## For Of

In this lecture we are going to examine how we can loop over arrays, using the methods available to us in the past with ES5 and also the new for-of looping mechanism in ES6.

**For & ForEach**

We have a couple of ways of looping through Arrays in ES5 javascript.

For one we have the classic for loop, like so:

let array = [1,2,3];

for (let i = 0; i < array.length; i++) {

console.log(array[i]);

}

With ES5 JavaScript we can also use the forEach method on the Array class, like so:

let array = [1,2,3];

array.forEach(function (value) {

console.log(value);

})

;

// 1

// 2

// 3

It’s slightly shorter but has a few downsides:

1. You can’t break out of this loop using a break statement or move to the next iteration with continue.
2. You can’t return from the enclosing function using a return statement.

**For In**

The for-in loop is designed for iterating over an *objects properties*, like so:

var obj = {a:1,b:2};

for (let prop in obj) {

console.log(prop);

}

// a

// b

If we tried to use it with an array, it might initially look like it’s working:

let array = [10,20,30];

for (let index in array) {

console.log(index);

})

;

// 0

// 1

// 2

But if we tried to print out the type of index like so:

let array = [10,20,30];

for (let index in array) {

console.log(typeof(index));

}

;

// string

// string

// string

The index variable is a *string* and not a *number*, using for-in with arrays converts the index to a string.

 If you are expecting a number but in fact have a string this can cause problems,for example "1" + "2" is the string "12" and not the number 3.

**For-of loop**

Rather than change the way the for-in loops work in ES6 and in the process create a breaking change, instead in ES6 we have a new syntax called for-of.

let array = [10,20,30];

for (var value of array) {

console.log(value);

}

// 10

// 20

// 30

* This is the most concise way of looping through array elements.
* It avoids all the pitfalls of for–in.
* It works with break, continue, and return

**Summary**

The for–in loop is for looping over object properties.

The for–of loop is for looping over the values in an array.

for–of is not just for arrays. It also works on most array-like objects including the new Set and Map types which we will cover in the next lecture.

**Listing**

<http://plnkr.co/edit/v6BS0PekPcDZN0QpV8wN?p=preview>

*script.js*

'use strict';

// Object Destructuring

const obj = {first: 'Asim', last: 'Hussain', age: 39};

function getObj() {

return obj;

}

const {first, last} = getObj();

console.log(first);

console.log(last);

// Array Destructuring

const arr = ['a', 'b'];

const [x, y] = arr;

console.log(x);

console.log(y);

// Function Parameter Destructuring

function func({x = 1}) {

console.log(x);

}

func({});