JavaScript

Arrays in JavaScript

- An Array is an object type designed for storing data collections.

- It is often used when we want to store a list of elements and access them by a single variable.

Key characteristics of JavaScript arrays are:

- **Elements:** An array is a list of values, known as elements.

- **Ordered:** Array elements are ordered based on their index.

- **Zero indexed:** The first element is at index 0, the second at index 1, and so on.

- **Dynamic size:** Arrays can grow or shrink as elements are added or removed.

- **Heterogeneous:** Arrays can store elements of different data types (numbers, strings, objects and other arrays).

JavaScript

Arrays in JavaScript

- **JavaScript array is a single variable that is used to store different elements.**

- **It is often used when we want to store a list of elements and access them by a single variable.**

- **Unlike most languages where the array is a reference to the multiple variables, in JavaScript, an array is a single variable that stores multiple elements.**

Declaration of an Array:

There are basically two ways to declare an array.

Syntax:

- **Const arrayName = [value1, value2, ...];   // Method 1**

- **const arrayName = new Array(value1, value2, ...); // Method 2**

JavaScript

Arrays in JavaScript

- **Example: Initialization of an Array according to method 1.**

// Initializing while declaring

- **var house = ["1BHK", "2BHK", "3BHK", "4BHK"];**

Example: Initialization of an Array according to method 2.

```
// Initializing while declaring
// Creates an array having elements 10, 20, 30,
var house = new Array(10, 20, 30, 40, 50);

// Creates an array of 5 undefined elements
var house1 = new Array(5);

// Creates an array with element 1BHK
```

```
Output:

[10, 20, 30, 40, 50]
[undefined, undefined, undefined, undefined, undefined]
["1BHK"]
```

JavaScript

Arrays in JavaScript

```javascript
// Creates an array of 4 undefined elements
var house1 = new Array(4);

// Now assign values
house1[0] = "1BHK"
house1[1] = "2BHK"
house1[2] = "3BHK"
house1[3] = "4BHK"
console.log(house1)
```

Output:

```
["1BHK", "2BHK", "3BHK", "4BHK"]
```

JavaScript

Arrays in JavaScript

```javascript
var animal = ["Lion", "Tiger", "Cat", "Dog"];
document.write(animal + "<br>");
animal[0] = "Elephant";
document.write(animal);
```

Output

Lion,Tiger,Cat,Dog
Elephant,Tiger,Cat,Dog

JavaScript

Arrays in JavaScript

```
//Arrays
var animal = ["Lion", "Tiger", "Cat", "Dog"];
var x = animal.length;
document.write(x);
```

Output

4

JavaScript

Arrays in JavaScript

```javascript
var animal = ["Lion", "Tiger", "Cat", "Dog", "Fox"];
var x = animal.length;

for(var i=0; i<x; i++){
    document.write(
        animal[i] + "<br>"
    );
}
```

Output

Lion
Tiger
Cat
Dog
Fox

JavaScript

Arrays in JavaScript

```javascript
//Arrays
var animal = ["Lion", "Tiger", "Cat", "Dog"];

animal.push("Fox");

document.write(animal);
```

Output

Lion,Tiger,Cat,Dog,Fox

JavaScript

Arrays in JavaScript

```
//Arrays
var animal = ["Lion", "Tiger", "Cat", "Dog"];

animal.push("Fox", "Elephant", "Cheetah");

document.write(animal);
```

Output

Lion,Tiger,Cat,Dog,Fox,Elephant,Cheetah

JavaScript

Arrays in JavaScript

```
//Arrays
var animal = ["Lion", "Tiger", "Cat", "Dog", "Fox"]

animal.shift();

document.write(animal);
```

Output

Tiger,Cat,Dog,Fox

```
let fruits = ["apple", "banana", "orange", "grape"];

let removedFruit = fruits.shift();

console.log(removedFruit); // Output: "apple"
console.log(fruits);       // Output: ["banana", "orange", "grape"]
```

JavaScript

Arrays in JavaScript

```
//Arrays
var animal = ["Lion", "Tiger", "Cat", "Dog", "Fox"]

animal.pop();

document.write(animal);
```

Output

Lion,Tiger,Cat,Dog

JavaScript

Arrays in JavaScript

```
//Arrays
var animal = ["Lion", "Tiger", "Cat", "Dog", "Fox"]

animal.splice(2, 1);

document.write(animal);
```

Output

Lion,Tiger,Dog,Fox

JavaScript

Arrays in JavaScript

```
//Arrays
var animal = ["Lion", "Tiger", "Cat", "Dog", "Fox"]

animal.sort();

document.write(animal);
```

Output

Cat,Dog,Fox,Lion,Tiger

JavaScript

sort method in JavaScript

```
//Arrays
var number = [20, 50, 40, 90, 10];

number.sort();

document.write(number);
```

Output

10,20,40,50,90

JavaScript

concat method in JavaScript

```javascript
const myGirls = ["Cecilie", "Lone"];
const myBoys = ["Emil", "Tobias", "Linus"];

const myChildren = myGirls.concat(myBoys);
```

Output

Cecilie,Lone,Emil,Tobias,Linus

JavaScript

Arrays in JavaScript

```
1  //Arrays
2  var number = [20, 50, 40, 90, 10];
3
4
5
6  document.write(number[0] + number[3]);
```

Output

110

JavaScript

MathObject in JavaScript

```
1  //Math Object
2
3  var a = 9;
4
5  document.write(Math.sqrt(a));
```

Output

3

JavaScript

MathObject in JavaScript

```
//Math Object

var a = -15;

document.write(Math.abs(a));
```

Output

15

JavaScript

MathObject in JavaScript

```
//Math Object

var a = -15;

document.write(Math.min(10, 3, 7, 50));
```

Output

3

JavaScript

MathObject in JavaScript

```
//Math Object

var a = -15;

document.write(Math.max(10, 3, 7, 50));
```

Output

50

JavaScript

MathObject in JavaScript

```
//Math Object

var a = 5.3;

document.write(Math.floor(a));
```

Output

5

JavaScript

MathObject in JavaScript

```
//Math Object

var a = 6.9;

document.write(Math.ceil(a));
```

Output

7

JavaScript

MathObject in JavaScript

```
//Math Object

var a = 5.4;

document.write(Math.round(a));
```

Output

5

JavaScript

MathObject in JavaScript

```
//Math Object

document.write(Math.random());
```

Output

0.34576591175779603

JavaScript

function in JavaScript

```
//Functions
function greetings(){
    document.write("Good morning" + "<br>");
}

greetings();
greetings();
```

Output

Good morning
Good morning

JavaScript

function in JavaScript

```javascript
//Functions
function greetings(name){
    document.write("Good morning "+ name + "<br>");
}

greetings("John");
greetings("Smith");
```

Output

Good morning John
Good morning Smith

Thank You

...........Any Question?