DAY -6

On the sixth day, we focus on tools and practices that enhance web performance, accessibility, and validation. Key topics include NFR, minifying CSS and JS, Google PageSpeed Insights, Lighthouse, GTmetrix, screen readers, CDNs, and W3C Validators.

NFR (Non-Functional Requirements)

Non-Functional Requirements (NFRs) are the criteria that evaluate the performance, usability, reliability, and other quality attributes of a system, rather than specific behaviors or functions. NFRs ensure that the system meets certain standards and operates effectively under various conditions. Common NFRs include:

- **Performance**: Response time, throughput, and scalability.

- **Usability**: Ease of use, user experience, and accessibility.

- **Reliability**: Availability, fault tolerance, and recoverability.

- **Security**: Authentication, authorization, and data protection.

- **Maintainability**: Modularity, reusability, and ease of updates.

Minify CSS

Minifying CSS involves removing unnecessary characters such as spaces, comments, and line breaks from the CSS file, reducing its size and improving load times. Minification helps in optimizing website performance by decreasing the amount of data that needs to be transferred from the server to the client's browser.

Google PageSpeed Insights

Google PageSpeed Insights is a tool that analyzes the performance of web pages and provides suggestions for improving their speed and overall performance. It scores web pages on a scale from 0 to 100 and offers actionable recommendations to enhance both mobile and desktop user experiences.

Lighthouse

Lighthouse is an open-source, automated tool developed by Google for improving the quality of web pages. It provides audits for performance, accessibility, progressive web apps (PWA), SEO, and more. Lighthouse can be run in Chrome DevTools, from the command line, or as a Node module.

GTmetrix

GTmetrix is a web performance analysis tool that evaluates website speed and provides detailed reports on various performance metrics. It offers insights and recommendations for optimizing web page performance, including page load time, total page size, and the number of requests.

Screen Reader (NDDA)

Screen readers are assistive technology tools that read the contents of a computer screen aloud, providing auditory feedback to users who are blind or visually impaired. They interpret and vocalize text, images, and interface elements, enabling users to navigate and interact with digital content.

CDN (Content Delivery Network)

A Content Delivery Network (CDN) is a network of distributed servers that deliver web content to users based on their geographic location. CDNs improve the performance, speed, and reliability of websites by caching content at multiple edge locations worldwide, reducing latency and load times.

W3C Validator

The W3C Validator is a tool provided by the World Wide Web Consortium (W3C) for checking the validity of HTML, XHTML, and CSS code. It ensures that web pages adhere to web standards and best practices, improving compatibility and accessibility across different browsers and devices.

These tools and practices are essential for modern web development, helping to create fast, accessible, and high-quality web experiences.