

Array.prototype.slice()

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The **slice()** method returns a shallow copy of a portion of an array into a new array object selected from *begin* to *end* (*end* not included). The original array will not be modified.

JavaScript Demo: Array.slice()

```
1 var animals = ['ant', 'bison', 'camel', 'duck', 'elephant'];
2
3 console.log(animals.slice(2));
4 // expected output: Array ["camel", "duck", "elephant"]
5
6 console.log(animals.slice(2, 4));
7 // expected output: Array ["camel", "duck"]
8
9 console.log(animals.slice(1, 5));
10 // expected output: Array ["bison", "camel", "duck", "elephant"]
11
```


Syntax

```
arr.slice([begin [, end]])
```

Parameters

begin Optional

Zero-based index at which to begin extraction.

A negative index can be used, indicating an offset from the end of the sequence. `slice(-2)` extracts the last two elements in the sequence.

If *begin* is undefined, `slice` begins from index 0.

If *begin* is greater than the length of the sequence, an empty array is returned.

end Optional

Zero-based index *before* which to end extraction. `slice` extracts up to but not including *end*.

For example, `slice(1,4)` extracts the second element through the fourth element (elements indexed 1, 2, and 3).

A negative index can be used, indicating an offset from the end of the sequence. `slice(2,-1)` extracts the third element through the second-to-last element in the

sequence.

If `end` is omitted, `slice` extracts through the end of the sequence (`arr.length`).

If `end` is greater than the length of the sequence, `slice` extracts through to the end of the sequence (`arr.length`).

Return value

A new array containing the extracted elements.

Description

`slice` does not alter the original array. It returns a shallow copy of elements from the original array. Elements of the original array are copied into the returned array as follows:

- For object references (and not the actual object), `slice` copies object references into the new array. Both the original and new array refer to the same object. If a referenced object changes, the changes are visible to both the new and original arrays.
- For strings, numbers and booleans (not `String`, `Number` and `Boolean` objects), `slice` copies the values into the new array. Changes to the string, number or boolean in one array do not affect the other array.

If a new element is added to either array, the other array is not affected.

Examples

Return a portion of an existing array

```
1 var fruits = ['Banana', 'Orange', 'Lemon', 'Apple', 'Mango'];
2 var citrus = fruits.slice(1, 3);
3
4 // fruits contains ['Banana', 'Orange', 'Lemon', 'Apple', 'Mango']
5 // citrus contains ['Orange', 'Lemon']
```

Using `slice`

In the following example, `slice` creates a new array, `newCar`, from `myCar`. Both include a reference to the object `myHonda`. When the color of `myHonda` is changed to purple, both arrays reflect the change.

```
1 // Using slice, create newCar from myCar.
2 var myHonda = { color: 'red', wheels: 4, engine: { cylinders: 4, size: 2.2 } };
3 var myCar = [myHonda, 2, 'cherry condition', 'purchased 1997'];
4 var newCar = myCar.slice(0, 2);
5
6 // Display the values of myCar, newCar, and the color of myHonda
7 // referenced from both arrays.
8 console.log('myCar = ' + JSON.stringify(myCar));
9 console.log('newCar = ' + JSON.stringify(newCar));
10 console.log('myCar[0].color = ' + myCar[0].color);
11 console.log('newCar[0].color = ' + newCar[0].color);
12
13 // Change the color of myHonda.
14 myHonda.color = 'purple';
15 console.log('The new color of my Honda is ' + myHonda.color);
16
17 // Display the color of myHonda referenced from both arrays.
18 console.log('myCar[0].color = ' + myCar[0].color);
19 console.log('newCar[0].color = ' + newCar[0].color);
```

This script writes:

```

1 myCar = [{color: 'red', wheels: 4, engine: {cylinders: 4, size: 2.2}}, 2,
2         'cherry condition', 'purchased 1997']
3 newCar = [{color: 'red', wheels: 4, engine: {cylinders: 4, size: 2.2}}, 2]
4 myCar[0].color = red
5 newCar[0].color = red
6 The new color of my Honda is purple
7 myCar[0].color = purple
8 newCar[0].color = purple

```

Array-like objects

slice method can also be called to convert Array-like objects / collections to a new Array. You just bind the method to the object. The arguments inside a function is an example of an 'array-like object'.

```

1 function list() {
2     return Array.prototype.slice.call(arguments);
3 }
4
5 var list1 = list(1, 2, 3); // [1, 2, 3]

```

Binding can be done with the .call function of Function.prototype and it can also be reduced using [].slice.call(arguments) instead of Array.prototype.slice.call. Anyway, it can be simplified using bind.

```

1 var unboundSlice = Array.prototype.slice;
2 var slice = Function.prototype.call.bind(unboundSlice);
3
4 function list() {
5     return slice(arguments);
6 }
7
8 var list1 = list(1, 2, 3); // [1, 2, 3]

```

Streamlining cross-browser behavior

Although host objects (such as DOM objects) are not required by spec to follow the Mozilla behavior when converted by Array.prototype.slice and IE < 9 does not do so, versions of IE starting with version 9 do allow this. "Shimming" it can allow reliable cross-browser behavior. As long as other modern browsers continue to support this ability, as currently do IE, Mozilla, Chrome, Safari, and Opera, developers reading (DOM-supporting) slice code relying on this shim will not be misled by the semantics; they can safely rely on the semantics to provide the now apparently *de facto* standard behavior. (The shim also fixes IE to work with the second argument of slice() being an explicit null/undefined value as earlier versions of IE also did not allow but all modern browsers, including IE >= 9, now do.)

```

1 /**
2  * Shim for "fixing" IE's lack of support (IE < 9) for applying slice
3  * on host objects like NamedNodeMap, NodeList, and HTMLCollection
4  * (technically, since host objects have been implementation-dependent,
5  * at least before ES2015, IE hasn't needed to work this way).
6  * Also works on strings, fixes IE < 9 to allow an explicit undefined
7  * for the 2nd argument (as in Firefox), and prevents errors when
8  * called on other DOM objects.
9  */
10 (function () {
11     'use strict';
12     var _slice = Array.prototype.slice;
13
14     try {
15         // Can't be used with DOM elements in IE < 9
16         _slice.call(document.documentElement);
17     } catch (e) { // Fails in IE < 9

```

```

18 // This will work for genuine arrays, array-like objects,
19 // NamedNodeMap (attributes, entities, notations),
20 // NodeList (e.g., getElementsByTagName), HTMLCollection (e.g., childNodes),
21 // and will not fail on other DOM objects (as do DOM elements in IE < 9)
22 Array.prototype.slice = function(begin, end) {
23     // IE < 9 gets unhappy with an undefined end argument
24     end = (typeof end !== 'undefined') ? end : this.length;
25
26     // For native Array objects, we use the native slice function
27     if (Object.prototype.toString.call(this) === '[object Array]'){
28         return _slice.call(this, begin, end);
29     }
30
31     // For array like object we handle it ourselves.
32     var i, cloned = [],
33         size, len = this.length;
34
35     // Handle negative value for "begin"
36     var start = begin || 0;
37     start = (start >= 0) ? start : Math.max(0, len + start);
38
39     // Handle negative value for "end"
40     var upTo = (typeof end == 'number') ? Math.min(end, len) : len;
41     if (end < 0) {
42         upTo = len + end;
43     }
44
45     // Actual expected size of the slice
46     size = upTo - start;
47
48     if (size > 0) {
49         cloned = new Array(size);
50         if (this.charAt) {
51             for (i = 0; i < size; i++) {
52                 cloned[i] = this.charAt(start + i);
53             }
54         } else {
55             for (i = 0; i < size; i++) {
56                 cloned[i] = this[start + i];
57             }
58         }
59     }
60
61     return cloned;
62 };
63 }
64 }());

```

Specification	Status	Comment
ECMAScript 3rd Edition (ECMA-262)	<div><div></div><div>ST</div><div>Standard</div></div>	Initial definition. Implemented in JavaScript 1.2.
ECMAScript 5.1 (ECMA-262) The definition of 'Array.prototype.slice' in that specification.	<div><div></div><div>ST</div><div>Standard</div></div>	
ECMAScript 2015 (6th Edition, ECMA-262) The definition of 'Array.prototype.slice' in that specification.	<div><div></div><div>ST</div><div>Standard</div></div>	
ECMAScript Latest Draft (ECMA-262) The definition of 'Array.prototype.slice' in that specification.	<div><div></div><div>D</div><div>Draft</div></div>	

Category	Operating System	Number of Tables
Desktop	Windows	2
	macOS	2
	Linux	2
	FreeBSD	1
Mobile	Android	4
	iOS	4
	Windows	2
Server	Linux	1

Basic support													
1	Yes	1	Yes	Yes	Yes	Yes	Yes	Yes	Yes	4	Yes	Yes	Yes
<div>..</div>	Full support												

See also

- `Array.prototype.splice()`
- `Function.prototype.call()`
- `Function.prototype.bind()`