

# A Concise Overview of Web Technology

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**ABSTRACT-** In recent years, technology has developed at a quick and effective rate. One of the technologies that enables computer communication between them is web technology, which makes use of multimedia applications and markup languages. In order to address the issue of many people being unaware of online technologies, the author has chosen to draw attention to the concepts associated with web technologies. The author of this review paper talks about the various types of Web technology. It comes with a detailed description of its applications and a browser. This topic also covers databases, data formats, and programming languages. SPA, serverless architecture, and motion user interface are just a few of the numerous trends that will persist in the future. The Web is incorporating new technology

**KEYWORDS-** Applications, Browser, Framework, Language, Web Technologies.

## I. INTRODUCTION

Web application development is becoming increasingly common in IT projects as a whole. Web applications are available in a range of sizes and forms. Some Web apps are used for organizational purposes, while others are designed as interactive tools, and yet others are used for communication and visual design

[1]. The use of markup language and multimedia packets to communicate between computers is referred to as web technology

[2]. In this article, the author discusses web technologies and their many forms, such as browsers, HTML and CSS, protocols, and so on.

### A. Web Technologies

Web technology is defined as the use of mark-up language and multimedia packets to communicate between computers

[3]. It makes it easier for us to engage with online material such as web pages. The many sorts of Web technologies are described here:

### B. Web technologies Categories

There are different types of technology involved in web as mentioned in Figure 1

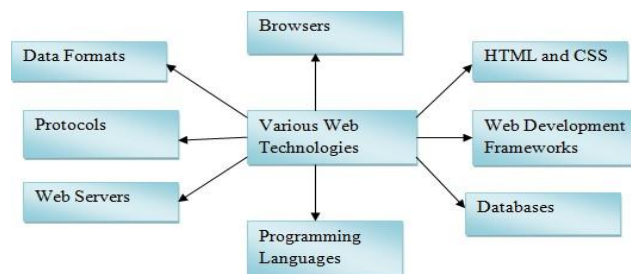


Figure 1: The above diagram shows different types of web technologies

### C. Browsers

A browser, often known as a web browser, is an application software programme that is used to access the World Wide Web. In simple words, a browser is a piece of software that responds to a user's request [4]. When a user requests a web page, the web browser retrieves the necessary information and displays it on the user's screen [5]. Table 1 lists some of the most popular web browsers. A web browser is not the same as a search engine, despite the fact that the two are sometimes confused. A search engine is a web page that contains links to other online pages. A user must, however, have a web browser installed in order to connect to a website's server and view its web pages.

#### D. HTML and CSS

CSS (Cascading Style Sheets) and HTML (Hypertext Markup Language) are 2 of the core technologies that are used in building web pages.

HTML or HyperText Markup Language is the standard markup language for texts that are intended to be viewed on a web browser [6]. Technologies such as Cascading Style Sheets (CSS) and programming languages like JavaScript can help. Web browsers accept HTML documents from a web server or locally stored files and convert them to multimedia web pages. HTML initially provided cues for the documents look and described the structure of a web page logically [7]. It is the default language for web page creation and is the structural block of HTML pages.  $\langle \rangle$  tag is the representation of HTML elements where as CSS is languages that describe how HTML elements are to be presented [8].

- **Inline CSS:** Style rules can be applied to particular HTML elements using inline CSS. Inlining CSS is the process of embedding CSS into an HTML file rather than using an external CSS file [9]. Because inline CSS only allows you to apply a single style to one HTML element, it's only useful for defining unique properties.
- **Internal or Embedded CSS:** This is useful when a single HTML document has to be formatted differently. The CSS rule set should be in the head section of the HTML file, i.e. the CSS should be embedded in the HTML file. In  $\langle \text{head} \rangle$  section, we can define CSS by using  $\langle \text{style} \rangle$  tag.

#### E. Web Development Frameworks

The "online framework" is a software framework for developing web applications such as web APIs, web resources, and web services. In a nutshell, frameworks are libraries that assist you in developing your application more quickly and intelligently [11]. Some of the most popular web application frameworks are discussed below:

- **Ruby on Rails:** David Heinemeier Hansson designed a very productive framework for web application Ruby on Rails. It is 10 times faster than a conventional Java framework for developing applications. The language used in it is Ruby and the most recent edition is Rails 5.0.0.beta2. The introduction of Ruby on Rails in 2005 had a significant impact on web app development, thanks to revolutionary features such as seamless database table creation, migrations, and view scaffolding to enable quick application development [12]. The impact of Ruby on Rails on other web frameworks can still be seen today, with Django in Python, Catalyst in Perl, Laravel, CakePHP, and Yii in PHP, Grails in Groovy, Phoenix in Elixir, Play in Scala, and Sails all adopting concepts from Ruby on Rails. In Node.js, type js.
- **Django:** It is a new framework that aids in the development of first-class net application [13]. It was created to fulfil the tight constraints of a newsroom while still meeting the stringent standards of seasoned Web developers [14]. The language used in this is Python and latest version is django 1.9.2. It is secure, fast and Versatile.
- **Angular:** Adam Abrons and Misko Hevery created Angular initially. Currently, it is a framework provided by Google which is very useful in creating powerful web apps [15]. It is also referred as AngularJS. It's a framework for creating large-scale, high- performance online applications that are also simple to manage. Javascript is the language used in Angular JS.
- **ASP.NET:** It is a Microsoft-based framework, which is useful in building strong PC and mobile web applications. It is a framework which is powerful, productivity and speed. C# is the language used in ASP.NET.
- **Meteor:** Meteor, also known as MeteorJS, is another framework that makes developing real-time mobile and online apps a lot easier [16]. It enables quick prototyping and generates code that is cross-platform (Web, Android, and iOS). Javascript is the language that is used in Meteor JS.

#### F. Programming Languages

As computers don't use languages to communicate with humans, programming languages were introduced to solve this problem. There are various languages such as JavaScript, Python and many more that is used in web applications are mentioned in Figure 3.

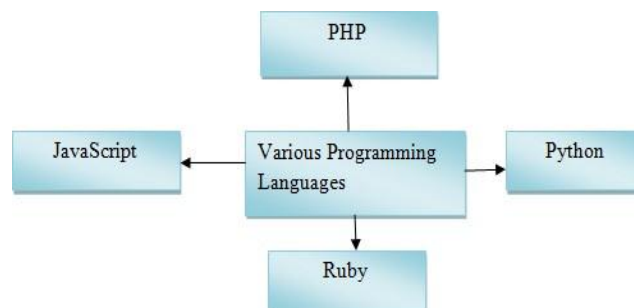


Figure 3: The above diagram shows various programming languages used in web applications

- **JavaScript:** It is the most famous language among programmers as It enables you to develop web apps backend, frontend and mobile [17]. The power of JavaScript is not only that it can execute both on the server and the browser using Nodejs, but also that it offers great web and app development frameworks and tools.
- **Python:** In recent years, Python have made his name in the field of web development, data science, computerization and Scripting. Like JavaScript, Python is equipped with a big community and excellent tools that may help you create a web application in no time [18]. Django is used to create full-stack web applications.
- **Ruby:** Ruby is another excellent programming language for web development [19]. It is a framework that allows Ruby to create Web sites such as Kickstarter, GoodReads, Groupon, Airbnb, Shopify and Github. It promotes and supports the adoption of web standards for data transport, such as JSON or XML, as well as HTML, CSS, and JavaScript for user interaction.
- **PHP (Hypertext Preprocessor):** It is a dynamic script language on the server which makes it easy to develop whole web apps. You don't know half the internet runs on PHP since WordPress is operating on PHP. Laravel has a strong PHP framework that allows you to easily create web application using the architectural pattern of the model-view-controller.

### **G. Protocol**

Protocols are the commands for passing data rear and onward among computers and other gadgets. It involves protocols such as HTTP, REST, and DDP in web technologies are discussed below:

- **DDP (Delivery Duty Paid):** It is a delivery arrangement in which the seller takes full responsibility, risk, and cost for delivering goods until the buyer receives or transfers them at the destination port. It creates a constant connection between the client and the server using WebSockets.
- **HTTP (Hypertext Transfer Protocol):** This is a protocol for the application layer that sends hypermedia materials such as HTML [20]. It was designed to connect with web-browsers and server but may also be utilize for other purposes. The protocols send a request to Google's server for the website's HTML, CSS, and JavaScript, and then receive a reply containing website's JavaScript, CSS, and HTML.
- **REST:** This protocol, which is primarily used for APIs, contains normal techniques such as PUT, POST, and GET that allow data to be transferred among apps.

### **H. Servers of Web**

It is a hardware and software that replies with HTTP (Hypertext Transfer Protocol) and other protocols to client applications via the internet. It offers FTP (File Transfer Protocol) and SMTP (Simple Mail Transmission Protocol) for email, transferring of files, and storage.

### **I. Formats of Data: In a Structure called a Data Format, the Data is Stored. Various Formats of Data are Discussed Below**

- **JSON:** The JavaScript Object Notation is data- storage and-exchange syntax. It is fitting as the most widely used formats of data.
- **XML:** It used to be the most common data format, and it was mostly utilized by Microsoft systems.
- **CSV:** It is comma-separated data i.e. Excel data

### **J. Databases**

If your website has content that changes on a regular basis, you'll need a database. Images, articles, other sorts of information, and page layouts all require databases. It's simple to access data saved in a database online using server-side language like PHP or JSP.

## **II. LITERATURE REVIEW**

[22]. In this paper, Author look at some of the tools that may be used to design and create web-based applications. Authors also go through the technologies utilized on both the client and server sides of a web application. The following section compares several web application development frameworks and also goes through the web application development life cycle concept and framework.

Mehmet Tekdal et al. discussed about Development of Web technologies and their reflections to education [23]. The aim of this study is to provide extensive information and comparison on Web technology and its educational consequences [24]. A range of source that uses Web 1.0, Web 2.0, Web 3.0, Web 4.0, and 5.0 technologies is used to explore the document analysis technique in this context. The data obtained were used to compare web technology.

Eimhjellen et al. discussed about Web technologies in practice [25]. The connection between technology and organizations is investigated in this article using a structuration paradigm. Despite the fact that the research is contextual and temporal based, observations of patterns, interpretations and effects of use of Web technology might reveal the function of Web technologies in other similar contexts.

### III. DISCUSSION

Web technologies, which have a long history of development and began in the 1990s, will be confronted with a variety of new concepts in the near future. The usage of markup language and multi-media package for communicating between computers might be referred to as Web technology. It enables us to consume internet-based data like web pages. The rapid advancement of web technologies is paralleling the fast development of web technology in the field of education. It is expected that computer networks and applied methods-based teaching strategies and methods will advance rapidly from day to day. As a result, new educational and training concepts will be introduced into our daily lives. In this paper, author has discussed about web technologies and its types such as Protocols, Browsers, HTML & CSS, data format etc. In this paper, Author has also explained about popular technologies used in browser, programming languages and frameworks.

### IV. CONCLUSION

When more work can be done in less time, object-oriented methods are utilized to create web applications. Web technology is a method of interacting with computers that employs borderline languages and multi-media packages. There are so many scripting languages, such as Python, and new technologies available for building these sorts of apps that one does not need to limit themselves to just one. Author has addressed web technologies and sorts of web technologies that are utilized to develop web apps in this review paper. Website development is the technology that will power custom web applications in the future. Future web trends will include SPAs, serverless architecture and Motion UI. Even general technologies like artificial intelligence (AI), voice search (Voice Search), blockchain, and Internet of Things (IoT) with the advent of new technologies, web application development has gotten easier. As a result, web apps have a promising future.

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