JS JavaScript TUTORIAL

Array.prototype.flatMap()

Summary: in this tutorial, you'll about the JavaScript Array `flatMap()` method that maps each element in an array using a mapping function and flattens the result into a new array.

Introduction to JavaScript Array flatMap() method

The `flatMap()` method works like chaining the map() method followed by the flat(1) method in a single call:

```
const newArray = array.map(callbackFn).flat(1);
```

The `flatMap()` method first maps each element in an array using a mapping function (`callbackFn`) and then flattens the results into a new array.

Here's the syntax of the `flatMap()` method:

```
let newArray = array.flatMap(callbackFn, thisArg);
```

The `flatMap()` method takes two parameters:

- `callbackFn` is the mapping function that has the same syntax as the one defined in the `map()` method:

1.

```
function callback(currentValue, index, array);
```

- `thisArg` argument is a value to use as `this` when inside the `callbackFn` function.

Note that the `flatMap()` method doesn't modify the original array.

JavaScript Array flatMap() examples

Let's take some examples of using the `flatMap()` method.

1) Basic JavaScript Array flatMap() method example

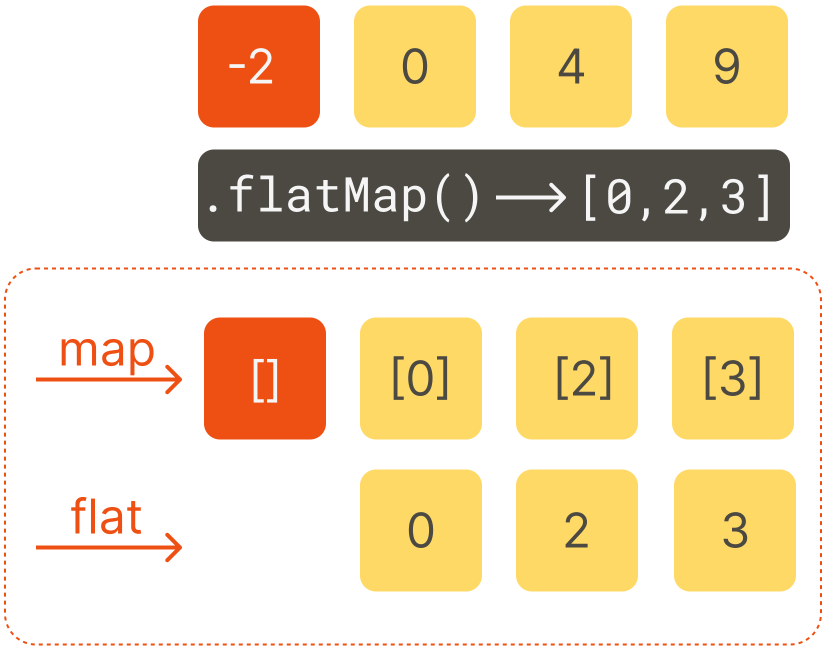
The following example uses the `flatMap()` method to calculate the square roots of positive numbers in an array:

```
const numbers = [-2, 0, 4, 9];
const results = numbers.flatMap((n) => (n >= 0 ? Math.sqrt(n) : []));

console.log({ results });
```

Output:

```
{ results: [ 0, 2, 3 ] }
```



How it works.

First, define an array that stores numbers both negative and positive numbers:

```
const numbers = [-2, 0, 4, 9];
```

Second, use the `flatMap()` method to map each positive number to its square root and a negative number to an empty array `[]`, and flatten the array into a single result:

```
const results = numbers.flatMap((n) => (n >= 0 ? [Math.sqrt(n)] : []));
```

Third, display the result to the console:

```
console.log({ results });
```

2) Extracting words from sentences

The following example uses the `flatMap()` method to create an array of words from sentences:

```
let sentences = [
  'JavaScript is good',
  'JavaScript is nice',
  'JavaScript is fun',
];

let words = sentences.flatMap((s) => s.split(' '));

console.log(words);
```

Output:

```
['JavaScript', 'is', 'good', 'JavaScript', 'is', 'nice',  'JavaScript', 'is', 'fun']
```

How it works.

First, define an array that stores sentences:

```
let sentences = [
  'JavaScript is good',
  'JavaScript is nice',
  'JavaScript is fun',
];
```

Second, use the `flatMap()` method to split each sentence into an array of words using the split() method, and flatten the arrays of words into a single array of words:

```
let words = sentences.flatMap((s) => s.split(' '));
```

Third, display the result in the console:

```
console.log(words);
```

3) Using the flatMap() method to process API responses

The following example shows how to use the `flatMap()` to process API response:

```
const posts = [
  { id: 1, tags: ['javascript'] },
  { id: 2, tags: ['react', 'react native'] },
  { id: 3, tags: ['redux', 'zustand'] },
];

const allTags = posts.flatMap((p) => p.tags);

console.log(allTags);
```

Output:

```
[ 'javascript', 'react', 'react native', 'redux', 'zustand' ]
```

How it works.

First, define an array of the `posts` that stores the API response:

```
const posts = [
  { id: 1, tags: ['javascript'] },
  { id: 2, tags: ['react', 'react native'] },
  { id: 3, tags: ['redux', 'zustand'] },
];
```

Second, use the `flatMap()` method to get the `tags` array from each post in the `posts` array and flatten the result array:

```
const allTags = posts.flatMap((p) => p.tags);
```

Third, display the `allTags` in the console:

```
console.log(allTags);
```

Summary

- Use the `flatMap()` method to create a new array by applying a mapping function to each element and flattening the result array with a depth of 1.