

JS

Functional programming with JavaScript



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What is Functional Programming?

Functional programming is not a new concept, but in the past few years, it has seen a sharp growth in usage and general interest.

Functions are **self contained** modules of code that accomplish a specific task. Functions usually **take in** data, process it, and **return** a result. Once a function is written, it can be used over and over and over again.



Pure Functions

Pure functions are one of the most important concepts in functional programming and they are functions that, given a specific input, will always return the same output.



// pure function

```
const greeting = (person) => `How are you ${person}`;  
greeting("Bob") // "How are you Bob"
```

→ with same input result will always be same



// not pure

```
let count = 0;  
  
const increaseCount = (value) => count += value;  
increaseCount(1);  
increaseCount(1);
```

→ returns different value with same input





High-Order Functions

A high-order function is a function that receives another **function as a parameter** or returns a **function as a return value**.



```
const persons = [  
  {firstname : "Malcom", lastname : "Reynolds"},  
  {firstname : "Kaylee", lastname : "Fyre"},  
  {firstname : "Jayne", lastname : "Cobb"}  
];  
persons.map((item) => [item.firstname, item.lastname].join(" "));
```





Composition

Composition can also be expressed as **combination**—it's a process of combining **multiple functions** in a hierarchy to produce a new function or perform a computation.



```
const stichName = (name) => name.split(' ').join('_');  
const lowerName = (name) => name.toLowerCase();  
console.log(lowerName(stichName('Bob Gaj'))); // bob_gaj
```



Immutability

Immutability is a concept where you **can't change the object** once it's created. When you want to change something or add you should **create a new object**.



```
const dog = {  
  breed: 'poodle',  
};  
  
const newDog = Object.assign({}, dog, {  
  breed: 'dobermann'  
});
```



```
const dog = {  
  breed: 'poodle',  
};  
  
const newDog = dog;  
newDog.breed = 'dobermann';
```



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