Web Development

HTML,HTML5

Web Development

Web development can range from developing a **simple single static page of plain text** to *complex web-based internet applications (web apps), electronic businesses, and social network services*.

Web development is the coding or programming that enables website functionality, per the owner's requirements.

It mainly deals with the non-design aspect of building websites, which includes coding and writing markup.

Web Development

There are two ways websites are generated: statically or dynamically

Every Web Developer must have a basic understanding of HTML, CSS, and JavaScript.

The web development hierarchy

- Client-side coding
- Server-side coding
- Database technology

Web Development Tools

Web development tools (often called devtools) allow web developers to test and debug their code.

Web development tools come as browser add-ons or built-in features in web browsers, do not require additional modules or configuration.

The five most popular web browsers have support for web developer tools that allow web designers and developers to look at the make-up of their pages.

- Google Chrome – Web Developer Tools
- Internet Explorer and Microsoft Edge – F12 Web Developer Tools (as of version 8)
- Safari – Safari Web Development Tools[8] (as of version 3)
- Firefox – F12 Web Console / Browser Console (since Firefox 4).The Web Console applies to a single content tab; the Browser Console applies to the whole browser, including Firebug.
- Opera – Opera Dragonfly

Server-side Programming

Server-side programming, is the general name for the kinds of programs which are run on the Server.
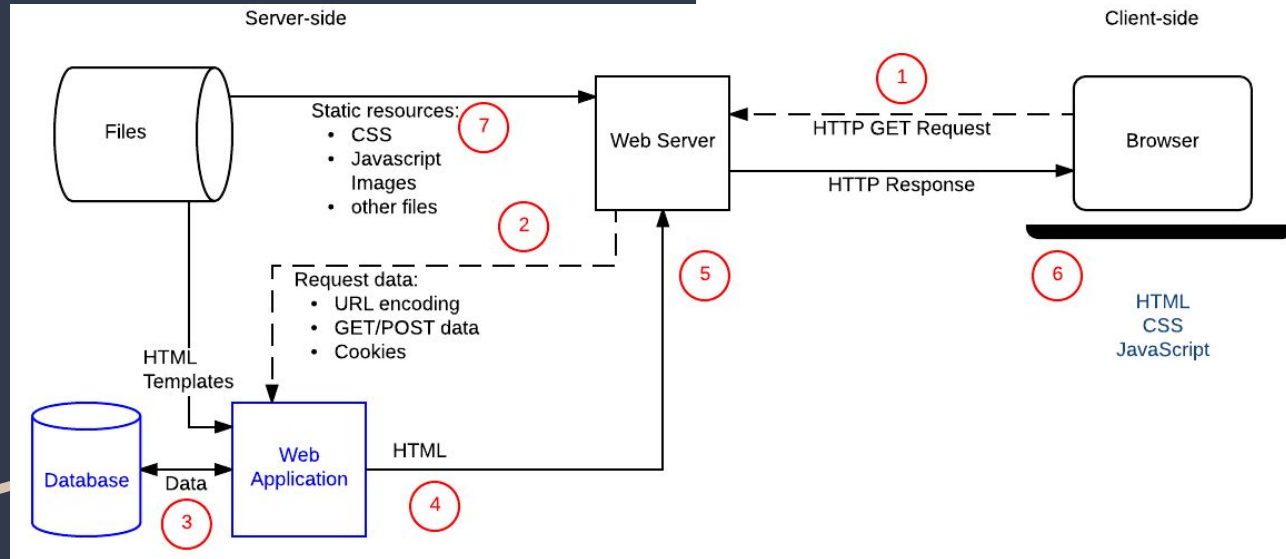
Uses
- Process user input.
- Display pages.
- Structure web applications.
- Interact with permanent storage (SQL, files).

Example Languages
- PHP, Python, Ruby
- ASP.Net in C#, C++, or Visual Basic
- Nearly any language (C++, C#, Java)

These were not designed specifically for the task, but are now often used for application-level web services.

Server Side Programming

Client-side programming

Much like the server-side, Client-side programming is the name for all of the programs which are run on the Client.
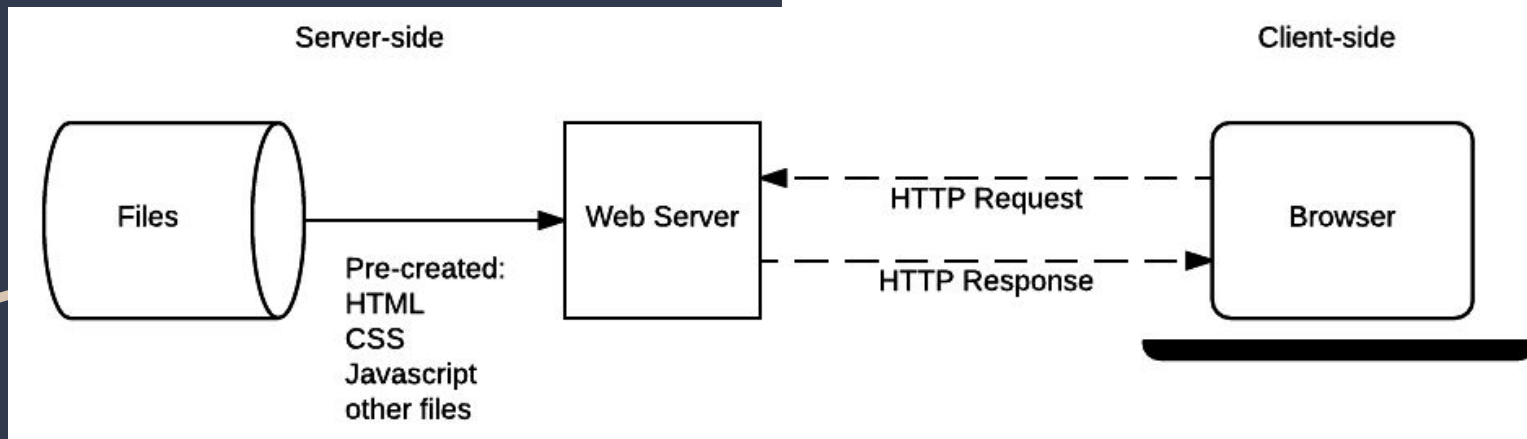
Uses
- Make interactive web pages.
- Make stuff happen dynamically on the web page.
- Interact with temporary storage, and local storage (Cookies, localStorage).
- Send requests to the server, and retrieve data from it.
- Provide a remote service for client-side applications, such as software registration, content delivery, or remote multi-player gaming.

Client-side programming

Example languages

- JavaScript (primarily)
- HTML
- CSS
- Any language running on a client device that interacts with a remote service is a client-side language.

Chronology of Server side–client side

The start of the web and web design

In 1989, whilst working at **CERN Tim Berners-Lee** proposed to create a **global hypertext project**, which later became known as the **World Wide Web**.

During 1991 to 1993 the World Wide Web was born. Text-only pages could be viewed using a simple line-mode browser.
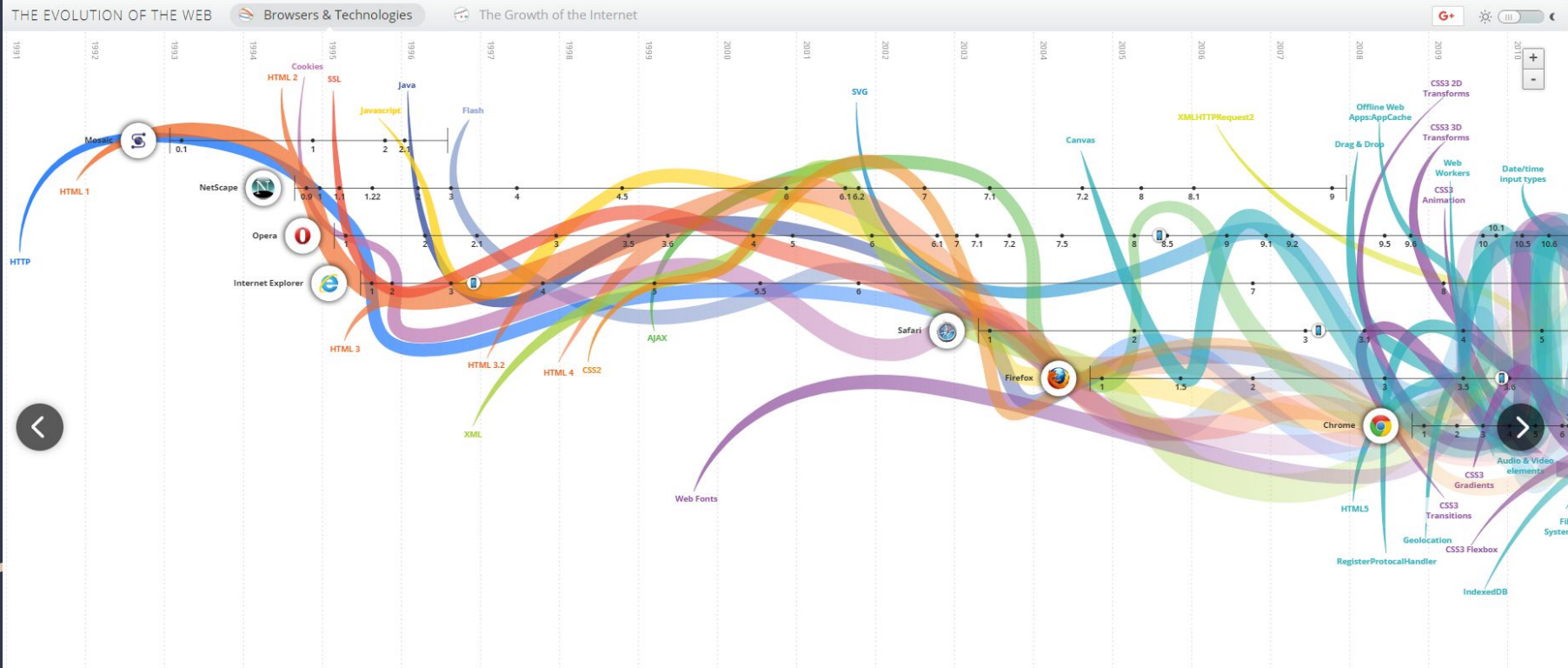
In 1993 Marc Andreessen and Eric Bina, created the Mosaic browser. At the time there were multiple browsers, however the majority of them were Unix-based and naturally text heavy.

There had been no integrated approach to graphic design elements such as images or sounds. The Mosaic browser broke this mould.[3]
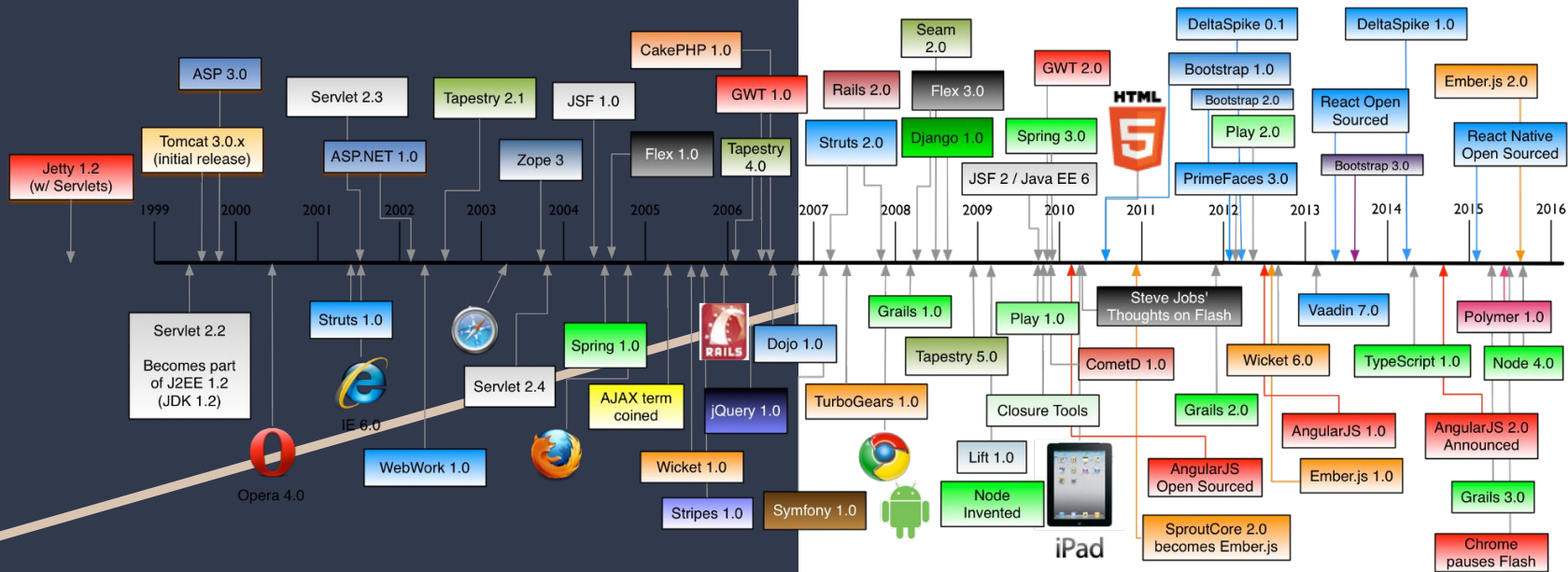
The W3C was created in October 1994 to "lead the World Wide Web to its full potential by developing common protocols that promote its evolution and ensure its interoperability." This discouraged any one company from monopolizing a proprietary browser and programming language, which could have altered the effect of the World Wide Web as a whole. The W3C continues to set standards, which can today be seen with JavaScript.

Throughout 1996 to 1999 the browser wars began, as Microsoft and Netscape fought for ultimate browser dominance. During this time there were many new technologies in the field, notably Cascading Style Sheets, JavaScript, and Dynamic HTML

Evolution of Web

Front-End

Hypertext Markup Language

- HTML is a markup language, which means it is used to mark parts of documents to indicate how they should appear, in print or on a display.
- Hypertext Markup Language (HTML) is the standard markup language for creating web pages and web applications.
- With Cascading Style Sheets (CSS) and JavaScript, it forms a triad of cornerstone technologies for the World Wide Web.

HTML

HTML is the Web's core language for creating content for everyone to use anywhere. (https://www.w3.org/html/)

HTML is defined with the meta-markup language,2 Standard Generalized Markup Language (SGML), which is an International Standards Organization (ISO) standard notation for describing information-formatting languages.

In late 1994, Tim Berners-Lee, who developed the initial version of HTML, started the World Wide Web Consortium (W3C), whose primary purpose was to develop and distribute standards for Web technologies, starting with HTML.

XHTML

eXtensible Markup Language (XML)4 is an alternative to SGML(Standard Generalized Markup Language).

It was designed to describe data and it has strict syntax rules. The XML specification requires that XML processors not accept XML documents with any errors.

XHTML 1.0, which was approved in early 2000, is a redefinition of HTML 4.01 using XML.

*SGML :is a standard for how to specify a document markup language or tag set.

HTML, XHTML, HTML5

The first results of the Web Hypertext Application Technology(WHAT) Working Group were WebForm 2.0, which extended HTML forms, Web Applications 1.0, which was a new version of HTML, and an algorithm for user agent error handling.

After several years of separate work, W3C on XHTML 2.0 and the WHAT Working Group on a new version of HTML, the head of W3C, Berners-Lee, made the momentous decision in 2006 that W3C would begin working with the WHAT Working Group.

In 2009, W3C decided to adopt the HTML development and drop the XHTML 2.0 development effort. The first action of W3C was to rename Web Applications 1.0 as HTML5.

HTML Elements

- HTML elements are the building blocks of HTML pages

- HTML elements are represented by **<>** tags

- An HTML element is a start tag and an end tag with content in between

  <h1>This is a Heading**</h1>**

  <start tag> Element content **<end tag>**

- **An HTML document must include the four tags <html>, <head>, <title>, and <body>.**

HTML Elements

- <!DOCTYPE html> declaration defines this document to be HTML5
- <html> element is the root element of an HTML page
- <lang> attribute defines the language of the document
- <meta> element contains meta information about the document
- specify the character set used in documents, is often used to provide information about the document, primarily for search engines.

HTML Elements

- charset attribute defines the character set used in the document
- <title> element specifies a title for the document
- <body> element contains the visible page content
- <h1> element defines a large heading
- <p> element defines a paragraph

HTML Elements

- Headings
  defined with <h1> to <h6> tags.
- Paragraphs
  defined with <p> tags
- Links
  defined with <a> tags

`<a href="https://www.xyz.com">XYZ</a>`

- Images
  defined with <img> tags. The source file (src), alternative text (alt), width, and height are provided as attributes

Elements

- Buttons
  are defined with <button> tags

  ```
  <button>Click me</button>
  ```
- List
  defined with <ul> (unordered/bullet list)
   (ordered/numbered list) tags,
  followed by <li> tags

  ```
  <ul>
      <li>Coffee</li>
      <li>Tea</li>
      <li>Milk</li>
  </ul>
  ```
- Table
  defined with a <table> tag.
  rows <tr> tags
  headers <th> tags -bold and centered by default
  cells (data) are defined with <td> tags

HTML Document

```
<!DOCTYPE html>
<html lang="en">

<meta charset="utf-8">
<title>Page Title</title>

<body>
    <h1>This is a Heading</h1>
    <p>This is a paragraph.</p>
    <p>This is second paragraph.</p>
</body>

</html>
```

HTML Attributes & Document

- HTML elements can have attributes
- Attributes provide additional information about the element
- the most important attributes are **id** and **class**
- Attributes come in name/value pairs like charset="utf-8"
- All HTML documents must start with a document type declaration: <!DOCTYPE html>.
- The HTML document itself begins with <html> and ends with </html>.
- The visible part of the HTML document is between <body> and </body>.
- Only the content inside the <body> section is displayed in a browser.

Attributes

Attribute	Ex.
id	<table **id**="table01"
class	<p **class**="normal">
style	<p **style**="font-size:16px">
data-	<div **data**-id="500">
onclick	<input **onclick**="myFunction()">
onmouseover	<a **onmouseover**="this.setAttribute('style','color:red')">

Entities

Character	Entity	Meaning
&	amp;	Ampersand
<	<	Is less than
>	>	Is greater than
"	"	Double quote
'	'	Single quote (apostrophe)
$\frac{1}{4}$	¼	One-quarter
$\frac{1}{2}$	½	One-half
$\frac{3}{4}$	¾	Three-quarters
°	°	Degree
(space)		Nonbreaking space
©	©	Copyright
€	€	Euro

HTML5

HTML5 is the latest evolution of the standard that defines HTML.

The term represents two different concepts.

- a new version of the language HTML, with new elements, attributes, and behaviors, and

- a larger set of technologies that allows the building of more diverse and powerful Web sites and applications

HTML5 was first released in public-facing form in 2008, with a major update and "W3C Recommendation" status in 2014.

HTML5

- Semantics: allowing you to describe more precisely what your content is.
- Connectivity: allowing you to communicate with the server in new and innovative ways.
- Offline and storage: allowing web pages to store data on the client-side locally and operate offline more efficiently.
- Multimedia: making video and audio first-class citizens in the Open Web.
- 2D/3D graphics and effects: allowing a much more diverse range of presentation options.
- Performance and integration: providing greater speed optimization and better usage of computer hardware.
- Device access: allowing for the usage of various input and output devices.
- Styling: letting authors write more sophisticated themes.

Functions

- The <audio> and <video> elements embed
- Forms improvements

  - <input> attribute type and the new <output> element
- Semantic elements

  - <mark>, <figure>, <figcaption>, <data>, <time>, <output>, <progress>
- Multimedia

  - The <audio> and <video> elements embed
- Styling

  - border-image
- 2D/3D Graphics

  - <canvas> elements.

HTML5

Its goals are to improve the language with support for the latest multimedia and other new features;

- Keep the language both easily readable by humans and consistently understood by computers and devices such as Web browsers, parsers, etc., without XHTML's rigidity; and to remain backward-compatible with older software
- Candidate for **cross-platform mobile applications**, because it includes features designed with low-powered devices in mind

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