Web Development

JavaScript

Introducing JavaScript

- JavaScript was originally called LiveScript
- JavaScript and Java are completely different languages, both in concept and design
- JavaScript was invented by Netscape in 1995
- JavaScript was the first client-side scripting language
- JavaScript runs in the browser
- Each browser has a different way of running JavaScript
- One of our most difficult challenges is getting our scripts to behave similarly in every browser
- ECMAScript is the standardized version of JavaScript

Useful resources

- [Mozilla Developer Network](#)
- [JavaScript IDE](#)
- [ECMA Standards](#)
- [Free JavaScript Book](#)
- [JavaScript Lint Tool](#)

Declare JS Code

```
1 <head>
2   <title>Page Title</title>
3   <meta charset="utf-8">
4
5   <script>
6     alert('Hello!');
7   </script>
8 </head>
```

Internal JavaScript

```
1 <head>
2   <title>Page Title</title>
3   <meta charset="utf-8">
4
5   <script src="demo.js"></script>
6 </head>
```

External JavaScript

Defer property

Delay the external script from executing. In particular, a deferred external JavaScript will begin downloading right away, but will not execute until the entire document is rendered.

Note: You can use **defer** property only in external scripts.

DEMO!

Comments in JS

```
1 // Until the end of the line
2
3 <!-- This acts exactly the same as //
4
5 /*
6     Comments in
7     multiple
8     lines
9 */
```

Main Objects

There are four important objects with which we want to get familiar:

1. document
2. window
3. style
4. navigator

DOM (Document Object Model)

The Document Object Model (DOM) is a set of code JavaScript can use to interact with the browser and the Web Page.
Since the mid 1990s, the DOM has evolved. The history in a nutshell is:

- Browsers existed first without any JavaScript
- JavaScript was then implemented in Netscape
- JScript – a JavaScript clone – was then implemented by Microsoft in Internet Explorer
- DOM 0 is now used to refer to these "olden days" in which each browser did things their own way

DOM 0 (ZERO)

DOM 0 is a very convenient way to reference some of a page's collections:

- document.images is a collection of all the images; document.images[0] is the first image on the page.
- document.forms is a collection of all the forms; document.forms [4] is the fifth form on the page.
- document.links is a collection of all the hyperlinks; document.links [2] is the third link on the page.

There is no DOM 0 shortcut for other collections, such as document.paragraphs. For those, we will use newer DOMs such as DOM 1.

Variables (var)

We can create variables of different data types.

We can do this with or without using the keyword "**var**".

It is almost always expected that you would use the keyword var; otherwise your variable becomes essentially a global variable.

Variables (let)

Declares a block-scoped, local variable, optionally initializing it to a value.

For example:

```
1 for(let i = 0; i < 10; i++){
2   console.log(i);
3 }
```

Constants (const)

Declares a block-scoped, read-only named constant.

```
1 const PI = 3.1415;
```

Data Types

- <u>Boolean</u> - **true** and **false.**
- <u>null</u> - A special keyword denoting a null value.
- <u>undefined</u> - A top-level property whose value is undefined.
- <u>Number</u> - 42 or 3.14159 for instance.
- <u>String</u> - "JavaScript".
- <u>Symbol</u> - (new in ECMAScript 2015). A data type whose instances are unique and immutable.
- <u>Object</u>

JavaScript is a weakly-typed language (also known as dynamically typed): you do not need to specify the data type when you create a variable; and the data type can change when the value changes, too.