

JavaScript: Looping

The Complete Web Developer in 2019

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Zero to Mastery
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Javascript Looping

for
while
do
forEach (new in ECMAScript 5)

textbook:

https://eloquentjavascript.net/02_program_structure.html

```
> var toDoList = [  
    "clean room",  
    "brush teeth",  
    "exercise",  
    "study js",  
    "eat healthy"  
];
```

```
toDoList.length  
◀ 5
```

For Loop (for loop is a type of while loop including counter)

```
for (var i=0; i < toDoList.length; i++) {  
    toDoList[i] = toDoList[i] + "!";  
}
```

```
> toDoList  
◀ ▶ (5) ["clean room!", "brush teeth!", "exercise!", "study  
js!", "eat healthy!"]
```

For Loop example 2

```
> var toDoList = [  
  "clean room",  
  "brush teeth",  
  "exercise",  
  "study js",  
  "eat healthy"  
];  
  
for (var i=0; i < toDoList.length; i++) {  
  toDoList.pop();  
}
```

```
> toDoList  
< ▶ (2) ["clean room", "brush teeth"]
```

For Loop example 3

```
> var toDoList = [  
  "clean room",  
  "brush teeth",  
  "exercise",  
  "study js",  
  "eat healthy"  
];  
  
var toDoListLength = toDoList.length;  
for (var i=0; i < toDoListLength; i++) {  
  toDoList.pop();  
}
```

```
> toDoList  
< ▶ []
```

While Loop

```
> var counterOne = 0;
  while (counterOne < 10) {
    console.log(counterOne);
    counterOne++;
  }
```

0	pathturbo.js:1
1	pathturbo.js:1
2	pathturbo.js:1
3	pathturbo.js:1
4	pathturbo.js:1
5	pathturbo.js:1
6	pathturbo.js:1
7	pathturbo.js:1
8	pathturbo.js:1
9	pathturbo.js:1

While example 2

```
> var counterOne = 10;
  while (counterOne > 0) {
    console.log(counterOne);
    counterOne--;
  }
```

10	pathturbo.js:1
9	pathturbo.js:1
8	pathturbo.js:1
7	pathturbo.js:1
6	pathturbo.js:1
5	pathturbo.js:1
4	pathturbo.js:1
3	pathturbo.js:1
2	pathturbo.js:1
1	pathturbo.js:1

Do-While Loop

```
> var counterTwo = 10;  
do {  
  console.log(counterTwo);  
  counterTwo--;  
} while (counterTwo > 0);
```

10	pathturbo.js:1
9	pathturbo.js:1
8	pathturbo.js:1
7	pathturbo.js:1
6	pathturbo.js:1
5	pathturbo.js:1
4	pathturbo.js:1
3	pathturbo.js:1
2	pathturbo.js:1
1	pathturbo.js:1

While vs Do-While Loop

While loop checks condition, then does stuff

Do-while does stuff, then checks condition

```
> var counterOne = 10;  
while (counterOne > 10) {  
  console.log(counterOne);  
  counterOne--;  
}
```

< undefined

```
> var counterTwo = 10;  
do {  
  console.log(counterTwo);  
  counterTwo--;  
} while (counterTwo > 10);
```

10

Most of the time >> use For Loop

```
> var todoList = [  
    "clean room",  
    "brush teeth",  
    "exercise",  
    "study js",  
    "eat healthy"  
];
```

forEach method

A simpler way to do for loop. Can also be broken up and use same function with multiple arrays

Instead of doing this:

```
> var todoListLength = todoList.length;  
  for (var i=0; i < todoListLength; i++) {  
    console.log(todoList[i], i);  
  }
```

Use forEach:

```
> todoList.forEach(function(todo, i) {  
    console.log(todo, i);  
})
```

Result:

clean room	0
brush teeth	1
exercise	2
study js	3
eat healthy	4

Now lets do the same thing, but break up the forEach into a reusable function + forEach...

```
function logToDoList(todo, i) {  
  console.log(todo, i);  
}  
  
todoList.forEach(logToDoList);
```

clean room 0	pathturbo.js:1
brush teeth 1	pathturbo.js:1
exercise 2	pathturbo.js:1
study js 3	pathturbo.js:1
eat healthy 4	pathturbo.js:1

Let's reuse same function for a different array...

Here's the array:

Use forEach method with previous
function...

```
> var todoListOfFool = [  
  "messy room!!!",  
  "dirty teeth!",  
  "sit around!!!!",  
  "watch netflix!!",  
  "eat junk!!!"  
];
```

```
> todoListOfFool.forEach(logToDoList);
```

messy room!!! 0	pathturbo.js:1
dirty teeth! 1	pathturbo.js:1
sit around!!!! 2	pathturbo.js:1
watch netflix!! 3	pathturbo.js:1
eat junk!!! 4	pathturbo.js:1

We only have to write the function once and can use over and over (extensible). Had we used a For Loop, we would have to re-write the function for each array.

Final version of forEach function that stores the result:

```
function logToDoList(array) {           // takes array as input
  logArray=[];
  array.forEach(function(toDo, i){
    console.log(toDo, i);
    logArray.push(toDo + " " + i); // adds each to logArray
  })
  return logArray;
}

var resultArray = logToDoList(toDoListOfFool); // store return array
```

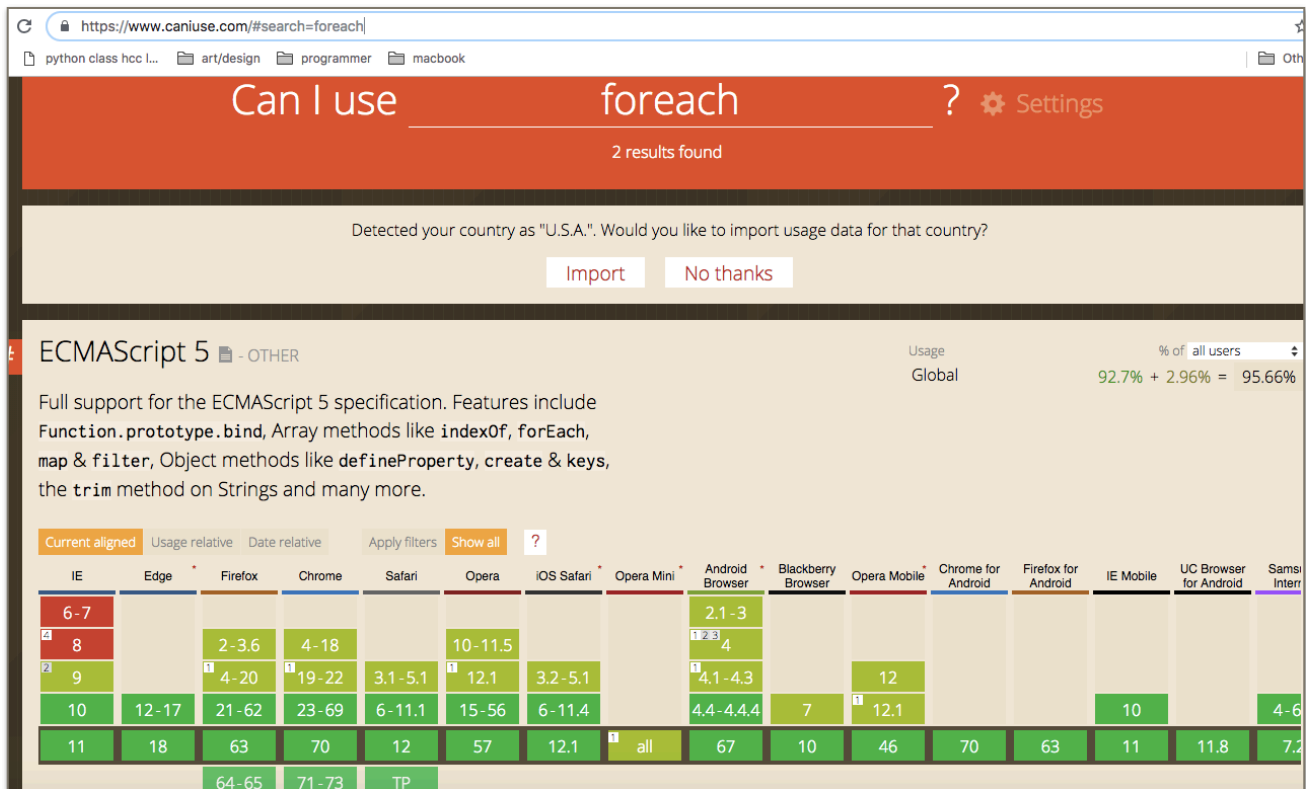
```
> resultArray
< (5) ["messy room!!! 0", "dirty teeth! 1", "sit around!!!! 2", "watch netflix!! 3", "eat junk!!! 4"]
  0: "messy room!!! 0"
  1: "dirty teeth! 1"
  2: "sit around!!!! 2"
  3: "watch netflix!! 3"
  4: "eat junk!!! 4"
  length: 5
  __proto__: Array(0)
```

A SIMPLER WAY to do this using map() instead of forEach():

```
var mapResultArray = toDoListOfFool.map(function (toDo, i) {
  return toDo + " " + i;
})
```

```
> mapResultArray
< (5) ["messy room!!! 0", "dirty teeth! 1", "sit around!!!! 2", "watch netflix!! 3", "eat junk!!! 4"]
  0: "messy room!!! 0"
  1: "dirty teeth! 1"
  2: "sit around!!!! 2"
  3: "watch netflix!! 3"
  4: "eat junk!!! 4"
  length: 5
  __proto__: Array(0)
```


Use www.caniuse.com to see whether `forEach` is supported across all browsers:



Supported everywhere except partial support in Opera Mini >>
good to go!

Exercise: Build Facebook 2

Incorporate loops to check username/password against multiple username/passwords

```
> // OUR FACEBOOK BUILD

var database = [           // array (list)
  {                         // element 0
    username: "andrei",
    password: "supersecret"
  },
  {                         // element 0
    username: "sally",
    password: "123"
  },
  {                         // element 0
    username: "ingrid",
    password: "777"
  }
];

var newsFeed = [           // array (list)
  {                         // element 0
    username: "Bobby",
    timeline: "So tired from school!"
  },
  {                         // element 1
    username: "Sally",
    timeline: "Javascript is bad ass"
  }
];

var userNamePrompt = prompt("Enter username");
var passwordPrompt = prompt("Enter password");
```

]

```

function isValid(user, pass) {
    for (var i=0; i < database.length; i++) {
        if(database[i].username === user &&
            database[i].password === pass) {
            return true; // returns true if un/pw in db
        }
    }
    return false; // returns false if un/pw dont match db
}

function signIn(user, pass) { // funxn declaration
    // console.log(isValid(user,pass)); // logs true
    // if un/pw correct

    if (isValid(user,pass)) {
        console.log(newsFeed); // isValid = true
    } else {
        alert("Sorry, wrong UN or PW") // isValid =
false
    }
}

signIn(userNamePrompt, passwordPrompt);

```

When we call `signIn()` function in last line of code, the UN and PW entries are passed to the `signIn()` function. The if statement then passes them to the `isValid()` function. The `isValid()` uses a for loop to compare the parameters to the database, returning true only if they match.

If `isValid` is true, the `newsFeed` is logged
 If `isValid` is false, we get a wrong password alert.

If username and password match a set in database:

www.litter-robot.com says

Enter username

sally

www.litter-robot.com says

Enter password

123

Cancel OK

Timeline is logged...

```
pathturbo.js:1
▼ (2) [{...}, {...}] ⓘ
  ► 0: {username: "Bobby", timeline: "So tired from school!"}
  ► 1: {username: "Sally", timeline: "Javascript is bad ass"}
    length: 2
  ► __proto__: Array(0)
```

If no match to database...

www.litter-robot.com says

Sorry, wrong UN or PW

OK