Article 8 – Array

In JavaScript, arrays are not a primitive data type but are instead Array objects.

**Initializing an Array**

There are three ways to initialize an array:

1) Array Literal

let numbers = [1, 2, 3, 4, 5]

2) Array Constructor (Declare, then initialize)

let numbers = new Array(5)  
 numbers = [1, 2, 3, 4, 5]

3) Array Constructor (Declare and initialize)

let numbers = new Array(1, 2, 3, 4, 5)

**Important Properties and Methods**

1) array.length 🡪 A property (not method) that returns the number of elements.

2) array.push(x) 🡪 Inserts one or more elements at the end and returns its new length.

3) array.pop() 🡪 Removes the last element and returns it.

4) array.shift() 🡪 Removes the first element and returns it.

5) array.unshift(x) 🡪 Adds one or more elements at the start.

6) array.slice(a, b) 🡪 Returns a copy of the array from indices a(inc) to b(exc).

7) array.splice(start, delete, a, b,… n) 🡪 Modifies the original array by adding/removing/replacing elements.  
start: Required. Index to start from (Inclusive).  
delete: Optional. Count to delete (if omitted, all elements are deleted start onwards)  
a, b,… n: Optional. Elements to add to the array from “start” onwards (only deletes elements if none given).

8) array.map() 🡪 Creates a new array by applying a callback function to each element of the original array.

9) array.filter() 🡪 Creates a new array consisting only of those elements that pass a given test.

10) array.reduce(callback, init) 🡪 Reduces the array to a single value by applying a callback function to each element successively.

callback: Required. Takes 4 arguments.   
(i) accumulator: Required. The accumulated single result that is returned  
(ii) curr: Required. The current element being processed  
(iii) idx: Optional. The index of the current element being processed  
(iv) arr: Optional. The original array itself

init: Optional. The initial value of the accumulator that is to be used. If omitted, the first element of the array is taken as the initial value, and iteration starts from the second element.

11) array.forEach() 🡪 Executes a given function once for each element of the array. Does not return a new array

12) array.indexOf(search, idx) 🡪 Returns the index of “search” in the array from index “idx” (optional) onwards. If not found, returns -1.

13) array.find() 🡪 Returns the first element that satisfies a provided function test.

14) array.findIndex() 🡪 Returns the index of the first element that satisfies a provided function test.

15) array.includes() 🡪 Check if an array contains a specified value and returns a Boolean value.

16) array.sort(compareFunc(a,b)) 🡪 Sorts the elements of the array. If the compare function returns a -ve value, then a comes before b, and vice versa.

If the compare function is omitted, the elements are converted into strings and then compared.

17) array1.concat(array2) 🡪 Returns a new array which is a concatenation of the first one with the second one.