

map(), filter() reduce()

IN JAVASCRIPT



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1. map()

The `map()` method creates a new array by applying a function to each element of an existing array.

Key Features:

- Creates a new array.
- Calls a provided function once for each element in an array.
- Does not execute the function for empty elements.
- Does not change the original array.

```
● ● ●  
const numbers = [1, 2, 3, 4, 5];  
const doubledNumbers = numbers.map(number => number * 2);  
console.log(doubledNumbers); // Output: [2, 4, 6, 8, 10]
```



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2. filter()

The filter() method creates a new array containing all elements of the original array that pass a test (provided as a function).

- Creates a new array.
- Calls a provided function once for each element in an array.
- Includes only the elements that pass the test implemented by the provided function.
- Does not change the original array.

```
● ● ●  
const numbers = [1, 2, 3, 4, 5];  
const evenNumbers = numbers.filter(number => number %  
2 === 0);  
console.log(evenNumbers);
```



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3. reduce()

The `reduce()` method executes a reducer function on each element of the array, resulting in a single output value

- Executes a reducer function on each element of the array.
- Results in a single output value.
- Can take an initial value as the second argument (optional).
- Does not change the original array.

```
● ● ●  
const numbers = [1, 2, 3, 4, 5];  
const sum = numbers.reduce((accumulator, currentValue)  
  => accumulator + currentValue, 0);  
console.log(sum);
```



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Summary

- `map()`: Transforms each element in an array and returns a new array.
- Example: Doubling numbers.
- `filter()`: Filters elements based on a condition and returns a new array with elements that meet the condition.
- Example: Extracting even numbers.
- `reduce()`: Reduces the array to a single value based on a function.
- Example: Summing up numbers.



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