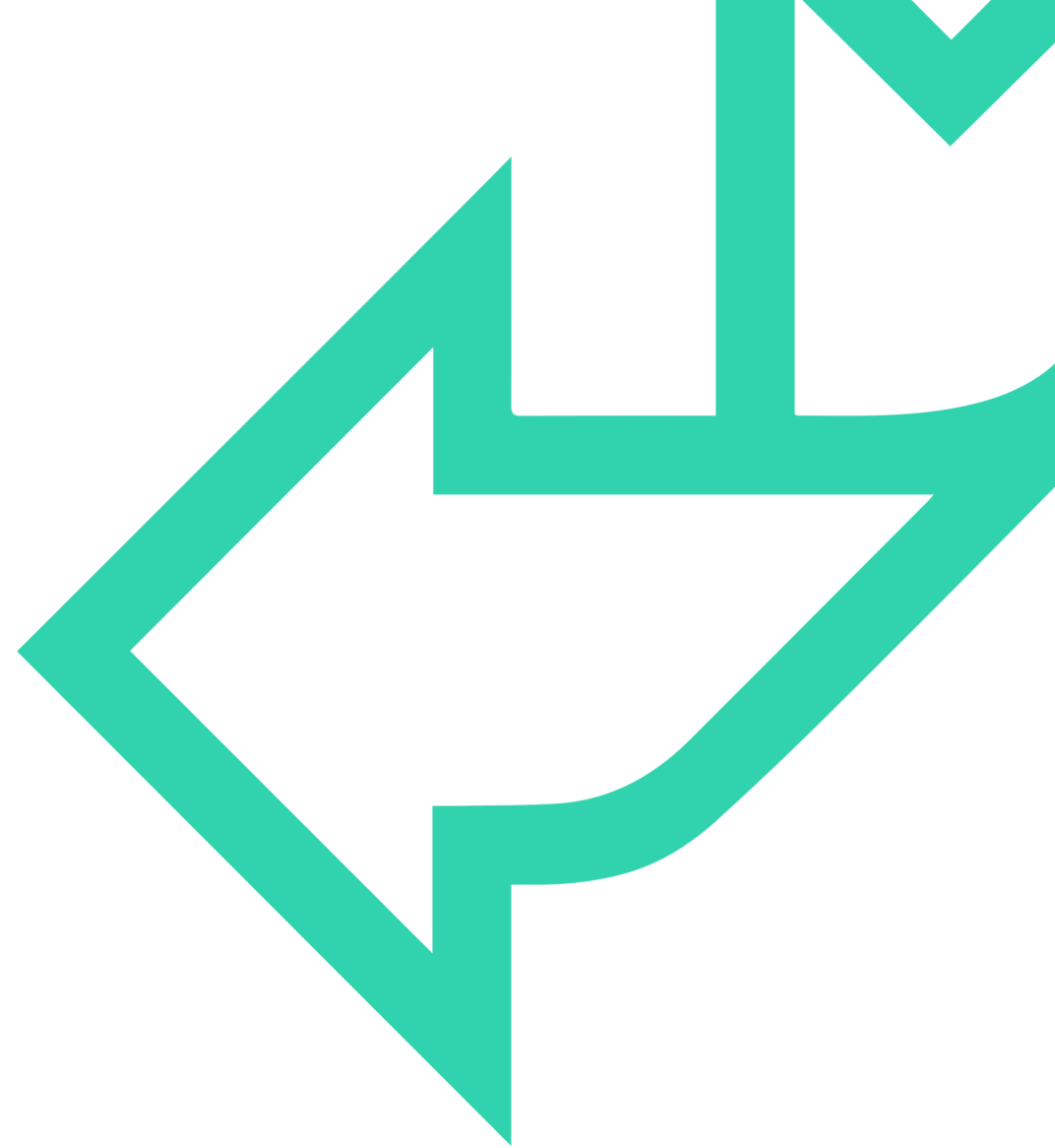




Introduction to JavaScript

→ Web Development Fundamentals - JavaScript





INTRODUCTION

- A very brief history
- What is JavaScript?
- How to place script in a web page
 - Embedding
 - Linking
 - `<noscript>`
- Visual Studio
- Chrome Developer tools





A very brief history

- JavaScript has been with us since 1995
- Originally designed for client-based form validation
- Three separate versions in IE, Netscape, and ScriptEase
- Put forward to the ECMA as a proposed standard in 1997 as v1.1
- Ratified in 1998 as ECMAScript
- Implemented in browsers with various degrees of success ever since

Implementation is made up of three parts

- The Core (ECMAScript)
- The DOM (Document Object Model)
- The BOM (Browser Object Model)





ECMAScript5

- All browsers should adhere to the ECMAScript standard
 - They do not (the Netscape IE browser wars were messy!)
 - ECMAScript standard 3 was mostly implemented
 - ECMAScript 4 was not
 - ECMAScript 5 was and is widely implemented
- ECMAScript 6 was renamed to ECMAScript 2015 to reflect the new annual release schedule of the standard
- ECMAScript 2015 (ES2015) was the first revision of the standard in 6 years, so included many new features to the language
- ES2016 and beyond have been incremental additions to the language





What can JavaScript do?

- JavaScript is a scripting language
- JavaScript gives front-end developers a programming tool
- JavaScript can react to events created by the page itself (page loaded) or the user (click)
- It can read and change the content of HTML elements, create new content, remove and hide elements
- It can be used to validate form input
- It can provide access to HTML 5 APIs such as indexedDB, geolocation, canvas, and more





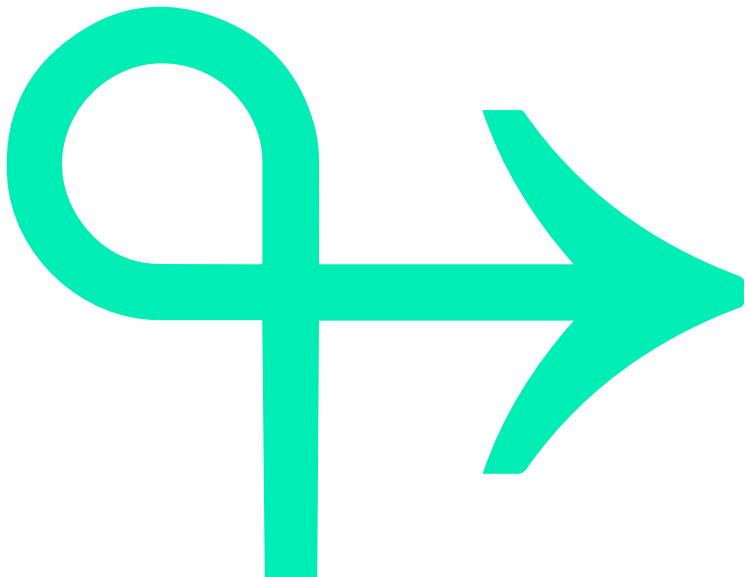
What can JavaScript do? (continued)

- Can be used to create cookies
- Can asynchronously request data from a server
- JavaScript is also widely used as a server-side language, via NodeJS
- JavaScript can be used to create desktop applications via tools, such as Electron
- JavaScript can be used to create native mobile applications via tools, such as React Native





Some key JavaScript concepts:



- JavaScript is a loosely-typed, dynamic programming language
- Variables are not given a static type
- They can change their type
- Understanding and maintaining type matters
- JavaScript is a case-sensitive programming language
- Everything in JavaScript is case sensitive
- There is a best practice approach, as we will discover
- Code termination is optional
- JavaScript uses a semi colon to terminate a line of code
- While technically this is optional, it causes serious headaches



Adding script to HTML – embedding

- You can either place JavaScript on a page inline
 - The closing tag is mandatory
- The script can be placed in either the head or body section
 - It is executed as soon as the browser renders the script block
 - Best practice often places it just before the closing body tag

```
<script>  
    // ... script goes here ...  
</script>
```




Adding script to HTML – linking

- You can also place JavaScript in a separate file and link to it
 - Useful as the script is going to be used on multiple pages
 - Requires an additional request to the server
 - The requested file is cached by the browser
 - Preferred approach to working with script

```
<script src="../myScript.js"></script>
```



The `<noscript>` element

- Client-side scripting may not be available
- The `<noscript>` element will only render its content if:
 - The browser does not understand `<script>`
 - The client has disabled script

```
<noscript>
```

```
    If you see this, you do not have JavaScript enabled.
```

```
</noscript>
```



Comments

- Commenting code is an essential part of programming
- Single line comment

```
index = 3; // From here to the end of the line is a comment and ignored
```

- Multi-line comment

```
/*  
Everything inside these delimiters is treated as  
a comment and ignored by the interpreter  
*/
```



REVIEW



What is JavaScript?

- A scripting language

What is JavaScript for?

- Building client-side, server-side, desktop and mobile applications

How do we use JavaScript?

- Linked or embedded