JavaScript For Loop

Loops can execute a block of code a number of times.

JavaScript Loops

Loops are handy, if you want to run the same code over and over again, each time with a different value.

Often this is the case when working with arrays:

Instead of writing:

text += cars[0] + "<br>";  
text += cars[1] + "<br>";  
text += cars[2] + "<br>";  
text += cars[3] + "<br>";  
text += cars[4] + "<br>";  
text += cars[5] + "<br>";

You can write:

var i;  
for (i = 0; i < cars.length; i++) {  
  text += cars[i] + "<br>";  
}

Different Kinds of Loops

JavaScript supports different kinds of loops:

* for - loops through a block of code a number of times
* for/in - loops through the properties of an object
* for/of - loops through the values of an iterable object
* while - loops through a block of code while a specified condition is true
* do/while - also loops through a block of code while a specified condition is true

The For Loop

The for loop has the following syntax:

for (*statement 1*;*statement 2*;*statement 3*) {  
  // *code block to be executed*  
}

**Statement 1** is executed (one time) before the execution of the code block.

**Statement 2** defines the condition for executing the code block.

**Statement 3** is executed (every time) after the code block has been executed.

Example

for (i = 0; i < 5; i++) {  
  text += "The number is " + i + "<br>";  
}

From the example above, you can read:

Statement 1 sets a variable before the loop starts (var i = 0).

Statement 2 defines the condition for the loop to run (i must be less than 5).

Statement 3 increases a value (i++) each time the code block in the loop has been executed.

Statement 1

Normally you will use statement 1 to initialize the variable used in the loop (i = 0).

This is not always the case, JavaScript doesn't care. Statement 1 is optional.

You can initiate many values in statement 1 (separated by comma):

Example

for (i = 0, len = cars.length, text = ""; i < len; i++) {  
  text += cars[i] + "<br>";  
}

And you can omit statement 1 (like when your values are set before the loop starts):

Example

var i = 2;  
var len = cars.length;  
var text = "";  
for (; i < len; i++) {  
  text += cars[i] + "<br>";  
}

Statement 2

Often statement 2 is used to evaluate the condition of the initial variable.

This is not always the case, JavaScript doesn't care. Statement 2 is also optional.

If statement 2 returns true, the loop will start over again, if it returns false, the loop will end.

If you omit statement 2, you must provide a **break** inside the loop. Otherwise the loop will never end. This will crash your browser. Read about breaks in a later chapter of this tutorial.

Statement 3

Often statement 3 increments the value of the initial variable.

This is not always the case, JavaScript doesn't care, and statement 3 is optional.

Statement 3 can do anything like negative increment (i--), positive increment (i = i + 15), or anything else.

Statement 3 can also be omitted (like when you increment your values inside the loop):

Example

var i = 0;  
var len = cars.length;  
for (; i < len; ) {  
  text += cars[i] + "<br>";  
  i++;  
}

The For/In Loop

The JavaScript for/in statement loops through the properties of an object:

Example

var person = {fname:"John", lname:"Doe", age:25};  
  
var text = "";  
var x;  
for (x in person) {  
  text += person[x];  
}

The For/Of Loop

The JavaScript for/of statement loops through the values of an iterable objects.

for/of lets you loop over data structures that are iterable such as Arrays, Strings, Maps, NodeLists, and more.

The for/of loop has the following syntax:

for (*variable* of *iterable*) {  
  // *code block to be executed*  
}

*variable* - For every iteration the value of the next property is assigned to the variable. *Variable* can be declared with const, let, or var.

*iterable* - An object that has iterable properties.

Looping over an Array

Example

var cars = ["BMW", "Volvo", "Mini"];  
var x;  
  
for (x of cars) {  
  document.write(x + "<br >");  
}

Looping over a String

Example

var txt = "JavaScript";  
var x;  
  
for (x of txt) {  
  document.write(x + "<br >");  
}