Javascript Fundamental 3

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Loops

Loops is a section of code that is repeated multiple points until a conditional is satisfied. There are two kinds of loops in code:

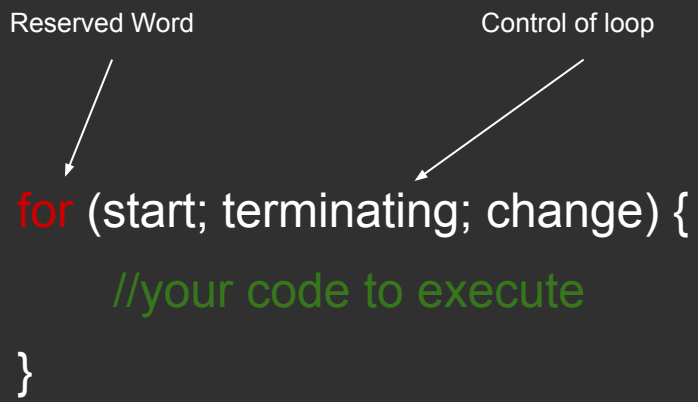
- For Loops
- While Loops

For Loops

For loops are loops that based on an incremental values. There are 3 parts of a for loop:

- Starting value
- Incrementing or decrementing value
- Terminating value

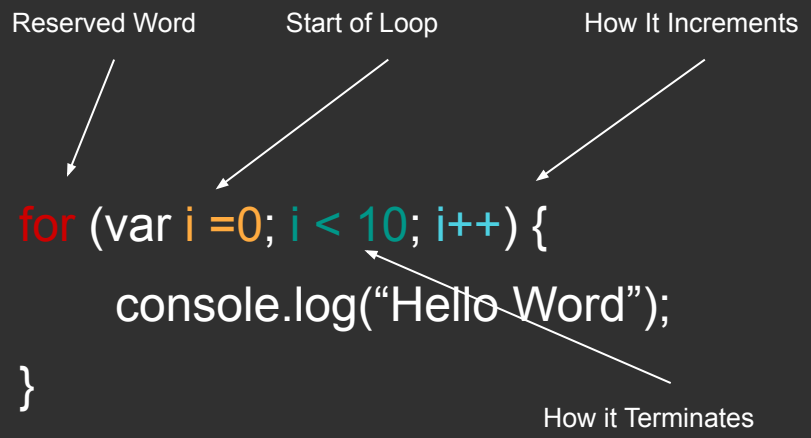
The body of loop is between the { } braces.



For Loop Example

This loop will print out “Hello World” 10 times because:

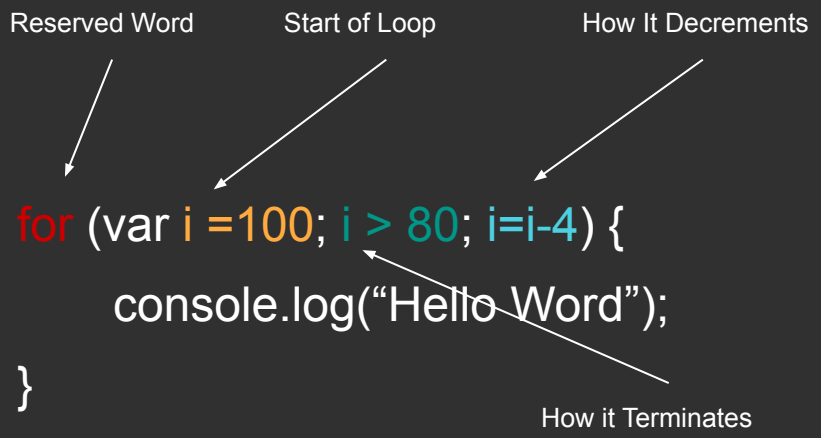
1. The loop is set start at 0 because of var i = 0;
2. The loop will terminate when i is greater than or equal to 10, because i < 10 must evaluate to 10 for the loop to continue
3. i will increment by one every iteration of the loop because of i++



Changing Loop Conditionals

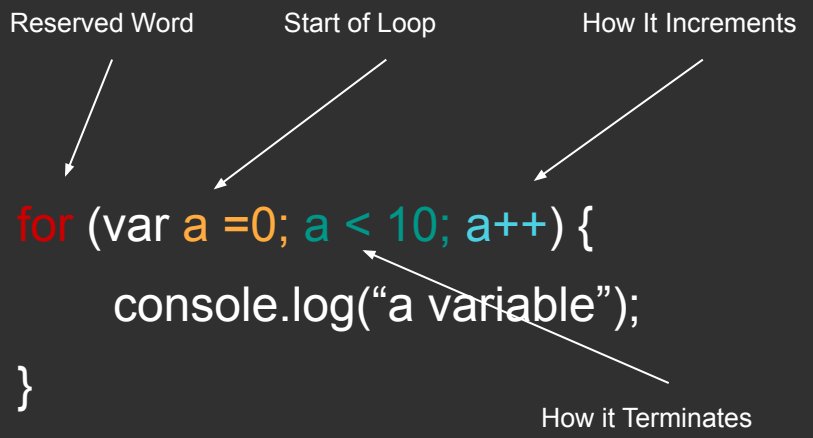
The loop conditionals and controls can change to whatever you want them to be. For example, this is a decrementing loop.

1. When does this loop start?
2. When does it end?
3. How will it decement?



Changing Variables

The variable does not always have to be i. The variable can be whatever you want it to be as long as it is consistent.



Dynamic Variables

Variables in loops are not always defined and are sometimes dynamic. For example, this loop is designed to change to whatever the string length is.

What will the following example output?

```
var string1 = “Javascript Rocks”;

for (var i =0; i < string1.length; i++) {
        console.log(string1.charAt(i));
}
```

Arrays

Arrays can be thought of as containers. They can:

- Store any kind of data (integers, strings, functions, objects, even other arrays!)
- Have an unlimited amount of items they can store
- Each item is stored using an index, which is a numerical id. Index of the first item starts at 0, NOT 1.

```
//An array is created with []
var emptyArray = [ ];

//Create an array with some items
var array = [ “hi”, 2.5 , emptyArray ];

//Index 0 will output “hi”
console.log(array[0]);

//Index 1 will output 2.5
console.log(array[1]);

//Index 2 will output the empty array
console.log(array[2]);
```

Add and Remove Items

Arrays can have items added and removed with special functions that all arrays have.

```
//An array is created with initial data
var array = [ 5, 10 , “hi”, “ho”];

//Will add an item to end of the array
array.push(“joe”)

//Will remove the last item
array.pop()

//Will add item to beginning of the array
array.unshift(2)

//Will remove first item
array.shift()
```

Array Length

The array length attribute shows how many items are currently in the array.

Why do you think its important to know the number of items?

```
//An array is created with initial data
var array = [ 5, 10 , “hi”, “ho”];

//Will output the number 4
console.log(array.length)
```

Arrays & For Loops

For loops can be used for traversing over the items stored in the array.

```
//An array is created with initial data
var array = [ 5, 10 , “hi”, “ho”];

//Notice we use the array.length to
//terminate the for loop
for (var i =0; i < array.length; i++) {
        //Will output the item
        //stored at the current index of i
        console.log(array[i]);
}
```