

COMP 1842

Week1 - Part 1

Matt Prichard

Introduction

Module overview

Does it really matter ?

HTML5 + CSS recap

DOM and the BOM

Welcome back

- What have we (you) all learned from term 1?
- Time / stress management
- Attendance / punctuality
- Multitasking
- Little and often / time boxing
- Pomodoro Technique

Module overview

- We are not using the I Drive – work on the G Drive now.
- Will be looking at JS stacks (more on this later in the module).
- Will require a working understanding of JS, first few weeks will be getting up to speed with JS.
- 1 coursework worth 100% due 25/04/23.
- I will release the CW later on in week 2.
- There will be a report again.

Module aims

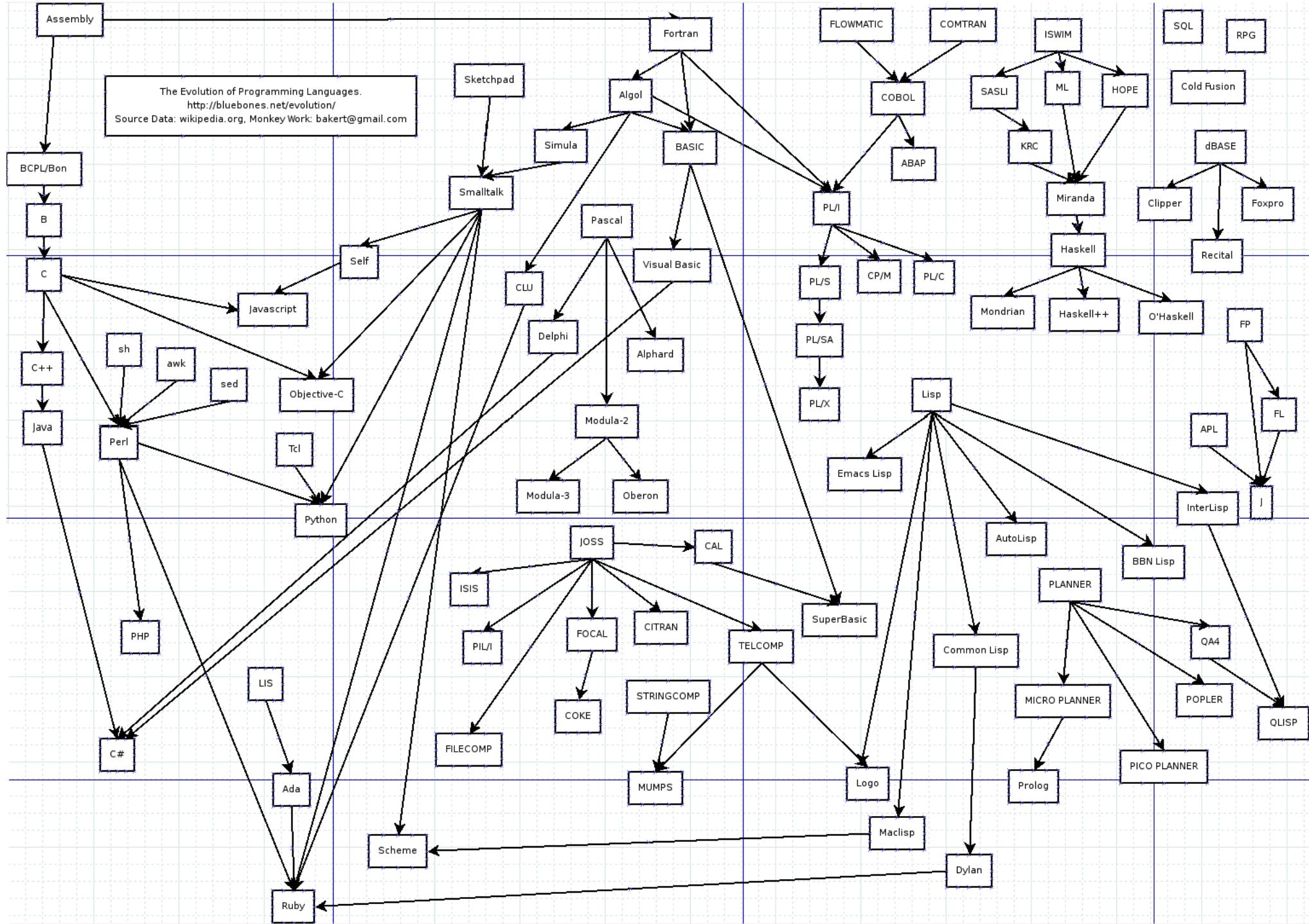
- This module provides students with an introduction to the **MEVN Stack**.
- It is **one** of the modern free open-source JavaScript based stacks used to build single page, multi-page as well as complex dynamic web applications.
- The stack consists of **MongoDB**, **Express.js**, **Vue.js** and **Node.js**
- Students will gain an **introduction** to these technologies while developing a very simple CRUD web application.

Learning outcomes

On successful completion of this course a student will be able to:

- 1 - Develop a CRUD web application using the JavaScript based MEVN stack
- 2 - Discuss issues surrounding Internet and intranet technologies, such as browser dependency, accessibility, legal and security concerns.
- 3 - Critically analyse and evaluate some of the key differences between SQL and NoSQL databases

Some background



20 Most Popular Programming Languages to Learn in 2023

By Sruthi Veeraraghavan

Last updated on Jan 13, 2023

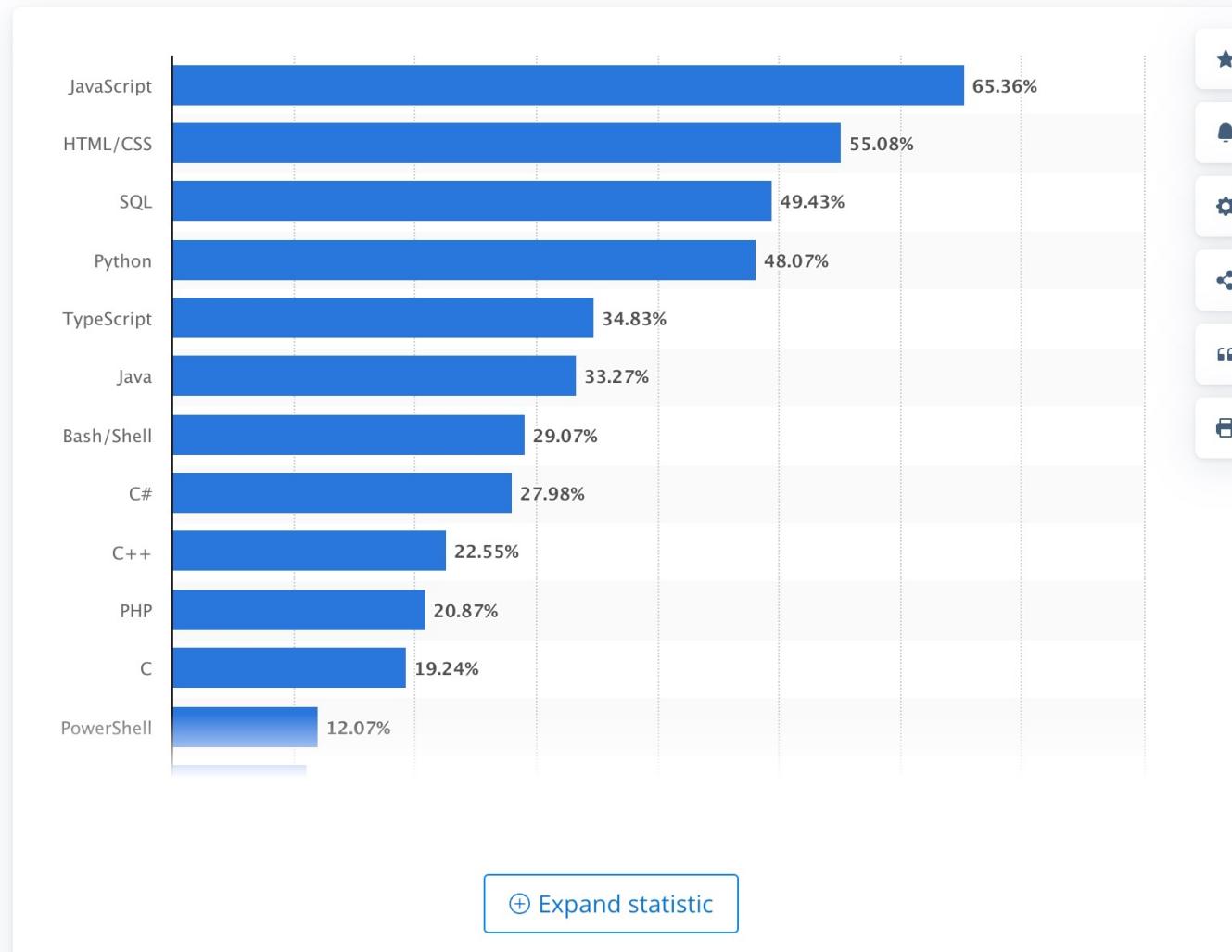
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<https://www.simplilearn.com/best-programming-languages-start-learning-today-article>

Most used programming languages among developers worldwide as of 2022



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Source

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Release date

July 2022

Region

Worldwide

Survey time period

May 11 to June 1, 2022

Number of respondents

71,547 respondents

Special properties

Software developers

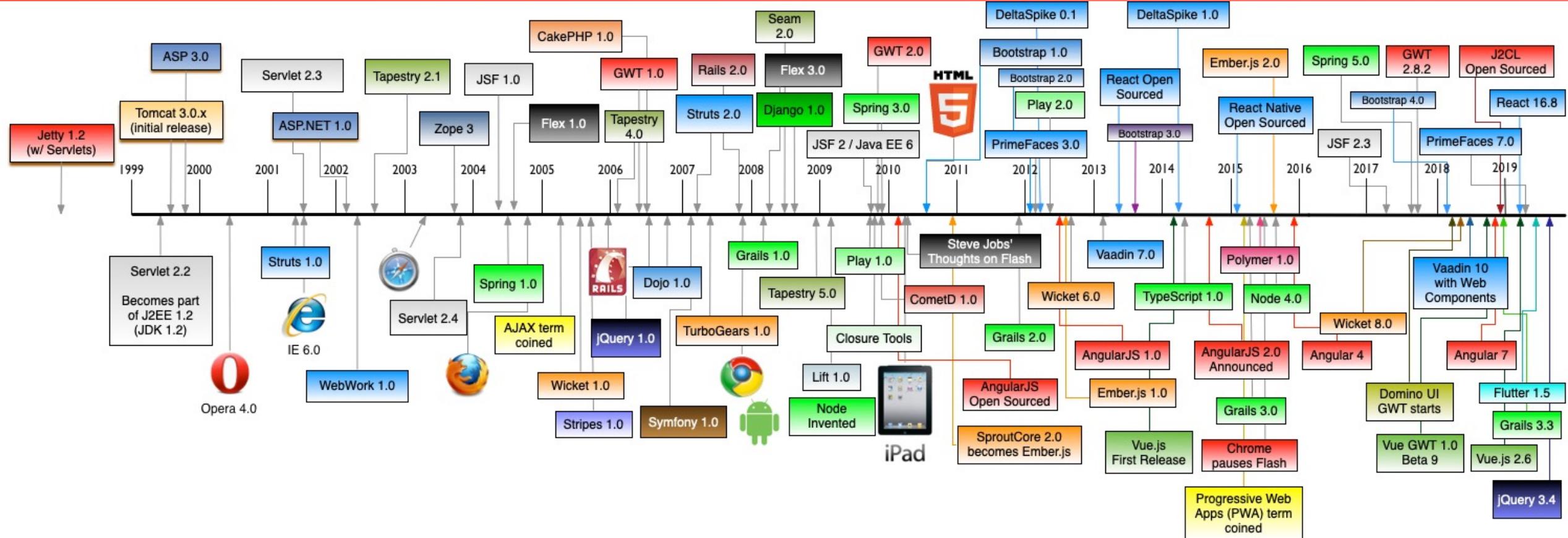
Method of interview

Online survey

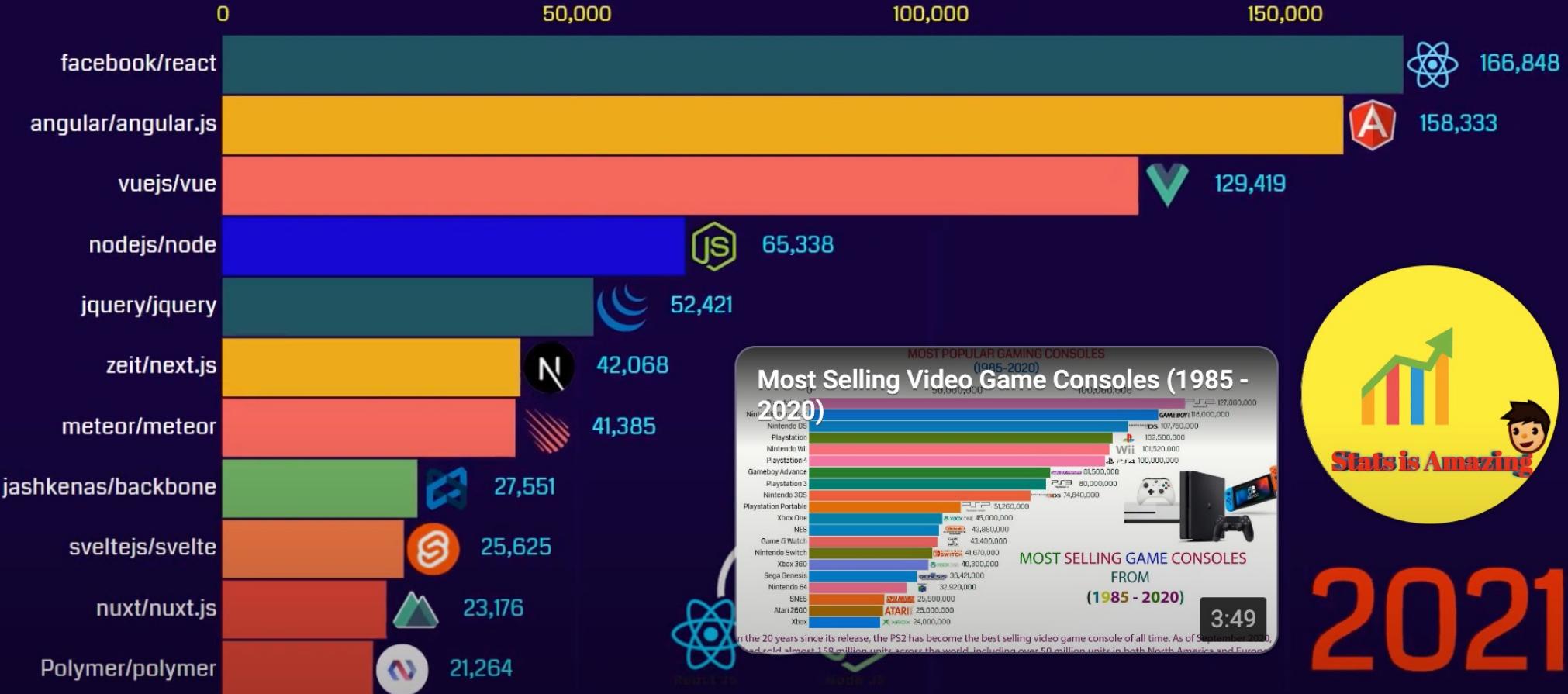
Supplementary notes

<https://www.statista.com/statistics/793628/worldwide-developer-survey-most-used-languages/>

A history of web frameworks



Most popular JavaScript frameworks 2011 - 2021



2021



3:21 / 3:29

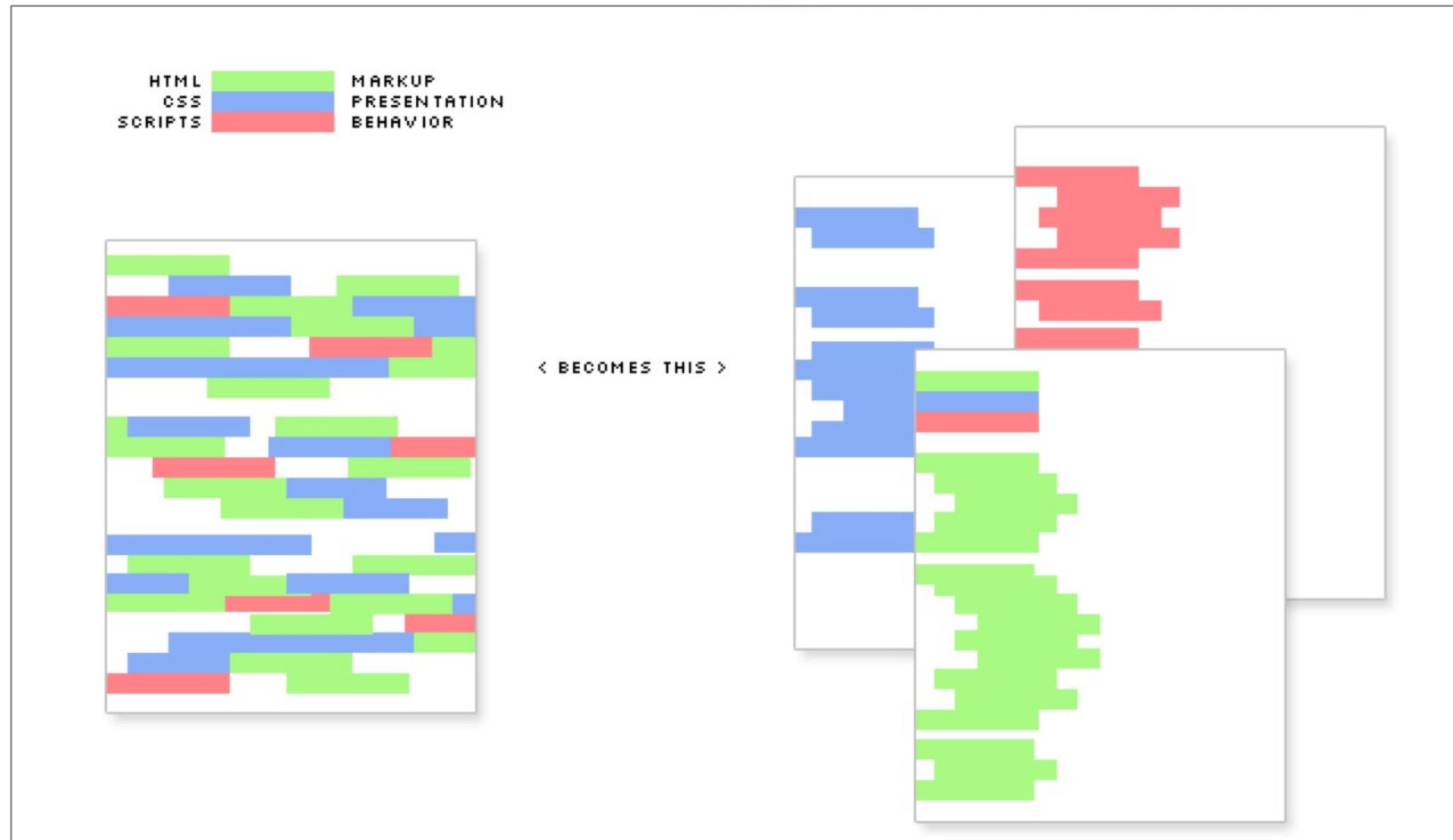


The big 3



Recap - html, css, js

- index.html
- mystyle.css
- myscript.js



```
index.html × JS mystic.js # mystyle.css  
Users > matt > IDrive-Sync_mattprichard > Matt > Courses_2122 > COMP1842-Web dev term2-M  
1  !DOCTYPE html  
2  <html lang="en">  
3  <head>  
4    <meta charset="UTF-8">  
5    <meta http-equiv="X-UA-Compatible" content="IE=edge">  
6    <meta name="viewport" content="width=device-width, initial-scale=1.0">  
7    <link rel="stylesheet" type="text/css" href="mystyle.css">  
8    <title>Document</title>  
9  </head>  
10 <body>  
11   <h1 id="mytext">Hello World</h1>  
12   <script src="mystic.js"></script>  
13 </body>  
14 </html>
```

```
index.html × JS mystic.js # mystyle.css ●  
Users > matt > IDrive-Sync_mattprichard > Matt > Courses_2  
1  h1{  
2  |  color: red;  
3  }  
.
```

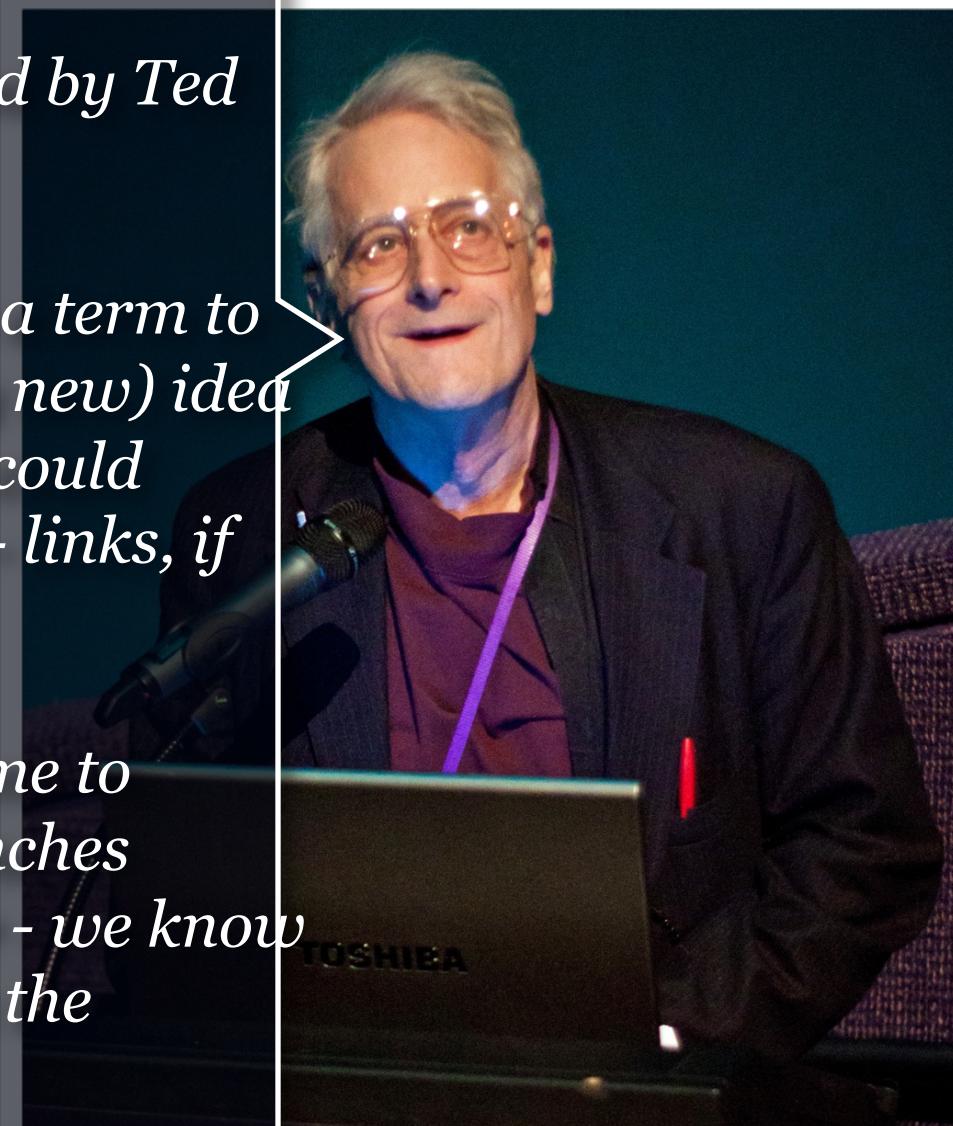
```
index.html × JS mystic.js ● # mystyle.css ●  
Users > matt > IDrive-Sync_mattprichard > Matt > Courses_2122 > COMP1842-Web dev  
1  function text(){  
2  |  this.innerHTML ="goodbye matt";  
3  }  
4  document.getElementById("mytext").addEventListener("click", text);  
5
```

file:///Users/matt/IDrive-Sync_mattprichard/Matt/Courses_2122/COMP1842-Web%20dev%20term2-MEVN/week1-intro-%20js:dom/week1/index.html

Hypertext was a term coined by Ted Nelson in the 1960s.

He wanted to come up with a term to describe the (then relatively new) idea of having areas of text that could branch off into other areas - links, if you like.

Hypertext has generally come to represent any text that branches and/or responds to the user - we know it mainly through its use on the Internet/WWW

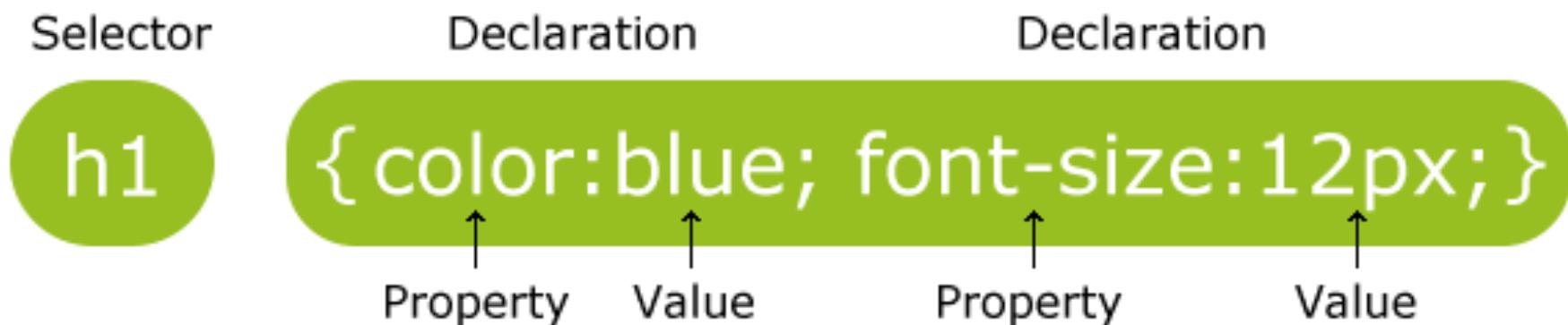


Remember

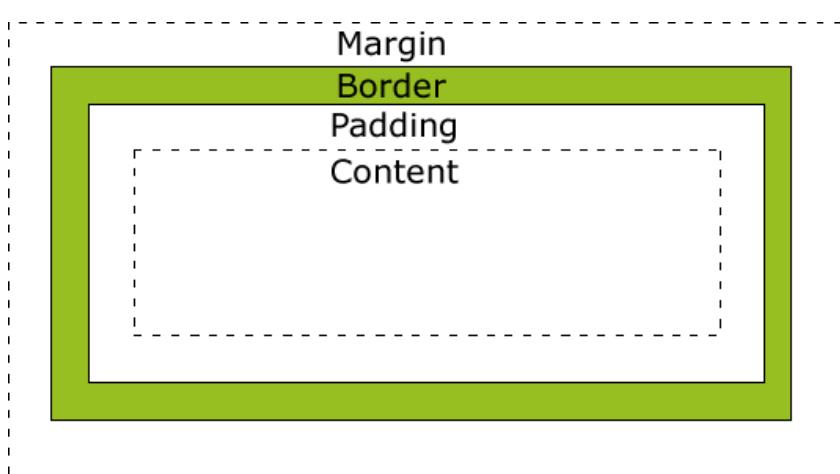
- HTML is a combination of approaches that gives us the ability to:
- **Describe** the structure of pages/text. This is the markup part
- **Link** to and from other documents using the text of the page itself. This is the hypertext part.
- CSS is the language we use to style an HTML document.
- CSS describes how HTML elements should be displayed.

Last term...

I gave a CSS refresher covering the cascade order and CSS syntax. I have put these slides in today's additional material section in case you missed that lecture.



CSS Box Model



```
p{  
    width:250px;  
    padding:10px;  
    border:5px solid gray;  
    margin:10px;  
}
```

total width of the element is **300px**

250px (width)
+ 20px (left and right padding)
+ 10px (left and right border)
+ 20px (left and right margin)
= 300px

http://www.w3schools.com/css/css_boxmodel.asp

The DOM and the BOM

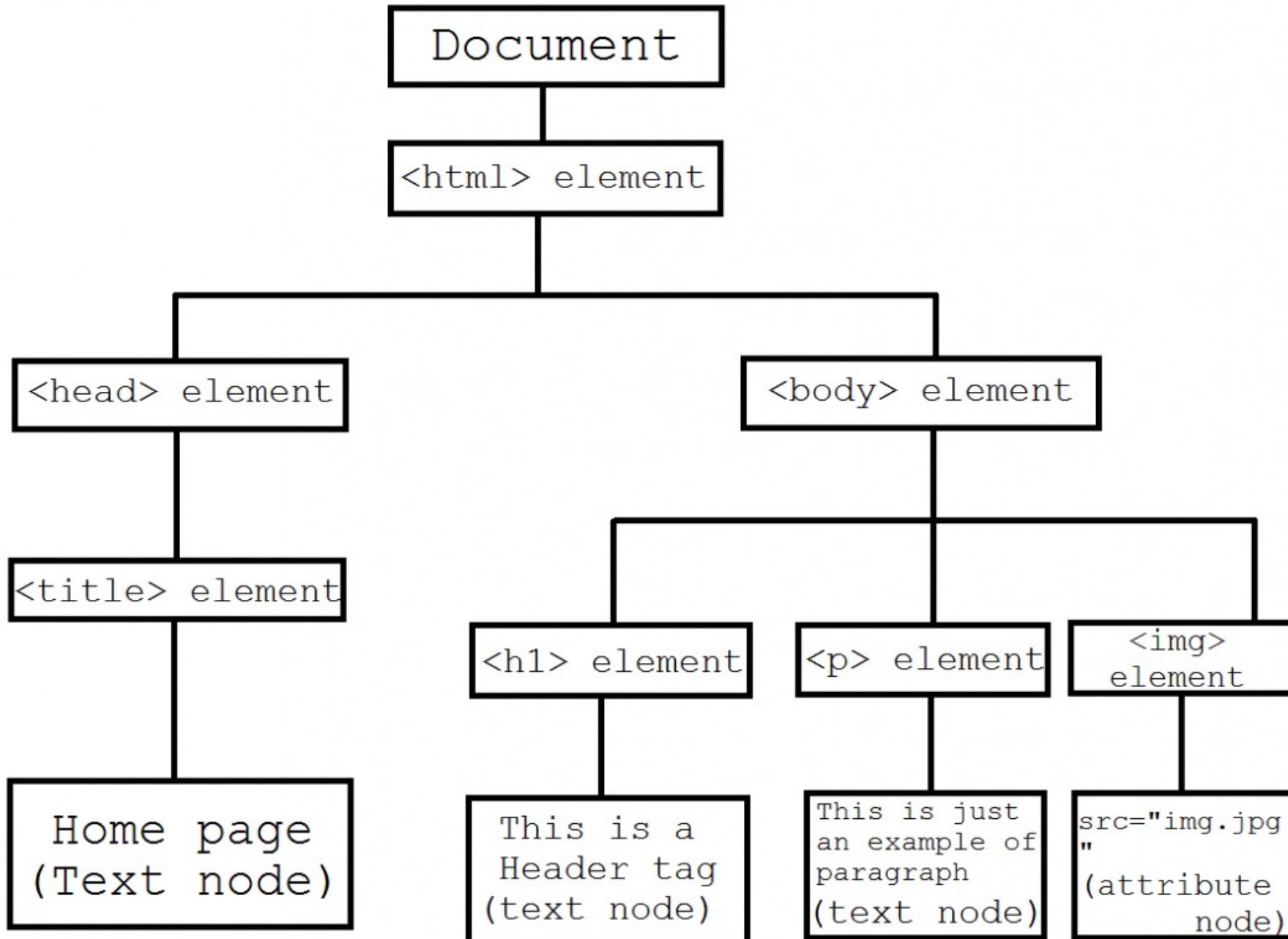
Document Object Model

When a web page is loaded, the browser creates a Document Object Model of the page.

The HTML DOM model is constructed as a tree of Objects:

With the object model

- JavaScript can change all the HTML elements in the page
- JavaScript can change all the CSS styles in the page
- JavaScript can remove existing HTML elements and attributes
- JavaScript can add new HTML elements and attributes



What is the HTML DOM?

The HTML DOM is a standard object model and programming interface for HTML. It defines:

- The HTML elements as objects
- The properties of all HTML elements
- The methods to access all HTML elements
- The events for all HTML elements
- In other words: The HTML DOM is a standard for how to get, change, add, or delete HTML elements.

The HTML DOM document object

The document object represents your web page.

If you want to access any element in an HTML page, you always start with accessing the document object.

Below are some examples of how you can use the document object to access HTML

Finding HTML Elements

| Method | Description |
|---|-------------------------------|
| <code>document.getElementById(<i>/d</i>)</code> | Find an element by element id |
| <code>document.getElementsByTagName(<i>name</i>)</code> | Find elements by tag name |
| <code>document.getElementsByClassName(<i>name</i>)</code> | Find elements by class name |

The HTML DOM document object

Changing HTML Elements

| Property | Description |
|---|---|
| <code>element.innerHTML = new html content</code> | Change the inner HTML of an element |
| <code>element.attribute = new value</code> | Change the attribute value of an HTML element |
| <code>element.style.property = new style</code> | Change the style of an HTML element |
| Method | Description |
| <code>element.setAttribute(attribute, value)</code> | Change the attribute value of an HTML element |

HTML DOM examples

https://www.w3schools.com/js/js_htmldom_html.asp

https://www.w3schools.com/js/js_htmldom_css.asp

Note that the DOM is not JavaScript-specific, and indeed has been implemented in numerous other languages. For Web browsers, however, the DOM has been implemented using ECMAScript and now makes up a large part of the JavaScript language.

BOM - Browser Object Model

BOM stands for Browser Object Model. Unlike DOM, there is no standard defined for BOM, hence different browsers implement it in different ways. Typically, the collection of browser objects is collectively known as the Browser Object Model.

BOM main task is to manage browser windows and enable communication between the windows. Each HTML page which is loaded into a browser window becomes a Document object and document object is an object in the BOM. You can say BOM is super set of DOM. BOM has many objects, methods, and properties that are not the part of the DOM structure.

BOM - Browser Object Model

The important BOM objects are as:

- document
- location
- history
- navigator
- screen
- frames

BOM - Examples

https://www.w3schools.com/js/js_window.asp

