("Sel")); | true |
| endsWith(substring) | Checks if a string ends with a specific substring. | console.log("Cypress".endsWith("ess")); | true |
| indexOf(substring) | Returns the position of the first occurrence of a substring. Returns -1 if not found. | console.log("JavaScript".indexOf("Script")); | 4 |
| lastIndexOf(substring) | Returns the last occurrence of a substring. | console.log("Test automation test".lastIndexOf("test")); | 16 |
| charAt(index) | Returns the character at the specified index. | console.log("Selenium".charAt(2)); | "l" |
| slice(start, end) | Extracts part of a string from start to end (excluding end). | console.log("Automation".slice(0, 4)); | "Auto" |
| substring(start, end) | Similar to slice(), but doesn't accept negative values. | console.log("Testing".substring(1, 4)); | "est" |
| split(separator) | Splits a string into an array based on a separator. | console.log("Selenium,Cypress,Playwright".split(",")); | ["Selenium", "Cypress", "Playwright"] |
| replace(old, new) | Replaces the first occurrence of a substring with another. | console.log("I love Selenium".replace("Selenium", "Cypress")); | "I love Cypress" |
| replaceAll(old, new) | Replaces all occurrences of a substring with another. | console.log("Test Test Test".replaceAll("Test", "Run")); | "Run Run Run" |
| match(regex) | Matches a string against a regular expression and returns an array. | console.log("123ABC".match(/\d+/)); | ["123"] |
| search(regex) | Searches for a pattern and returns the index of the first match. | console.log("ABC123".search(/\d/)); | 3 |
| concat(str2, str3, ...) | Joins multiple strings together. | console.log("Test".concat(" Automation")); | "Test Automation" |
| repeat(n) | Repeats a string n times. Useful for test data generation. | console.log("Test ".repeat(3)); | "Test Test Test " |

**Usage in Automation Testing**

1. **Validating Text in UI**:

let actualText = "Welcome to Automation";

expect(actualText.includes("Automation")).toBe(true);

1. **Handling Dynamic Strings**:

let username = "User123";

expect(username.startsWith("User")).toBe(true);

1. **Trimming Input Fields**:

let inputValue = " TestUser ";

expect(inputValue.trim()).toBe("TestUser");