

# Introduction to JavaScript

Web Development Fundamentals - JavaScript



#### INTRODUCTION

A very brief history

What is JavaScript?

How to place script in a web page

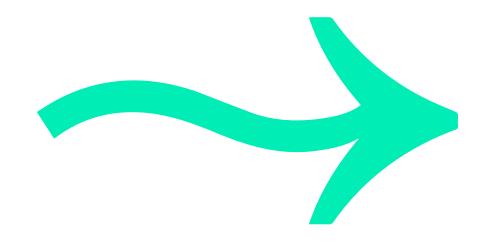
- Embedding
- Linking
- <noscript>

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)

## **Q^ ECMAScript5**

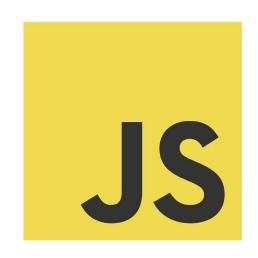
All browsers should adhere to the ECMAScript standard

- 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 and 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
- 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

#### QA Adding script to HTML - embedding

You can 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>
```

### QA 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>

#### Q^ 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

#### **QA** 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
*/
```

### **QA** Walkthrough – using Visual Studio Code

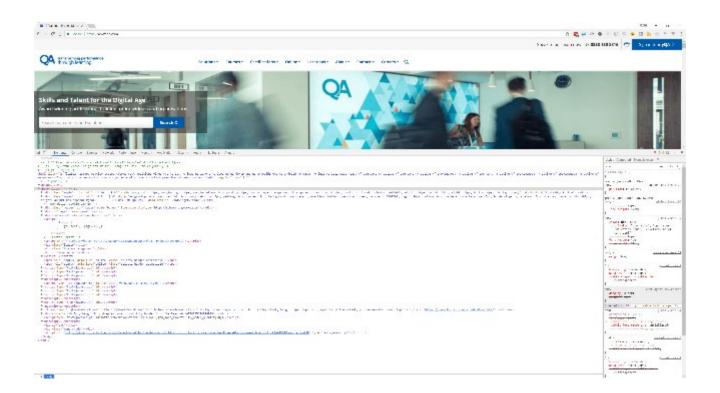
- Visual Studio Code is a free, open-source enhanced text editor and it was built using JavaScript!
- Not to be confused with Visual Studio (a paid-for, full IDE designed specifically for .NET development)

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### **Q^ Walkthrough - Chrome development tools**

- Most browsers have development and debugging tools
- Incredibly useful for testing and management





#### Review



A scripting language

#### What is JavaScript for?

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

#### How do we use JavaScript?

Linked or embedded

