

## JavaScript Array Method Examples

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### 1. Array.forEach() - 5 Examples

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Example 1: Log each number

```
const nums = [1, 2, 3];  
nums.forEach(num => console.log(num));
```

Example 2: Sum of array elements

```
let sum = 0;  
nums.forEach(num => sum += num);  
console.log(sum); // 6
```

Example 3: Modify external array

```
const results = [];  
nums.forEach(num => results.push(num * 2));  
console.log(results); // [2, 4, 6]
```

Example 4: Print with index

```
nums.forEach((num, index) => console.log(index + ": " + num));
```

Example 5: Loop over array of objects

```
const users = [{name: "Alice"}, {name: "Bob"}];  
users.forEach(user => console.log(user.name));
```

### 2. Array.map() - 5 Examples

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Example 1: Square numbers

```
const squared = nums.map(num => num * num);
```

```
console.log(squared); // [1, 4, 9]
```

Example 2: Get lengths of strings

```
const names = ["Alice", "Bob"];  
  
const lengths = names.map(name => name.length);  
  
console.log(lengths); // [5, 3]
```

Example 3: Add greeting

```
const greetings = names.map(name => `Hello, ${name}`);  
  
console.log(greetings);
```

Example 4: Convert numbers to boolean

```
const bools = nums.map(num => Boolean(num));  
  
console.log(bools); // [true, true, true]
```

Example 5: Wrap elements in HTML tags

```
const htmlList = names.map(name => `<li>${name}</li>`);  
  
console.log(htmlList);
```

### 3. Array.sort() - 5 Examples

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Example 1: Sort numbers ascending

```
const a = [3, 1, 4];  
  
a.sort((x, y) => x - y);  
  
console.log(a); // [1, 3, 4]
```

Example 2: Sort strings alphabetically

```
const fruits = ["banana", "apple", "cherry"];  
  
fruits.sort();  
  
console.log(fruits);
```

Example 3: Sort by length of string

```
fruits.sort((a, b) => a.length - b.length);  
console.log(fruits);
```

Example 4: Sort dates

```
const dates = [new Date(2024, 2), new Date(2023, 5)];  
dates.sort((a, b) => a - b);  
console.log(dates);
```

Example 5: Sort objects by property

```
const people = [{age: 30}, {age: 25}];  
people.sort((a, b) => a.age - b.age);  
console.log(people);
```

#### 4. Array.toSorted() - 5 Examples (Immutable sort)

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Example 1: toSorted with numbers

```
const arr = [4, 2, 1];  
const sorted = arr.toSorted((a, b) => a - b);  
console.log(sorted); // [1, 2, 4]  
console.log(arr); // [4, 2, 1]
```

Example 2: toSorted with strings

```
const words = ["dog", "cat", "apple"];  
const sortedWords = words.toSorted();  
console.log(sortedWords);
```

Example 3: toSorted descending

```
const desc = arr.toSorted((a, b) => b - a);  
console.log(desc); // [4, 2, 1]
```

Example 4: Sort objects immutably

```
const items = [{value: 2}, {value: 1}];  
  
const sortedItems = items.toSorted((a, b) => a.value - b.value);  
  
console.log(sortedItems);
```

Example 5: Original array is not modified

```
console.log(items); // [{value: 2}, {value: 1}]
```