

Functions in JS

Block of code that performs a specific task, can be invoked whenever needed

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Functions in JS

Function Definition

```
function functionName( ) {  
  
    //do some work  
  
}
```

```
function functionName( param1, param2 ...) {  
  
    //do some work  
  
}
```

Function Call

```
functionName( );
```

Arrow Functions

Compact way of writing a function

```
const functionName = ( param1, param2 ...) => {  
  
    //do some work  
  
}
```

```
const sum = ( a, b ) => {  
  
    return a + b;  
  
}
```

Let's Practice

Qs. Create a function using the “function” keyword that takes a String as an argument & returns the number of vowels in the string.

Qs. Create an arrow function to perform the same task.

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IMP

-->Higher Order Functions/Methods
Those functions which takes another function as parameters or returns a functions.

Only used for Arrays. Will give error for string.

forEach Loop in Arrays

for each loop has 3 parameters at max.
arr.forEach((value, index, arr) => {
 //Statements
});

arr.forEach(callbackFunction)

--> for each just calculate something or we can say it only does some work. it does not create any new array.

CallbackFunction : Here, it is a function to execute for each element in the array

It means, it is a function that is called/executed for each element of the array.

***A callback is a function passed as an argument to another function.**

```
arr.forEach( ( val ) => {  
    console.log(val);  
})
```

Let's Practice

Qs. For a given array of numbers, print the square of each value using the forEach loop.

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Some More **Array Methods**

Map

Creates a new array with the results of some operation. The value its callback returns are used to form new array

--> Map does something and it creates new array storing performed operations.

`arr.map(callbackFnx(value, index, array))`

```
let newArr = arr.map( ( val ) => {  
    return val * 2;  
} )
```

Some More **Array Methods**

Filter

Creates a new array of elements that give true for a condition/filter.

Eg: all even elements

```
let newArr = arr.filter( ( val ) => {  
    return val % 2 === 0;  
})
```


Some More **Array Methods**

Reduce

The simple meaning of Reduce method is, whenever you need something in single value after performing operation on more than one values REDUCE method is used.
Reduce : So many values ---> Single valued result

Performs some operations & reduces the array to a single value. It returns that single value.

JavaScript Demo: Array.reduce()

```
1 const array1 = [1, 2, 3, 4];
2
3 // 0 + 1 + 2 + 3 + 4
4 const initialValue = 0;
5 const sumWithInitial = array1.reduce(
6   (accumulator, currentValue) => accumulator + currentValue,
7   initialValue,
8 );
9
10 console.log(sumWithInitial);
11 // Expected output: 10
```

Let's Practice

Qs. We are given array of marks of students. Filter out of the marks of students that scored 90+.

Qs. Take a number n as input from user. Create an array of numbers from 1 to n.

Use the reduce method to calculate sum of all numbers in the array.

Use the reduce method to calculate product of all numbers in the array.