filter

Download Demo Code <../js-array-methods-filter-demo.zip>

Goals

- Understand what filter does
- Write your own filter function

filter

- Creates a new array
- Loops through an array
- Runs a callback function on each value in the array
- If the callback function returns true, that value is pushed to the new array
- If the callback function returns false, that value will not be included in the new array
- the result of the callback will always be evaluated into a boolean

An Example

```javascript
let letters = ["a", "b", "c", "b", "c"];

letters.filter(function(value, index, array){
  return value === "b";
});

// ["b", "b"]
```

Another Example

```javascript
let friends = [
  { name: "Amanda" },
  { name: "Tommy" },
  { name: "Nathan" },
  { name: "Pat" }
];
friends.filter(function(value, index, array){
    return value.name.includes("n")
});

// [{name: "Amanda"},{name: "Nathan"}];
```

How Does It Work?

```
function filter(array, callback){
  let newArray = [];
  for(let i = 0; i < array.length; i++){
    if(callback(array[i], i, array)){
      newArray.push(array[i]);
    }
  }
  return newArray;
}
```

- Creates a new array

- Iterates through an array

- Runs a callback function on each value in the array

- If the callback function returns true, that value will be added to the new array

- If the callback function returns false, that value will be ignored from the new array

Using Filter In A Function

```
function fourOrLessNames(names){
  return names.filter(function(value){
    return value.length <= 4;
  });
}

fourOrLessNames(['Fido', 'Blue', 'Rascal']); // ['Fido', 'Blue']
```

```
function onlyInstructors(arr) {
  return arr.filter(function(value) {
    return arr.isInstructor;
  });
}

onlyInstructors([
  { name: "Colt", isInstructor: true },
  { name: "Beth", isInstructor: false },
  { name: "Daniel" }
]); // [{name: "Colt", isInstructor: true}]
```

When You Would Use Filter

- You want to "transform" an array into another array of the same length or smaller length depending on a condition

- You want to see how many elements in an array satisfy a certain condition

- You do not want to modify the existing array you are filtering

Recap

- filter creates a new array

- filter runs a callback on each value

- if the result of the callback returns true, that value is added to the new array