

# A Review on Full Stack Web Development

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**Abstract:** Web development is a dynamic and growing field that plays an important role in the development and maintenance of websites and web applications. This abstract provides a brief summary of web development, including its objectives, key technologies, and development process.

Web development encompasses a range of activities aimed at designing and maintaining websites and web applications accessible through the World Wide Web. It combines engineering, design principles and design. This overview highlights the following key points.

1. Objectives and importance: Web development is foundational for individuals, businesses and organizations online. It enables the delivery of information, services and interactive experiences to a global audience, affecting communications, marketing, and industry.

2. Core Technologies: Web development relies on a core set of technologies, including HTML (Hypertext Markup Language), CSS (Cascading Style Sheets), and JavaScript. HTML structures web content, CSS improves visual design, and JavaScript adds interactivity and functionality. In addition to these core technologies, web development often uses databases, backend languages, and frameworks.

3. Development Processes: Interactive development processes typically involve planning, design, development, testing, implementation, and ongoing maintenance. It emphasizes user interfaces, accessibility and flexibility across devices and browsers. The coordination between developers, designers and stakeholders is essential to the success of the project.

**Keyword:** web Development, Application Development , Technologies, eCommerce.

## 1. Introduction

Web development is the process of creating web pages (World Wide Web) or computer networks (private networks) for the web. From simple static plain text pages to complex web pages, online stores, and social network applications, there are many types of web development. A very complete list of jobs that generally fall under the "web development" umbrella are "web engineering," "web design," "website development," "client-side/server-side scripting," "web servers" and "network security policy" ,and "e-commerce growth."

"Web development" is the term Internet scholars use to describe a few design-related aspects of website creation, such as punctuation and typographical promises . In web development, if content management system (CMS) can facilitate creativity and encourage content analysis.

## 2. Ease Of Use

**Responsive design:** Create websites that are responsive and adaptable to screen sizes and devices such as smartphones, tablets and desktops. This ensures that users can access and surf the web seamlessly, regardless of their device. It generally features clean menus, discreet content sections, and simple navigation options.

**Intuitive Navigation:** Use a clear and intuitive navigation system. Users can easily find what they need

without feeling lost. It generally includes well-structured menus, logical groupings, and easy-to-use search function

### 3. Traditional Technologies In Web Development

Web technologies are often classified according to the context in which they occur. Are they focused on the client or server side of web applications, in other words? If you want to play a role in lean development, it is important to understand the major categories of lean engineering. Therefore, the following should be a category-by-category list of web development technologies:

- Using a browser
- HTML AND CSS
- Programming language
- profile
- Web server
- The list of information

#### Frontend technologies

**1) JavaScript:** This is a language that can do scripting. JS is its common acronym. As already established, JavaScript is an improved ECMA script. JavaScript is a highly artificial language that supports the epitome property while implementing the concept of oops. A portable, universal, and lightweight scripting language is JavaScript. Apart from our extensive use in browsers, it is best known as web pages. JavaScript is used for both server-side and client-side development.

**2) NodeJS:** Node.js is a cross-platform runtime environment developed on Chrome's V8 JavaScript engine to execute JavaScript code outside the browser. This is an ASCII text file. You should keep in mind that NodeJS is not a language or framework. It offers an associate degree in event driven, asynchronous, non-blocking.

#### Backend Technologies:

Back-end development involves the server-side aspects of a website or web application. These enhancements cover web design, scripting, and database navigation. Browser and database data can communicate thanks to back-end code. Back-end developers work with code that interacts with databases, libraries, knowledge creation, and other resources while focusing on how the website works. Backend development and front-end development work together to provide users with a valuable and dynamic experience.

**1. Back-end frameworks:** Thanks to the back-end framework, the back-end can be made simpler and easier. Style settings include:

- a) Django
- b) Rubies on rails
- c) Flask

**2. Back-end Database:** A database is a group of linked facts this is prepared in the shape of tables, views, schemas, reviews, and so on. That permits for the green retrieval, insertion, and deletion of facts from records. A website's back end is made of servers, software program, and databases. Because they allow websites and packages to control consumer statistics, databases are vital. Control structures (DBMS) function an interface between customers and the statistics. Users can get entry to, modify, and manipulate statistics via software program. SQL and NoSQL are the 2 primary categories of databases. NoSQL databases do not look like based, whereas SQL databases are. Fashion databases encompass:

- a) MySQL
- b) MongoDB
- c) Redis
- d) Oracle

#### 4. Advantages & Disadvantages

##### Advantages

1. Abuse Is Perpetuated Simple Uniform Resource Locator: These apps a Create a simple URL and enable it in the device's browser.
2. They shouldn't be forced to download from app stores like Google Play or Apple app store installed. Because the link is used when searched through the online appSince this is free, it means cost savings.
3. They can also open websites; They don't need to be updated like apps. This means it does not need to be updated as in normal operations.
4. Low cost: The most important advantage you can get is the price. Online App creation is more expensive than traditional app development.

##### Disadvantages

1. Security problems: data breaches, SQL injection, cross-site scripting (XSS), and. Distributed denial of service (DDOS) attacks are just a subset of network security threats
2. The controls are simple. Manufacturers must implement safety measures
3. It is necessary to protect them from these dangers.
4. Website Support: It may be difficult to guarantee that website or online
5. The application works well on different networks. It can be browser specific
6. Problems that require significant development and testing efforts.

#### 6. Web Security

Web security, also known as web application security, is the process of protecting websites and web applications from threats and vulnerabilities. It is important to ensure that web application security is in place to protect sensitive data, maintain user trust, and prevent unauthorized access or attacks. Below I will describe common web security threats and vulnerabilities and discuss best practices for protecting web applications.

##### a) Typical network security threats and vulnerabilities:

1. Injection attacks:
  - SQL Injection: Attackers inject malicious SQL queries into user input fields manipulate databases.
  - Cross-site scripting (XSS): Malicious scripts are injected into web pages, which can steal data or perform actions on behalf of users.
2. Cross-Site-Request-False (CSRF): Attackers trick users into performing unapproved actions by exploiting their compromised sessions.
3. Integrity and Consistency Management:
  - Simple or predictable.
  - Poor session configuration, resulting in session configuration or hijacking.
4. Unsafe recording: Attackers use insecure decryption to execute arbitrary code on the server.
5. Incorrect security measures: Poorly configured servers, databases and frameworks can expose vulnerabilities.
6. Non-Direct Safety Inspection: Attackers manipulate relevant information to obtain unauthorized data.
7. XML External Service (XXE) Attack: Exploiting XML vulnerabilities to access local or remote information.
8. Insecure file uploads: Allowing users to upload files without proper credentials can result in malicious uploads and server crashes.

##### b) Best practices for securing web applications:

1. Upgrade software and libraries: Regularly update your web server software, application framework, libraries and plugins. Vulnerabilities in older software can be exploited by attackers.

2. Use strong confidence: Establish a strong password policy, and consider using multi-factor authentication (MFA) for added security.
3. Appropriate session controls have been implemented: Implement secure session management techniques, such as session termination after a period of inactivity and regeneration of session tokens after login.
4. Input Validation and Sanitization: Manage and fix the program's inputs to prevent injection attacks (e.g., SQL injection, cross-site scripting). Use parameterized queries for database connections.
5. Preventing Cross-Site Scripting (XSS): Use input and output encoding to prevent script injection. Use security libraries and policies to identify and mitigate XSS vulnerabilities.
6. Cross-Site Request Forgery (CSRF) Security: Adds anti-CSRF tokens in documentation to ensure user actions are authorized.
7. Security Topic: Implements security headers, such as Content Security Policy (CSP), HTTP Strict Transport Security (HSTS), and X-content type options, to mitigate various attacks and improve security.
8. Management and Licensing: Implement appropriate access control and authorization mechanisms to restrict access to sensitive data and functionality. Ensure that users can only access what they are authorized to upload.

## 7. Web Design And User Experience

Web design and user experience (UX) are important elements of web development that directly affect the overall functionality, aesthetics, and success of a website. Let's explore the principles of web design and discuss the importance of experience in web development:

### Principles of Web Design

1. Visual Notes: Implement a clear visual design using size, color, contrast, and positioning to guide users' attention to important features and actions on the website
2. Simple and simple: Keep the layout clean and uncluttered while avoiding unnecessary features and distractions. A minimalist design often results in a user-friendly experience.
3. Compatibility: Maintain consistency in design, such as fonts, colors and navigation, to ensure a consistent and predictable experience throughout the website
4. Print: Choose fonts that are legible and appropriate. Consistent typography contributes to the overall look and readability of the website.
5. Color Description: Use well thought out color schemes to create visually appealing and emotionally appealing designs. Be mindful of the colors you choose to convey the message you want to convey.
6. White space: Effective use of white space to improve readability and make content visually appealing. Appropriate spacing enhances content division and focus.
7. Responsive thoughts: Ensure that the website is responsive and adapts to different screen sizes and devices, providing a seamless user experience on desktop, tablet and mobile devices.
8. Navigation and Reporting System: Create simple and user-friendly navigation systems with clear menus and paths to help users quickly find what they are looking for.

### User experience (UX)

User experience (UX) is an important aspect of web development, as it directly affects how users interact with and perceive websites or web applications. The importance of UX in web development cannot be overstated, as it encompasses many of the key elements of a website's success:

1. User Satisfaction: Positive UX increases user satisfaction. When users find a site accessible, attractive and useful, they have a satisfying experience and are more likely to return to the site
2. User Retention: A website that provides a great user experience is more likely to retain users. Users will stay longer, explore more content, and return for future visits.
3. Reduced Bounce Rate: Well-designed and user-friendly websites often have a low bounce rate,

which means users are less likely to leave the site immediately upon arrival Low bounce rates indicating a pleasant experience and

4. Conversion Rate: On websites with specific goals like e-commerce sites or lead generation, good UX can increase conversion rates. Users typically complete desired actions such as making a purchase or filling out a contact form.
5. Brand Credibility: Using a well-designed user experience increases the credibility of the website and the brand. Having a positive attitude towards your website can build trust among users.
6. Search Engine Optimization (SEO): Search engines view user experience as a ranking factor. Websites with good UX tend to rank higher in search engine results, which can lead to increased organic traffic.
7. Mobile Friendly: With the proliferation of mobile devices, it is important to ensure a good experience on smartphones and tablets. Advanced mobile-friendly websites reach a broader of audience and provide a seamless experience for users on various devices.

## 8. Future Trends

Predict future trends in web development, including emerging technologies and methodologies:-

Predicting future trends in web development is a challenging but important task. The web development industry is constantly evolving with the introduction of new technologies, techniques and user expectations. Here are some of the emerging trends in web development that could shape the industry in the near future:

1. Progressive Web Applications (PWAs): PWAs are web applications that provide a virtual app-like experience, including offline capabilities, push notifications, and faster load times They develop the web of key features, mobile apps. They are becoming increasingly popular, bridging the gap between experiences.
2. WebAssembly (Wasm): WebAssembly is a binary instruction format for the web that enables high-level execution of code on web pages. This allows developers to write web applications in languages other than JavaScript, such as C, C++, and Rust.
3. Single Page Applications (SPAs): SPAs, which load a single HTML page and dynamically update content, continue to gain popularity. They will provide an experience that is as intuitive and responsive as native apps.
4. Serverless architecture: Serverless computing abstracts server management, allowing developers to focus on code. It provides scalability, reduced operational overhead and cost efficiencies.
5. Jamstack (JavaScript, APIs, and Markup): Jamstack is an architecture that separates the frontend from the backend. It is gaining traction for its functionality and security benefits.
6. Web 3.0 and blockchain integration: As blockchain technology evolves, it sees applications in web development, such as decentralized apps (dApps) and blockchain-based authentication and security systems.

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