

CSE-465

Web Programming

JavaScript String & Array

[Reference](#)
[More Details](#)

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String

```
let s = "Hello World";  
  
console.log(s.length); //11
```

See all String methods: https://www.w3schools.com/jsref/jsref_obj_string.asp

String Methods

Method	Description
<u>slice()</u>	Extracts a part of a string and returns a new string
<u>startsWith()</u>	Checks whether a string begins with specified characters
<u>endsWith()</u>	Checks whether a string ends with specified string/characters
<u>includes()</u>	Checks whether a string contains the specified string/characters
<u>replace()</u>	Searches a string for a specified value, or a regular expression, and returns a new string where the specified values are replaced
<u>split()</u>	Splits a string into an array of substrings
<u>toLowerCase()</u>	Converts a string to lowercase letters
<u>toUpperCase()</u>	Converts a string to uppercase letters
<u>trim()</u>	Removes whitespace from both ends of a string
<u>repeat()</u>	Returns a new string with a specified number of copies of an existing string
<u>charCodeAt()</u>	Returns the Unicode of the character at the specified index
<u>indexOf()</u>	Returns the position of the first found occurrence of a specified value in a string
<u>fromCharCode()</u>	Converts Unicode values to characters

See all String methods: https://www.w3schools.com/jsref/jsref_obj_string.asp

Array

```
let arr = [1, 2, 3];  
  
console.log(arr.length); //3
```

Array Methods

Method	Description
<u>push()</u>	Adds new elements to the end of an array, and returns the new length
<u>pop()</u>	Removes the last element of an array, and returns that element
<u>shift()</u>	Removes the first element of an array, and returns that element
<u>unshift()</u>	Adds new elements to the beginning of an array, and returns the new length
<u>splice()</u>	Adds/Removes elements from an array
<u>includes()</u>	Check if an array contains the specified element
<u>sort()</u>	Sorts the elements of an array
<u>reverse()</u>	Reverses the order of the elements in an array
<u>join()</u>	Joins all elements of an array into a string

See all Array methods: https://www.w3schools.com/jsref/jsref_obj_array.asp

Array Concatenation

Spread Operator

We can create array from another array very easily using the ... operator

```
let arr1 = [1, 2, 3];
```

```
let arr2 = [4, 5, 6];
```

```
let arr3 = [...arr1, ...arr2];
```

```
let arr4 = [10, 20, ...arr1, 50, 60, ...arr2];
```

Anonymous Functions

We can create function without a name and assign it to a variable

```
function add(x, y) {  
    return x + y;  
}
```

Can also be written as:

```
let add = function (x, y) {  
    return x + y;  
}
```

Shorthand arrow (=>) notation

We can also omit the function keyword

```
let add = function (x, y) {  
    return x + y;  
}
```

Can also be written as:

```
let add = (x, y) => {  
    return x + y;  
}
```


Shorthand arrow (\Rightarrow) notation

If the body is a single line, the brackets and return statement can be omitted.

```
let add = (x, y) => {  
    return x + y;  
}
```

Can also be written as:

```
let add = (x, y) => x + y;
```

Of course, if it has multiple lines, we can put them inside braces.

```
let add = (x, y) => { x = x + 10; return x + y };
```

Array Advanced Methods

Method	Description
<u>filter()</u>	Creates a new array with every element in an array that pass a test
<u>map()</u>	Creates a new array with the result of calling a function for each array element
<u>some()</u>	Checks if any of the elements in an array pass a test
<u>every()</u>	Checks if every element in an array pass a test
<u>forEach()</u>	Calls a function for each array element

See all Array methods: https://www.w3schools.com/jsref/jsref_obj_array.asp

String Practice Problem

1. Write a JavaScript function to split a string and convert it into an array of words.
2. Write a JavaScript function to extract first four characters from a string.
3. Write a JavaScript function to convert a string in abbreviated form. (Md. Saiful Islam => M.S.I.)
4. Write a JavaScript function to hide email addresses to protect from unauthorized user. (saiful.islam@gmail.com => saif*****@gmail.com)
5. Write a JavaScript function to put hyphen between the words of a string. (Bangladesh is a country => Bangladesh-is-a-country)
6. Write a JavaScript function to capitalize the first letter of each words of a string.
7. Write a JavaScript function that takes a string which has lower and upper case letters as a parameter and converts upper case letters to lower case, and lower case letters to upper case.
8. Write a JavaScript function to concatenates a given string n times (default is 1)

More:

<https://www.w3resource.com/javascript-exercises/javascript-string-exercises.php>

Array Practice Problem

1. Write a JavaScript function to get the last element of an array.
2. Write a simple JavaScript program to join all elements of the following array into a string.
3. Write a JavaScript program to sort the items of an array in descending order.
4. Write a JavaScript program to find the sum of all the items.
5. Write a JavaScript program to double all the elements in an array.
6. Write a JavaScript program to double all the elements in an array.
7. Write a JavaScript program to find all the elements greater than 5 in an array.
8. Write a JavaScript program to remove duplicate items from an array.

More:

<https://www.w3resource.com/javascript-exercises/javascript-array-exercises.php>

For Loop

```
let i, text;
```

```
for (i = 0; i < cars.length; i++)  
{  
  text += cars[i] + "<br>";  
}
```

Read more:

https://www.w3schools.com/js/js_loop_for.asp

For ... of loop

We can quickly traverse through an array using this

```
let arr = [10, 20, 30];  
  
for (let i of arr)  
{  
    console.log(i);  
}
```

Read more:

https://www.w3schools.com/js/js_loop_for.asp

querySelectorAll()

```
let x, i;  
x = document.querySelectorAll("p"); //select ALL p  
  
for (i = 0; i < x.length; i++)  
{  
    x[i].style.backgroundColor = "red";  
}
```