JavaScript: Looping

The Complete Web Developer in 2018

The Complete Web Developer in 2018
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
```

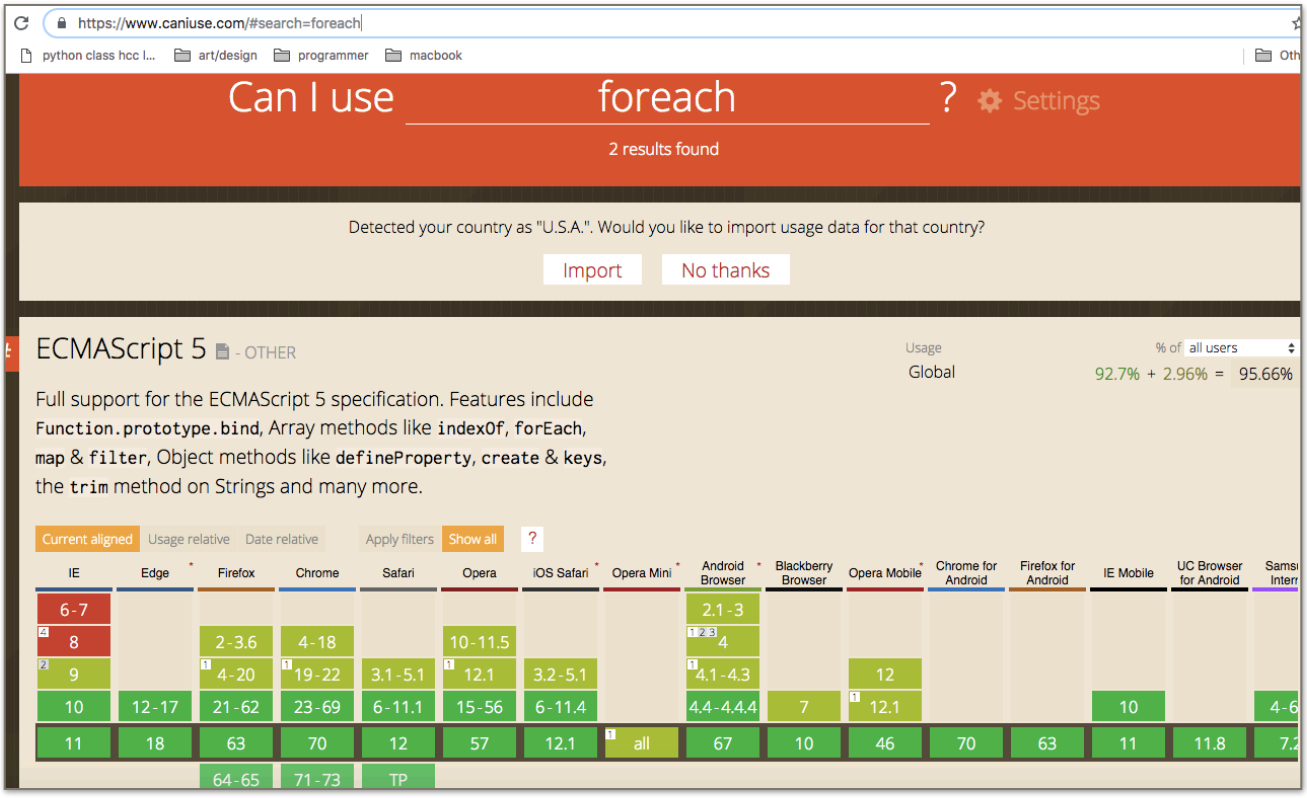
We only have to write the function once and can use over and over (extensible). Had we used a For Loop, we would have to re-write the function for each array.

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)
```

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");
```

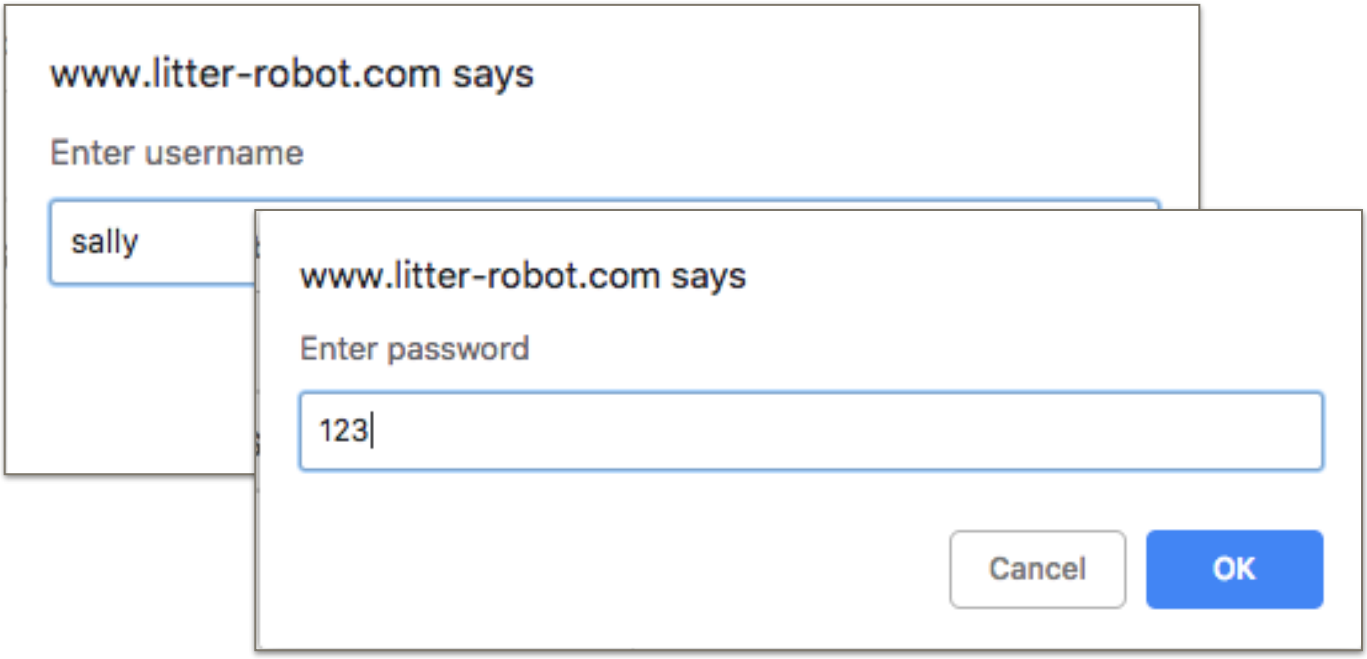
]

```
function isUserValid(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(isUserValid(user,pass)); // logs true
if un/pw correct

    if (isUserValid(user,pass)) {
        console.log(newsFeed); // isUserValid = true
    } else {
        alert("Sorry, wrong UN or PW") // isUserValid =
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 isUserValid( ) function. The isUserValid( ) uses a for loop to compare the parameters to the database, returning true only if they match.

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

If username and password match a set in database:



Timeline is logged…

If no match to database…