

Advancement Of Web Development Through Centuries

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Abstract—The work involved in creating a website for the Internet (World Wide Web) or an intranet is known as web development (a private network). Web development can range from simple text-only static pages to complex web apps. The interactions between users and web pages take place in front-end development. As a result, front-end engineers are involved in the process of creating how each webpage appears to users, including its structure and hierarchy, so that users can create narratives with this collection of webpages, or websites. The majority of what you see on a website is made up of HTML, CSS, and JavaScript, all of which are controlled by the browser. If you're using Google Chrome or Firefox, for example, the browser is what turns all of the code into something you can see and interact with, such as fonts, colors, drop-down menus, sliders, forms, and so on. However, for all of this to operate, something must support the front-end; this is where the backend comes in. In this paper, we are going to discuss the evolution of HTML, CSS, JAVA SCRIPT, and SQL over time.

Index Terms – The OG Web, the beginning of the twentieth century, Advancement of HTML, Advancement

of CSS, Advancement of Javascript, Advancement of MySQL

I. INTRODUCTION

The internet's rise in mainstream culture is closely linked to its beginnings as a visual medium. It took a graphic interface, like many other computer systems and applications, to convince the general public to appreciate the internet's potential. Because of the display monitor, personal computers have expanded throughout our homes and workplaces, and they would not have become extensively utilized until video games, word processors, and attracted users. Most people did not begin to believe in the World Wide Web until the existence of visually-oriented web browsers began to emerge in the early 1990s, though there have been significant advancements in online technology since then, the first web designing techniques have survived the years[7][5].

II. THE OG WEB

Before it became a ubiquitous household service in the 1990s, internet has been in great form for more than half a century. The World Wide Web was conceived in the 1980s and gained major growth with the debut of the Mosaic

browser in 1993. Mostly all the Business organizations began to recognize the web's commercial possibilities shortly after, and the network infrastructure expanded to support what proved to be the vast rush of online services. Then the tech bubble rose and the survivors (Amazon, Google, and others) moved from significant-tech influencers to corporate behemoths in less than a decade[2]. In 1989, Tim Berners-Lee (a computer scientist) articulated his vision for a computer platform which would allow researchers from around the world to collaborate more easily. In 1990, the Hypertext Markup Language (HTML) was created as a result of this. HTML emerged as the primary building block of the World Wide Web, and it remains at the core of its coding and infrastructure. The Standard Generalized Markup Language (SGML) is the foundation of HTML (SGML). The standard allowed web page layouts to be created that could be interpreted and interacted with across a network of computers.

By that time, the internet has been in great form for quite some time, with the first wide Area Network (WAN) being developed in the year 1965 and also the first Local Area Network (LAN) being established around the year 1983. Coaxial, Twisted-pair, and fiber optic cables have been in development for over decades and were widely used in telecommunications industries. The modern web was born when all the technologies converged with the Berners-paradigm. Lee's Interest in technology grew swiftly, and by the mid-1990s, the very first commercial web pages were on the way and operating.

Much of the web's display before the Mosaic browser was text and tables. Despite not being the first browser, Mosaic revolutionized its format by presenting text alongside including images in such a way that paved the way for the future web design and functioned as Web's killer app. Web design has evolved into an art form that combines technical knowledge with aesthetic sensibility, from menu hierarchies to typefaces to color schemes.

III. THE BEGINNING OF THE TWENTIETH CENTURY

The web advanced rapidly in the years following the tech meltdown of 2000–2001. During this time, the government began to assert more control over the internet, while strong tech companies appeared from the ashes of the financial crisis to set a new course for digital culture and commerce. As a result of this newer, more stable base, the internet has gradually become the primary medium of communication in the current day[3].

As technical advances grew wider networks and better bandwidth, web development responded to the growing and diversifying art of web presentation by allowing designers to incorporate a variety of multimedia into the growing and diverse art of web presence. CSS (Cascading Style Sheets) gave site designers new ways to organize and display content. Video streaming irrevocably changed how people watch movies, and Flash video developed a new and distinct style of web art and animation. Despite all of these advancements and revolutions in web development, the web page's core interface and structure have kept their

integrity and balance of form and purpose.

Since the launch of the Mosaic browser and the subsequent advent of the web interface between 2001 and 2008, Internet technology has thrived through at least two major economic bubble crashes. While the latter's demise coincided with the larger housing crisis, it also heralded the coming of a new killer app: the mobile operating system. The shape of the web page has evolved throughout time to accommodate many new scenarios. The mobile app may eventually replace the web page as we know it. However, much of its core qualities are still derived from the concepts of designing developed through the web development discipline

IV. ADVANCEMENT OF HTML

Let's take a closer look at the relevance of the various Html Versions-

1. HTML 1.0

HTML's basic version supports basic capabilities like text controls and images. With limited support for a range of HTML components, this was the most basic version of HTML. It lacks advanced features like style and other aspects that influence how content is displayed in a browser[2].

Tables, font support, and other capabilities were not available in the first version of HTML, but they are now.

We should also note that the W3C didn't exist before HTML 2.0, therefore information about HTML 1 isn't available.

2. HTML 2

In 1995, HTML version 2.0 was created with the goal of improving HTML version 1.0.

To ensure that all browsers follow the same set of rules and constraints, a standard is currently being developed. In terms of markup tags, HTML 2.0 has vastly improved. The concept of a form was first introduced in HTML 2.0. Although fundamental features such as text boxes and buttons were still present, forms were constructed[12].

In addition, the table was made available as an HTML tag. In HTML tag 2.0, browsers were given the ability to establish layers of tags that were unique to them. The World Wide Web Consortium (W3C) was also founded. The W3C's main goal is to maintain a set of standards that allow all web browsers to read and render HTML tags consistently.

3. HTML 3.2

It was established in 1997. Following HTML 2.0 was HTML 3.2, which was the next version[11].

HTML tags were greatly enhanced in HTML version 3.2. It's worth mentioning that the newer version of HTML was 3.2 rather than 3.0 due to W3C standard maintenance. New form components are now better supported in HTML 3.2. CSS support was another significant addition to HTML 3.2. The shorthand for Cascading Style Sheets is CSS (Cascading Style Sheets). CSS is a set of attributes that improve the appearance of HTML tags in browsers. CSS stands for Cascading Style Sheets and is used to style HTML components.

Even though frame markup tags are still not recognized by HTML specifications,

browsers now support them with HTML 3.2.

4. HTML 4.01

In the year 1999, it was founded. The total number of cascading styling sheets available has been raised. CSS was integrated into the HTML page itself in version 3.2. As a result, if the website has multiple web pages and we want to add CSS to each of them, we must do so individually. As a result, the CSS block with the same name was duplicated[6].

In version 4.01, the concept of an external styling sheet was introduced to address this issue. This technique might be used to produce an external CSS file, which could then be included in HTML itself. HTML 4.01 added even more HTML tags to the mix.

5. HTML5

This is the most recent HTML version. In 2014, it might be handy for a developer. A vast number of HTML tags were supported. HTML5 added support for additional form components such as input elements of various types, geolocation tags, and so forth.

Let's have a look at some of the new tags in HTML5.

Email – The new HTML5 tag that was added is the input element of type email. It is a form tag that can also be used in a non-form tag. It(tag) checks and verifies whether the input value is valid. This also verifies that the entered value is a legitimate email id. To receive a password from the user the password form tag was introduced. Some special symbols that the user mentions in the password type box may not be visible to the user directly. These symbols block

the browser from seeing the password.HTML5 introduced the audio tag, which is a new audio tag. This element makes it easier to add audio to our website. This tag is used to add an audio clip to a website. The same audio tag can be used on the website to play audio. A type of semantic tag is a structural tag, sometimes known as a semantic tag. Then the structure tags are introduced to give the structure and proper form to the HTML page. It allows an HTML page to be divided into various structures. All these multiple structures are involved to form an HTML web page. Some more important HTML semantic tags are header>, figcaption, and footer>. For identifying the segment of an HTML document semantically we use the section element. We represent a segment of a web page by using the section tag[8].

6. W3C HTML Validator

For checking and maintaining the validity of a piece of HTML tag or HTML, we use an HTML validator as a web-based tool. To validate an HTML page, an HTML validator follows the W3C standard. It adheres to the W3C guidelines.

The HTML versions are represented in the below fig.1. Now a days numerous HTML versions are being created. HTML has progressed significantly from its first version of 1.0 to the most recent version of 5.2. W3C did maintain standards so that all browsers can adhere to the same set of guidelines. With the inclusion of new tags and the addition of form components, HTML5 has progressed significantly.

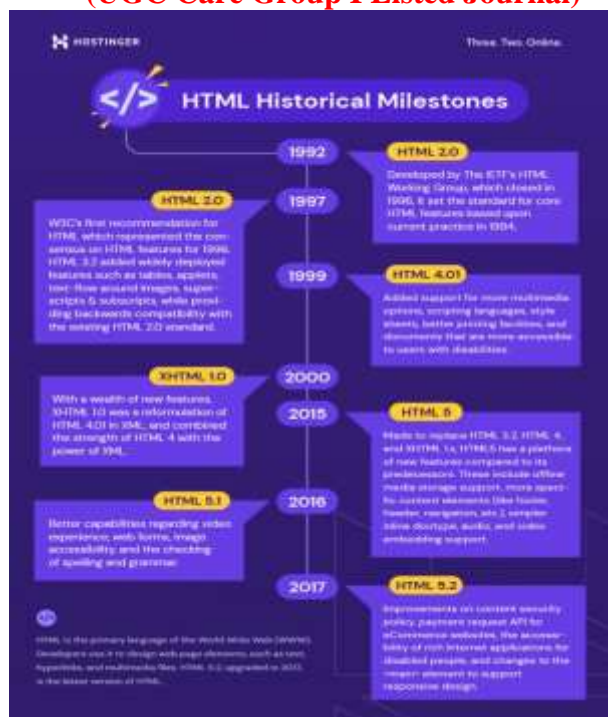


Fig.1. HTML VERSIONS

V. ADVANCEMENT OF CASCADING STYLE SHEETS

"CSS comes in a variety of levels and profiles. CSS is divided into three levels, each of which adds additional features and is designated by the letters CSS 1, CSS 2, and CSS 3. Profiles are a subset of one or more CSS levels designed for a specific device or user interface. Profiles for mobile devices, printers, and television sets are currently available. Media types, which were introduced in CSS 2, are not to be confused with profiles

- **CSS 1**

CSS level 1, was the initial CSS specification that was officially recommended by W3C. It has several features, including support for

Typeface and emphasis are two font attributes. Text, backgrounds, and other elements' colors

Alignment of text, images, tables, and other elements Text properties such as spacing between words, letters, and lines of text

Most elements have margins, borders, padding, and placement Groups of qualities are identified and classified uniquely and generically.

The CSS 1 Recommendation is no longer maintained by the W3C[4].

- **CSS 2**

The W3C introduced the CSS level 2 specification as a Recommendation in May in the year of 1998. CSS 2 does include all modules that are in CSS 1, and it adds additional features like absolute, relative, and fixed element placement, z-index, the concept of media types, support for auditory style sheets and bidirectional text, and new font attributes like shadows. The CSS 2 recommendation is no longer maintained by the W3C.

CSS level 2 revision 1 (CSS 2.1) corrects CSS 2 flaws, removes features that aren't well-supported or interoperable and adds already-implemented browser extensions to the specification. CSS 2.1 bounced back and forth between Working Draft and Candidate Recommendation status for many years to comply with the W3C Process for defining technical specifications. On February 25, 2004, CSS 2.1 was designated as a Candidate Recommendation, but on June 13, 2005, it was reverted to a Working Draft for further assessment. On July 19, 2007, it was reinstated to Candidate Recommendation status, and it was modified twice in 2009. However, on December 7, 2010, it was returned to

Last Call Working Draft after improvements and clarifications were made to the prose. On April 12, 2011, it was reclassified as a Proposed Recommendation. On June 7, 2011, it was issued as a Recommendation. The CSS layout over the time is represented in the fig.2.

- **CSS 3**

Rather than depicting all the features in a single one, broad standard like CSS 2, and CSS 3 is broken down into numerous "modules." Each module adds new functionality or enhances CSS 2 features while maintaining backward compatibility. Around the time that the first CSS 2 suggestion was published, work on CSS level 3 began. In June 1999, the first CSS 3 draughts were released.

Because of the modularization, different modules have varying levels of stability and status. The CSS Working Group has published over 40 CSS modules as of March 2011[4]. Some modules are regarded as stable and are either Candidate or Proposed Recommendation. Selectors, Namespaces, Color, and Media Queries are among those. They are also expected to go to Recommendation whenever CSS 2.1 is finalized and released as Recommendation. W3C recommended CSS 3 Color Module for publishing on June 7, 2011."

VI. ADVANCEMENT OF JAVASCRIPT

JavaScript frameworks are among the most popular for rapid web development and prototyping. These frameworks and libraries have already changed how JavaScript and HTML and CSS are combined to generate views in browsers and on native systems.

In 1995, the Netscape 2 browser introduced JavaScript. It was originally called LiveScript, but it was renamed for marketing purposes in response to the popularity of the Java programming language at the time. It's critical to recognize that Java is not the same as JavaScript: the two are completely different languages. JavaScript, on the other hand, is not a full-featured programming language that can generate standalone programs. Its current focus is on server-side solutions and embedded applications. The JavaScript versions are represented in the fig.3. JavaScript is a scripting language, not a programming language. It is unable to generate an executable program. Without a web page to run on, JavaScript is of limited utility[3][12].

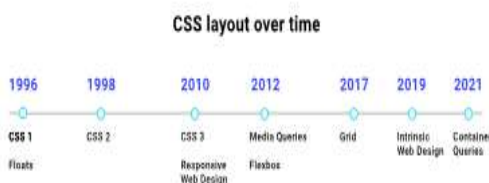


Fig.2. CSS DEVELOPMENT THROUGH YEARS

Advancement in JavaScript

Version	Official Name	Description
ES1	ECMAScript 1 (1997)	First edition
ES2	ECMAScript 2 (1998)	Editorial changes
ES3	ECMAScript 3 (1999)	Added regular expressions & try/catch
ES4	ECMAScript 4	Not released
ES5	ECMAScript 5 (2009)	Added "strict mode", JSON support, String.trim(), Array.isArray(), & Array iteration methods.
ES6	ECMAScript 2015	Added let and const, default parameter values, Array.from(), & Array.findIndex()
ES6	ECMAScript 2016	Added exponential operator & Array.prototype.includes()
ES6	ECMAScript 2017	Added string padding, Object.entries, Object.values, Async functions, & shared memory.
ES6	ECMAScript 2018	Added rest / spread properties, asynchronous iteration, Promise.finally, & RegExp

Fig.3. JAVASCRIPT VERSIONS

the 1990s. Microsoft promises to support each version for at least ten years (five years of mainstream support and five years of extended support).



Fig.4. SQL SERVERS

VII. ADVANCEMENT OF MySQL

MySQL was developed by MySQL AB, a Swedish business founded by David Axmark, Allan Larsson, and Michael "Monty" Widenius of Finland. MySQL was first developed in 1994 by Widenius and Axmark. MySQL was released for the first time on May 23, 1995.

It was originally built using mSQL and the low-level language ISAM, which the creators found to be too sluggish and rigid for personal use. They designed a new SQL interface while maintaining the mSQL API. Many developers were allowed to use MySQL instead of the (proprietary licensed) mSQL predecessor since the API was kept consistent with the mSQL system[7].

SQL servers are represented in the fig.4. Microsoft and Sybase published version 1.0 in 1989. In the early 1990s, their collaboration came to an end. The name was preserved by Microsoft. SQL Server 2000, 2005, 2008, 2012, 2014, 2016, 2017, and 2019 are all versions of the database that have been released during

VIII. CONCLUSION

Rapid updating of technological advancements in web design has become quite common these days. And the major challenge is that the developed web design must satisfy the requirements and adapt to the changes made.

The main aim is to develop web designs that are compatible with all the devices irrespective of the size and shape of the device on which the web design is to be displayed. From a giant LED screen to the smallest mobile devices and wearable watches etc, web design must be taken with prioritization that certain small and portable device's screens can't browse web pages in the usual way, so proper attention must be given to focus on the important content to be displayed. Yet the main area to emphasize is the display on the larger screen because of the efficient content presentation. The efficiency in the content presentation would have become quite difficult in the

older versions of the technologies used. Thus the advancement in the technologies has paved a way for the efficient development of the web design that serves various purposes.

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