JavaScript

Array Methods

1) length :It gives gives length of array elements .length property in JavaScript counts from 1

```
 1) Example: with strings in array
 const colors = ["red", "green", "blue"];
 console.log(colors.length);

 Output: 3
-----------------------------------------------------------------------
 2) Example : with numbers

 const num = [20,30,40,50,60]
 console.log(num.length)

 Output: 5
-----------------------------------------------------------------------


 3) Example: with forloop
 const fruits = ["apple", "banana", "cherry"];

 for (let i = 0; i < fruits.length; i++) {
 console.log(fruits[i]);
 }

 Output:
 apple
 banana
 cherry
-----------------------------------------------------------------------
```

2)toString() : Converts all array elements to strings.
Joins them with commas.
Returns a single string.

```
 1) Example :
 const fruits = ["apple", "banana", "cherry"];
 const result = fruits.toString();
 console.log(result);

 Output:
 apple,banana,cherry
-----------------------------------------------------------------------

 2) Example :
 let numb = 42;
 console.log(numb.toString());

 Output:
 42
-----------------------------------------------------------------------

 3) Example : Nested Array
 var nested = [1, [2, 3], 4];
 console.log(nested.toString());

 Output
 1,2,3,4
-----------------------------------------------------------------------
```

3) .join(separator) method in JavaScript is used to join all
elements of an array into a single string,
using a custom separator.

```
1)Example

var elements = ["Fire", "Air", "Water"];
console.log(elements.join());    //   output Fire,Air,Water
console.log(elements.join(""));  //   output FireAirWater
console.log(elements.join("--"));// output Fire--Air--Water
```

4) To add elements in Arrays

- push() : it will add elements from last
- unshift() : it will add elements from beginning

```
1)Example:push()
var arr=['monday','tuesday','thursday','friday','saturday'];
arr.push("sunday");

console.log(arr)

Output:
['monday', 'tuesday', 'thursday', 'friday', 'saturday', 'sunday']

-----------------------------------------------------------------------
2)Example:push()

var arr2 = [10,20,30,40];
arr2.push(50,"sam",true);
console.log(arr2);

Output:
[10, 20, 30, 40, 50, 'sam', true]
-----------------------------------------------------------------------
```

```
3) Example:unshift()
const animals = ["bear","dear","lion"];
animals.unshift("tiger");

console.log(animals);

Output:
['tiger', 'bear', 'dear', 'lion']
-----------------------------------------------------------------------
4) Example:unshift()
var stud_marks = [30,40,60,90];
stud_marks.unshift(80,true);

console.log(stud_marks);

Output:
[80, true, 30, 40, 60, 90]
-----------------------------------------------------------------------
```

5) To remove elements from Arrays

- pop() : It will delete elements from last
- shift(): It will delete elements from beginning

```
 1)Example:pop()
  var shop =["headphone","mobile","charger","cover"];
  shop.pop();
  console.log(shop);

  Output:
  ['headphone', 'mobile', 'charger']

-----------------------------------------------------------------------
2)Example:shift()
  var shop =["headphone","mobile","charger","cover"];
  shop.shift();
  console.log(shop);

  Output:
  ["mobile", "charger","cover"]
-----------------------------------------------------------------------
```

6) slice() : it is used to extract some part of data
syntax : **array.slice(startIndex, endIndex)**

- startIndex (required): The index at which to start the extraction
- endIndex (optional): The index at which to end the extraction

```
1) Example:
var arr = ["hello world"];

console.log(arr[0].slice(0,5)) // it will take only hello

-----------------------------------------------------------------------
2)Example:
var arr2 = [10,20,30,40,50]
// take out data from 20 to 40
console.log(arr2.slice(1,4)) // [20,30,40]

-----------------------------------------------------------------------


3)Example:
 var arr3 =[
    10,20,30,"sam","john","alan",40,50
];

// take out sam john alan
   console.log(arr3.slice(3,6));

Output
['sam', 'john', 'alan']
-----------------------------------------------------------------------
```

7) splice(): method in JavaScript. It's a powerful way to modify an array by adding, removing, or replacing elements.
syntax: **array.splice(startIndex, deleteCount, item1, item2, ..., itemN)**

- startIndex: The index at which to start modifying the array.
- deleteCount (optional): The number of elements to remove.
- item1, item2, ..., itemN (optional): The elements to add to the array, starting at startIndex.

```
1)Example :
let fruits = ["apple", "banana", "cherry", "date"];
fruits.splice(2,0,"mango");
// it says go to index 2,delete 0 data, and at 2 pos add mango

console.log(fruits);

Output:
['apple', 'banana', 'mango', 'cherry', 'date']
-----------------------------------------------------------------------
2)Example:
let fruits = ["apple", "banana", "cherry", "date"];
fruits.splice(2,1,"mango");
// it says go to index 2,delete 1 data i.e cherry, and instead of cherry add mango
```

```
console.log(fruits);

Output:
['apple', 'banana', 'mango', 'date']
-----------------------------------------------------------------------
3)Example
let fruits = ["apple", "banana", "cherry", "date"];
fruits.splice(0,1,"mango","plum");
// it says go to index 0,delete 1 data i.e apple, and instead of apple add mango plum

console.log(fruits);

Output:
['mango','plum', 'banana', 'cherry', 'date']
-----------------------------------------------------------------------
```

8).concat() method in JavaScript is used to merge two or more arrays into a new array.
It does not change the original arrays but instead returns a new one.

```
1)Example :
const data_one=["john","xavier"];
const data_two=[10,20,30];
const data_three=[true,false];

const res = data_one.concat(data_two,data_three);
console.log(res);

Output:
['john', 'xavier', 10, 20, 30, true, false]
```

9) .reverse() method is used to reverse the order of the elements in an array.

```
1) Example:
var data = ["shoes","t-shirt","shirt","jeans","flip-flop"];
console.log(data.reverse());

Output:
['flip-flop', 'jeans', 'shirt', 't-shirt', 'shoes']
```

10) .sort() method sorts the elements of an array in place and returns the sorted array.

```
1) Example: with string
const fruits = ["banana", "apple", "cherry"];
fruits.sort();

console.log(fruits);
```

Output:

```
["apple", "banana", "cherry"];
-----------------------------------------------------------------------
```

2) Example with numbers

```
const nums = [10,100,20,30,800]
nums.sort();
console.log(nums);
```

Output:

```
[10, 100, 20, 30, 800] // it will not sort
-----------------------------------------------------------------------
```

```
// to sort with number we need compare function
```

Example with compare function for ascending order

```
const nums = [10,100,20,30,800];
nums.sort(function(a,b){
    return a - b // a-b  ascending order
})

console.log(nums);
```

Example with compare function for descending order

```
const nums = [10,100,20,30,800];
nums.sort(function(a,b){
    return b - a // b-a  descending order
})

console.log(nums);
```

Output:

```
[800, 100, 30, 20, 10]
```