BIT607 Web Development

Assessment 2

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Task 1: Design planning and analysis

As a developer using HTML and CSS, I will focus on building a clear and structured layout by using semantic HTML elements. I will ensure that keyboard navigation works as expected—for example, using the Tab key to move through interactive elements in a logical order. I will also apply sufficient colour contrast and support font resizing to improve readability for all users.

To ensure the application is responsive, I will use CSS media queries and a grid layout to adapt the design across different screen sizes. I'll ensure buttons are large enough for easy interaction on mobile devices, maintain a readable font across all viewports, and optimise image sizes for faster loading on all screens.

For accessibility testing, I'll use automated tools such as Axe DevTools or Lighthouse, and I'll also perform manual checks using VoiceOver to simulate how screen readers interact with the application. I'll verify that all functionality is accessible via keyboard navigation.

To test responsiveness and usability, I will use browser developer tools and test on multiple real devices. Additionally, I may use tools such as BrowserStack or Responsively App for cross-browser and cross-device testing. Finally, I will conduct user testing sessions or surveys to gather direct feedback on ease of use, layout clarity, and overall user experience.

Task 2: Develop a web application

Part 1: Development

https://github.com/jignesh-prog/BIT607Assessment2_5073878/

Part 2: Hosting pages

https://github.com/jignesh-prog/BIT607Assessment2_5073878/

Part 3: Validating your HTML and CSS

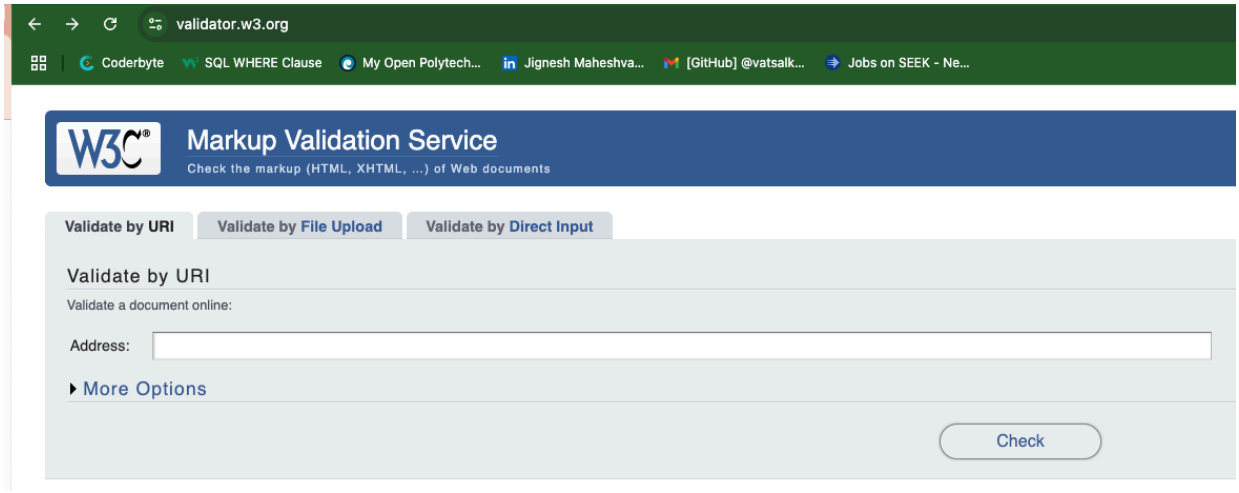

Image 1: Validator used for validating HTML and CSS

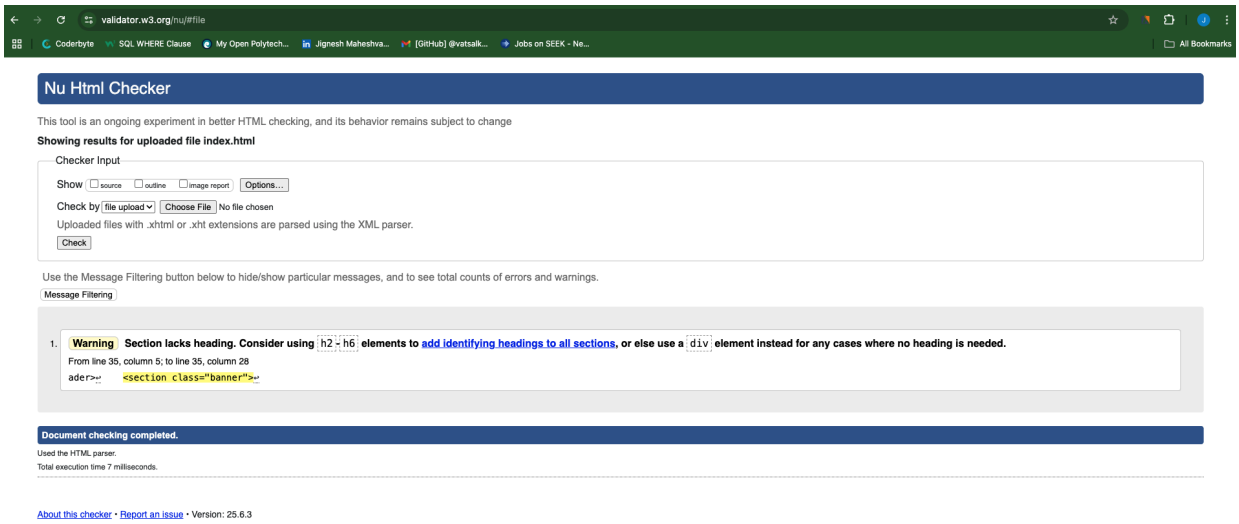

Image 2: Validate the index.html page from the local upload

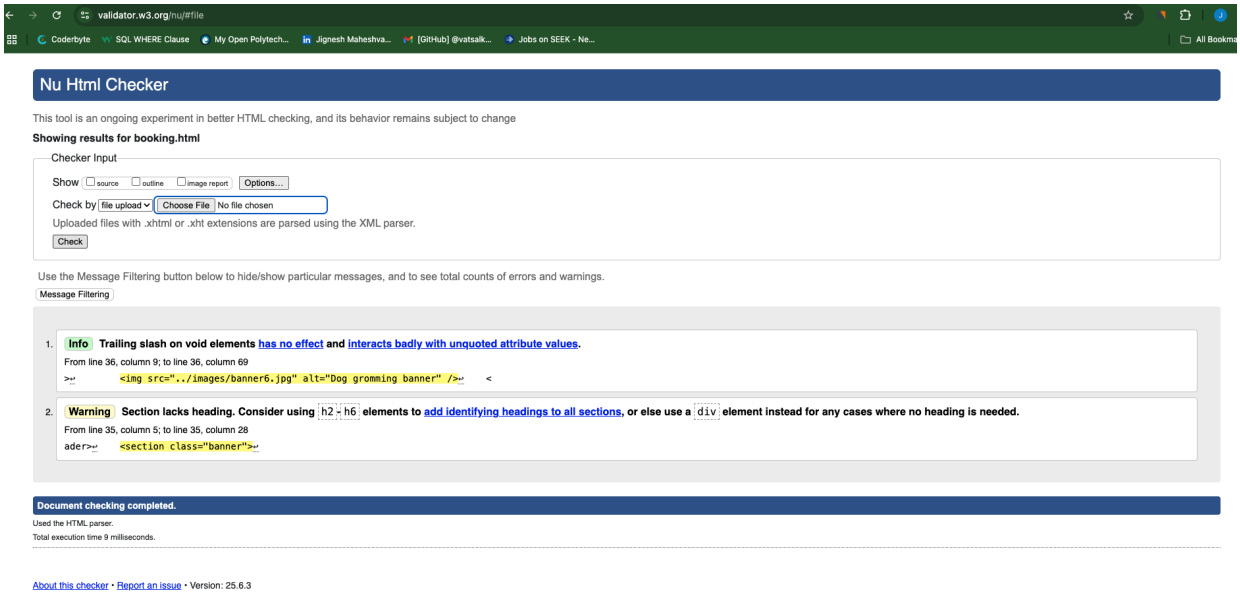

Image 3: Validate the booking.html page from the local upload

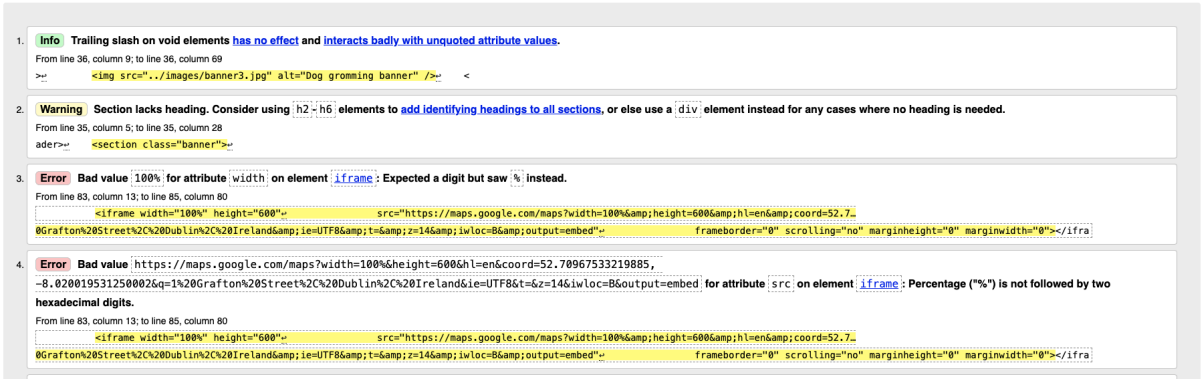

Image 4: Validate the contact.html page from the local upload

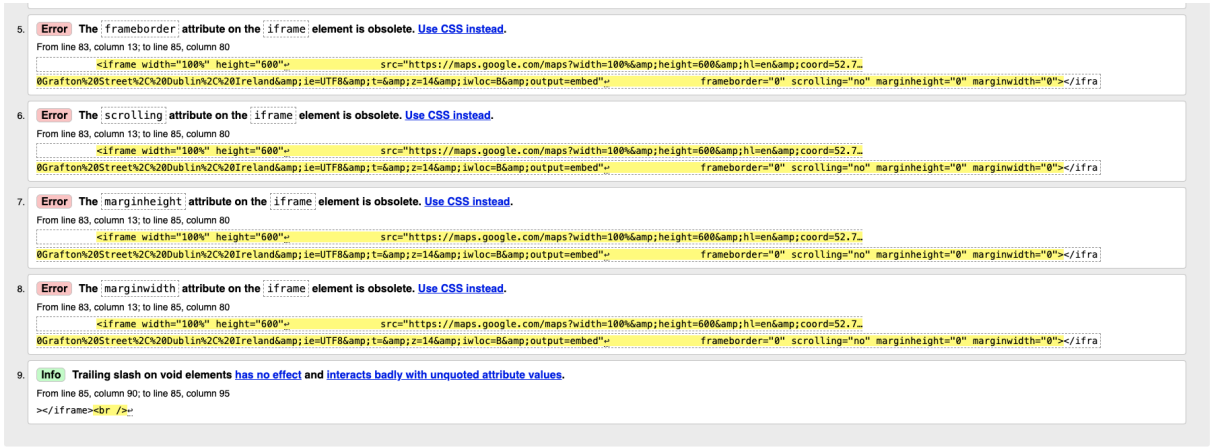

Image 5: Validate the contact.html page from the local upload

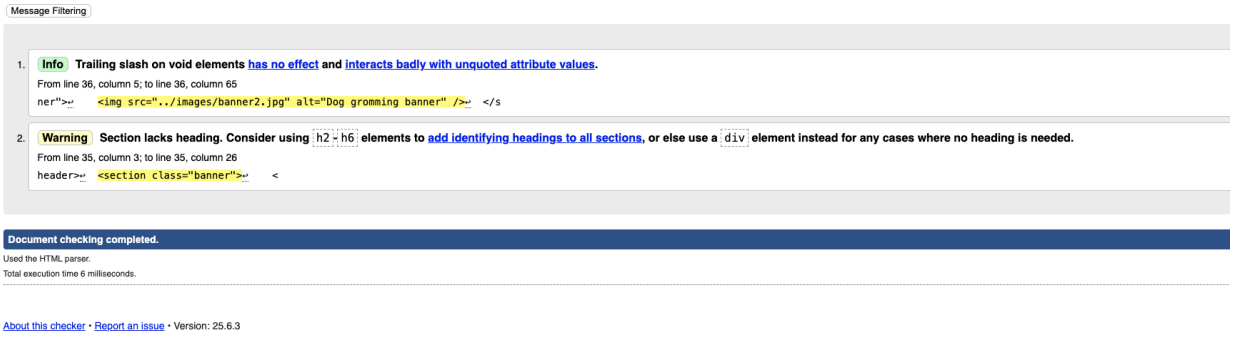

Image 6: Validate the faqs.html page from the local upload

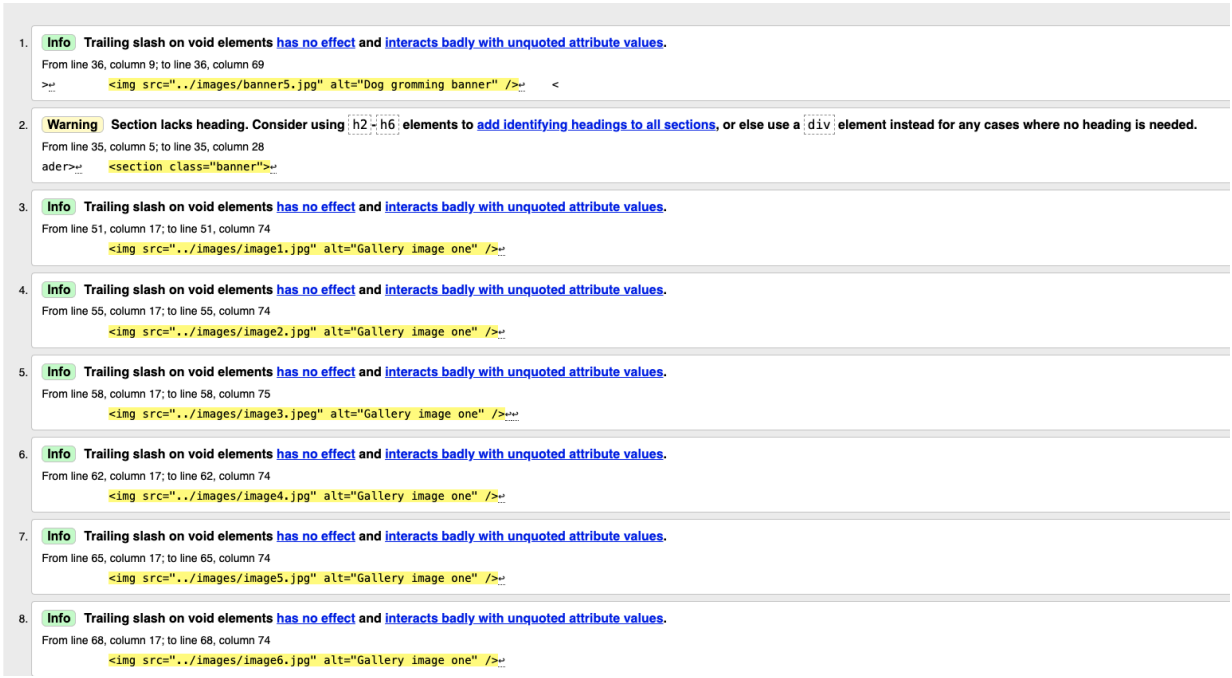

Image 7: Validate the gallery.html page from the local upload

Image 8: Validate the gallery.html page from the local upload

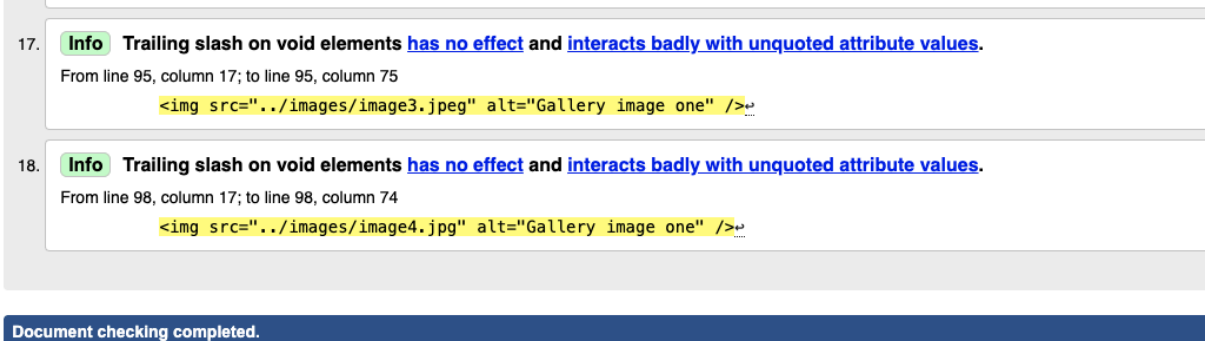

Image 9: Validate the gallery.html page from the local upload

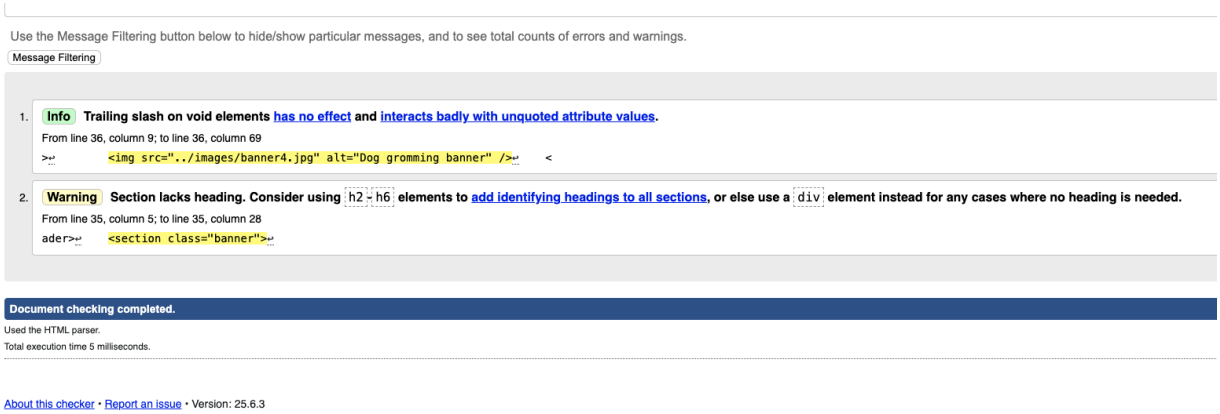

Image 10: Validate the services.html page from the local upload

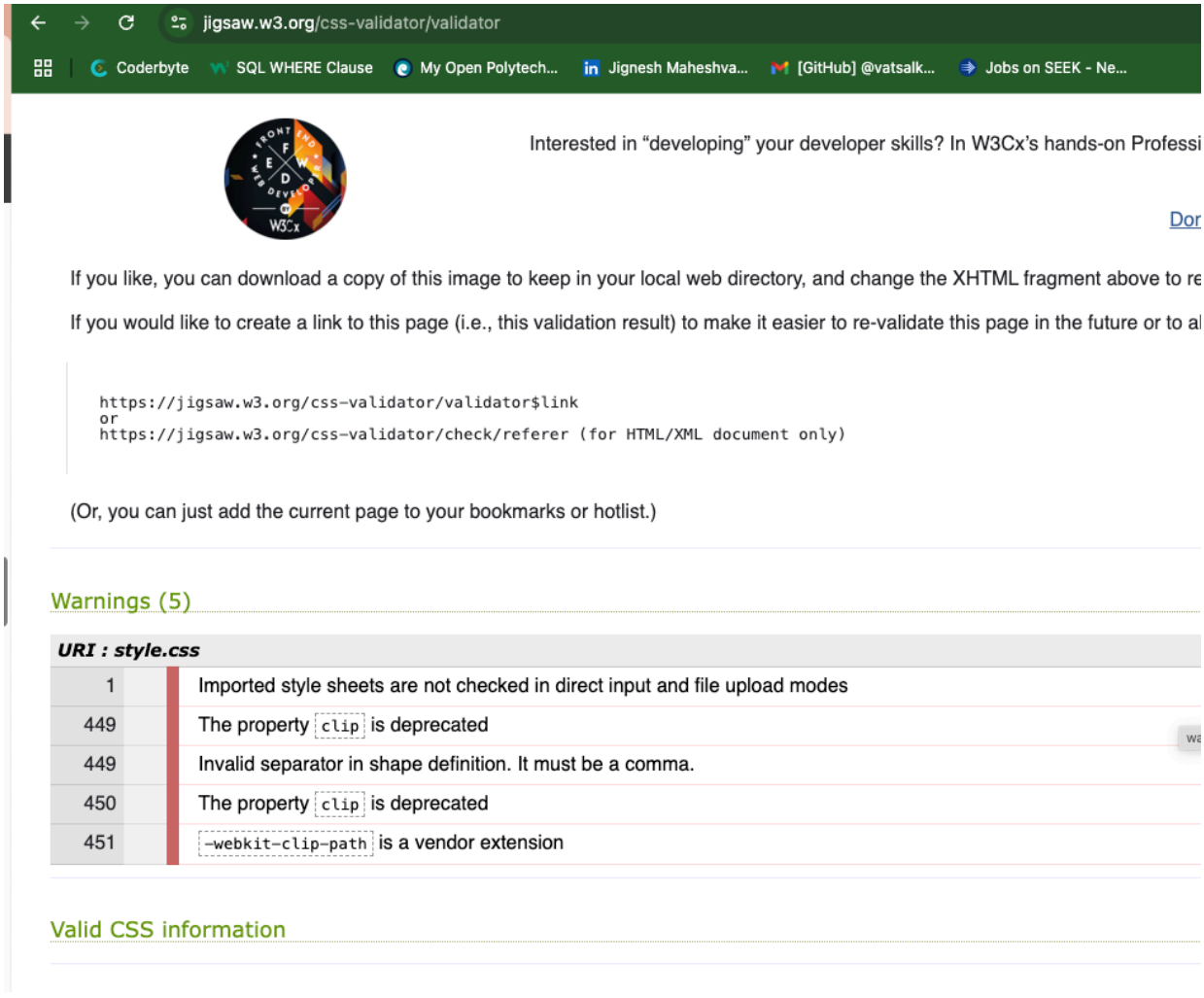

Image 11: Validate the style.css page from the local upload

Part 4: Performance and speed testing

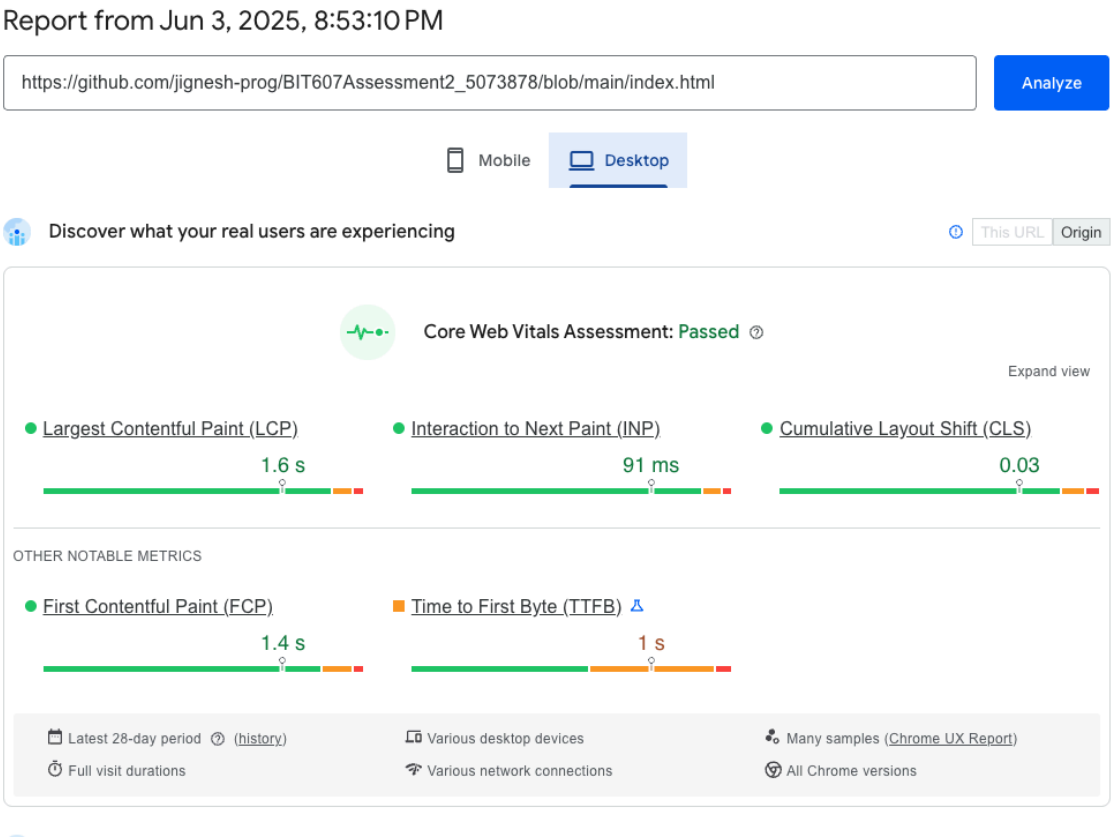

Image 12: Performance test for the index.html page

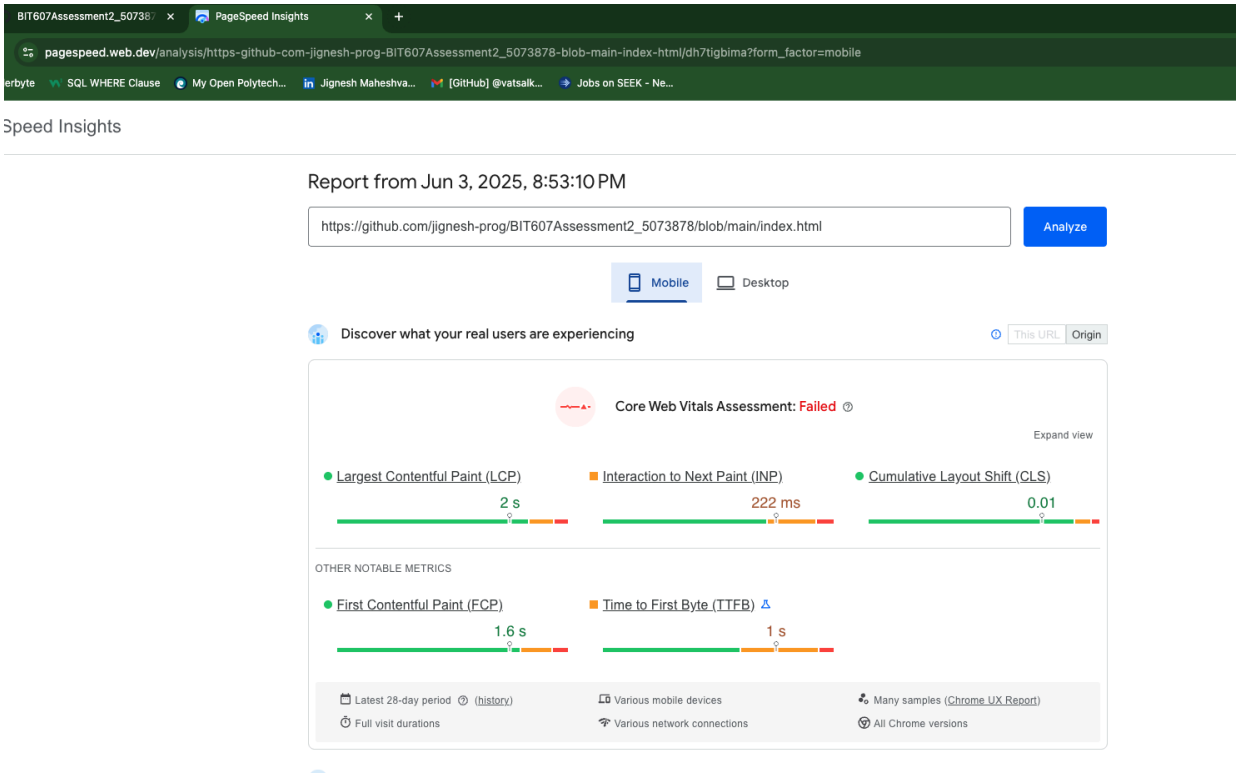

Image 13: Performance test for the index.html page

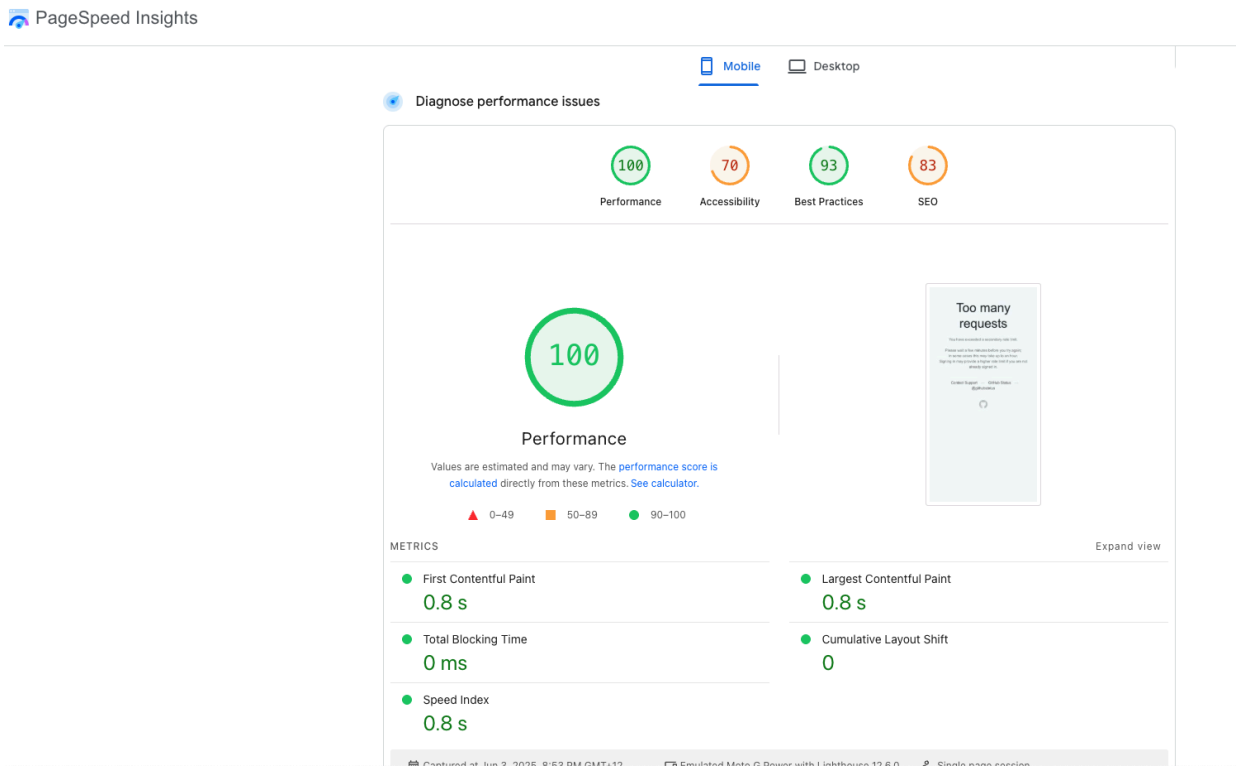

Image 14: Detailed Performance test for the index.html page

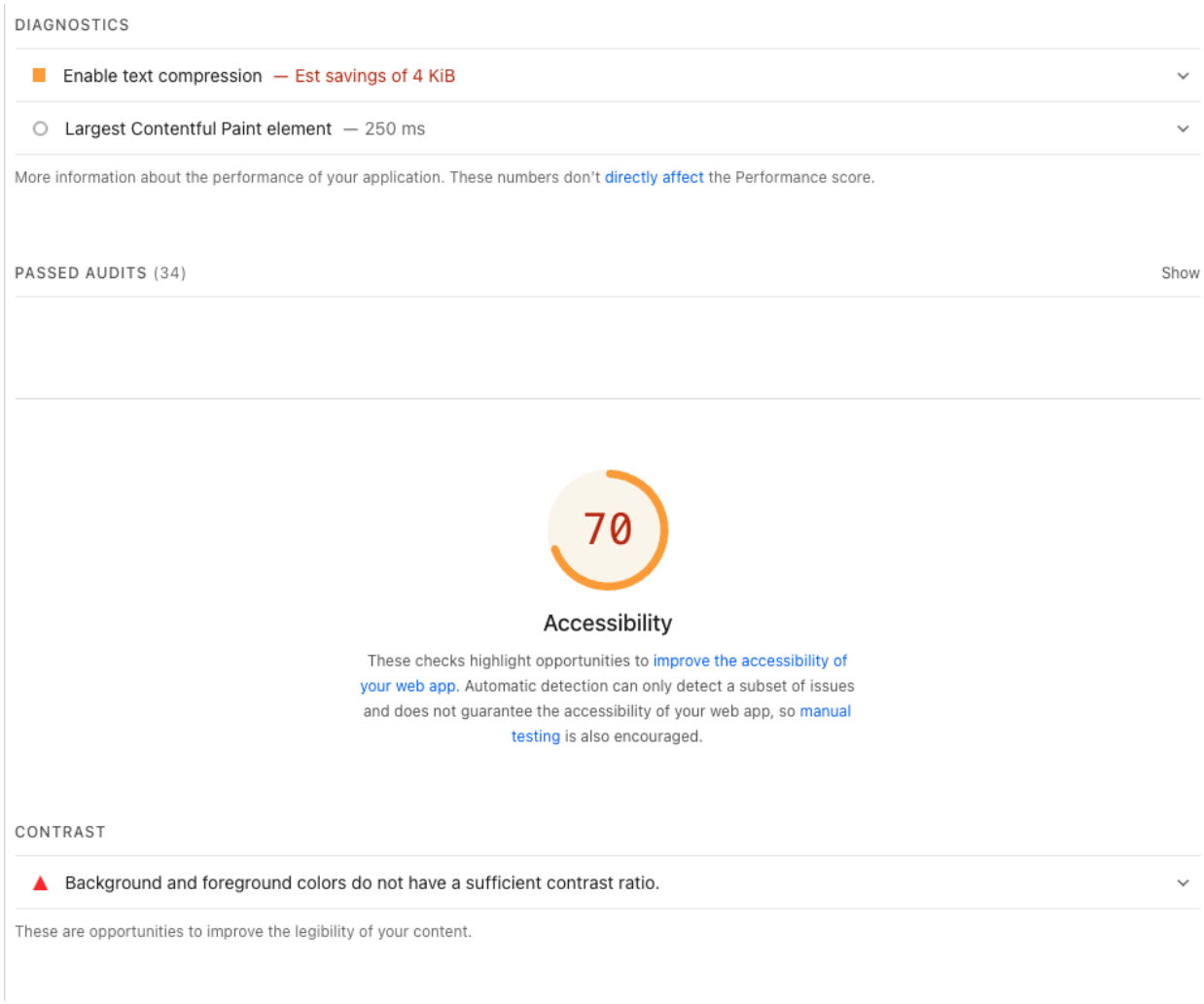

Image 15: Detailed Performance test for the index.html page

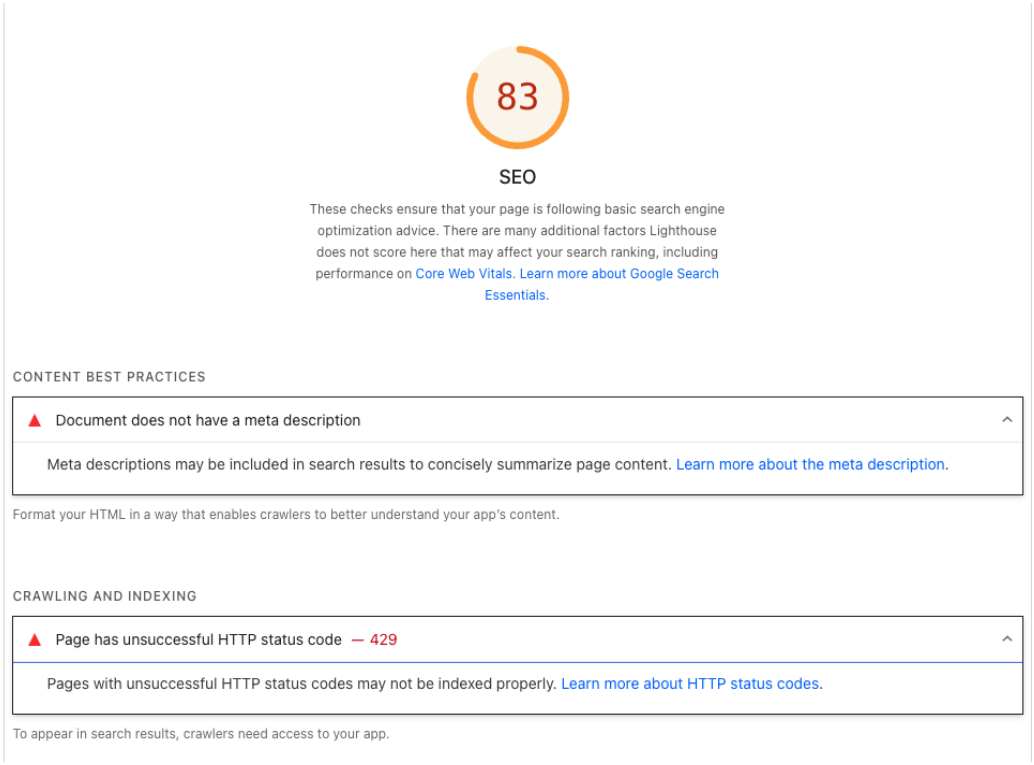

Image 16: Detailed Performance test for the index.html page

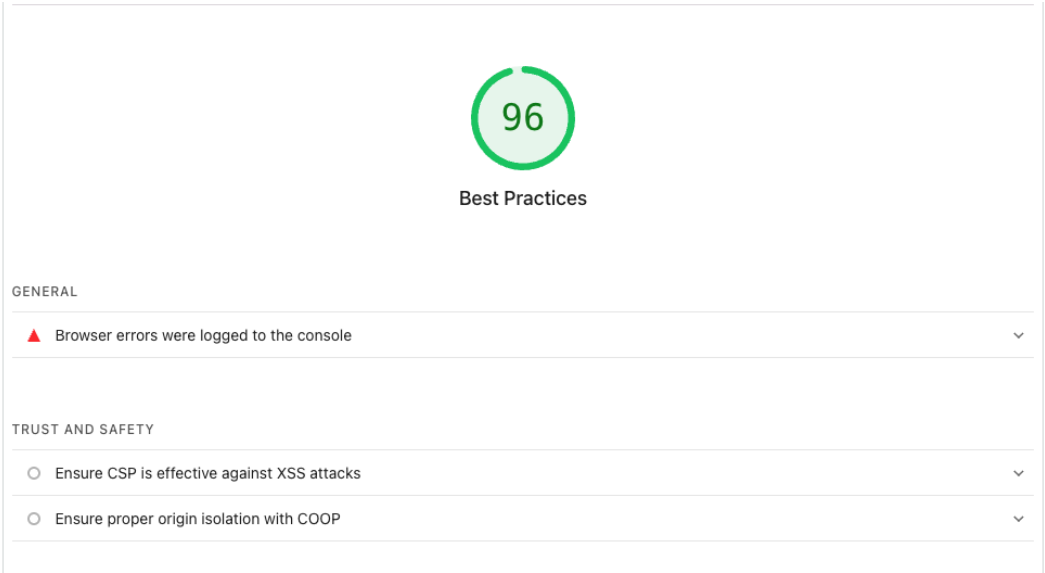

Image 17: Detailed Performance test for the index.html page

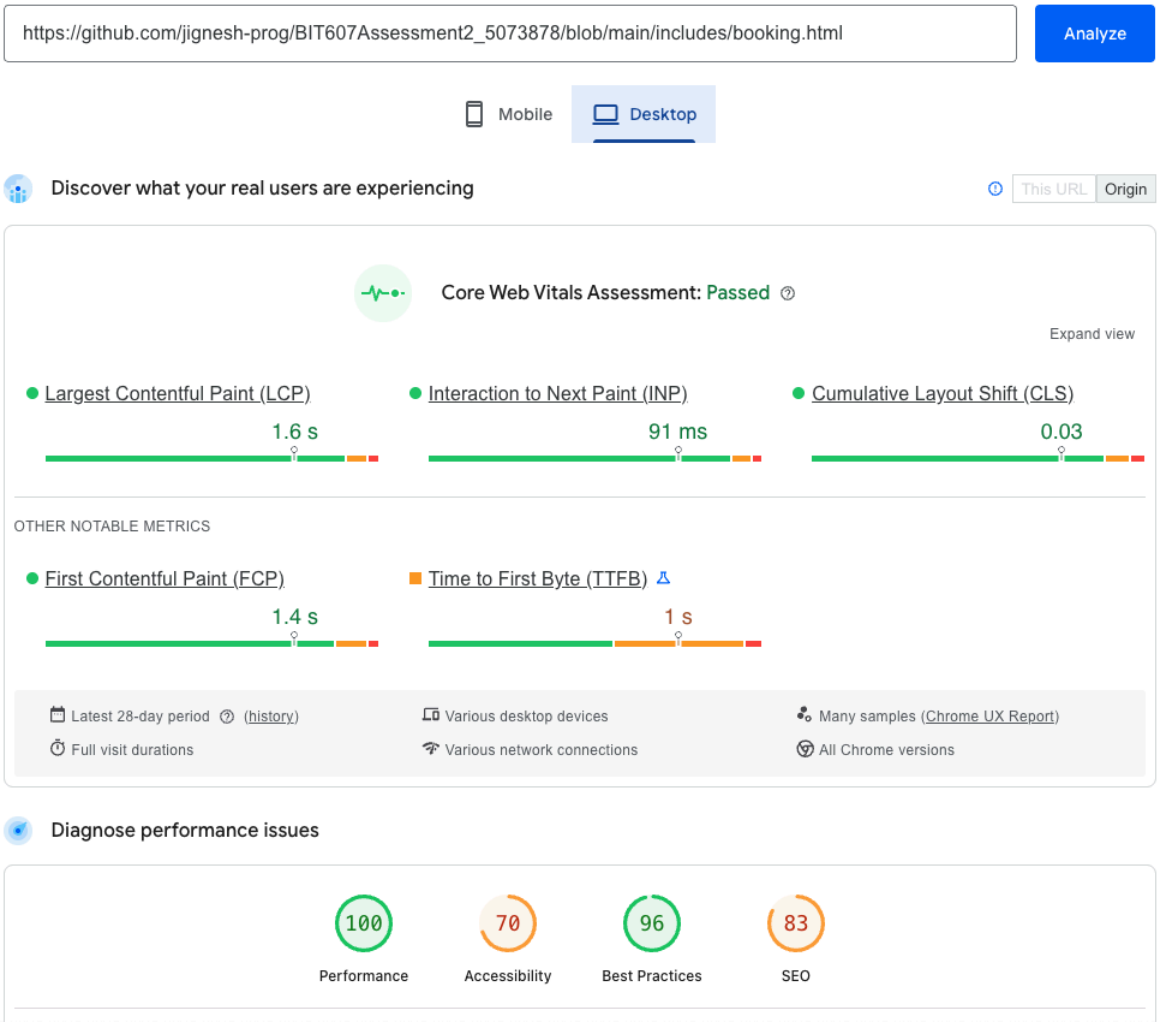

Image 18: Performance test for the booking.html page

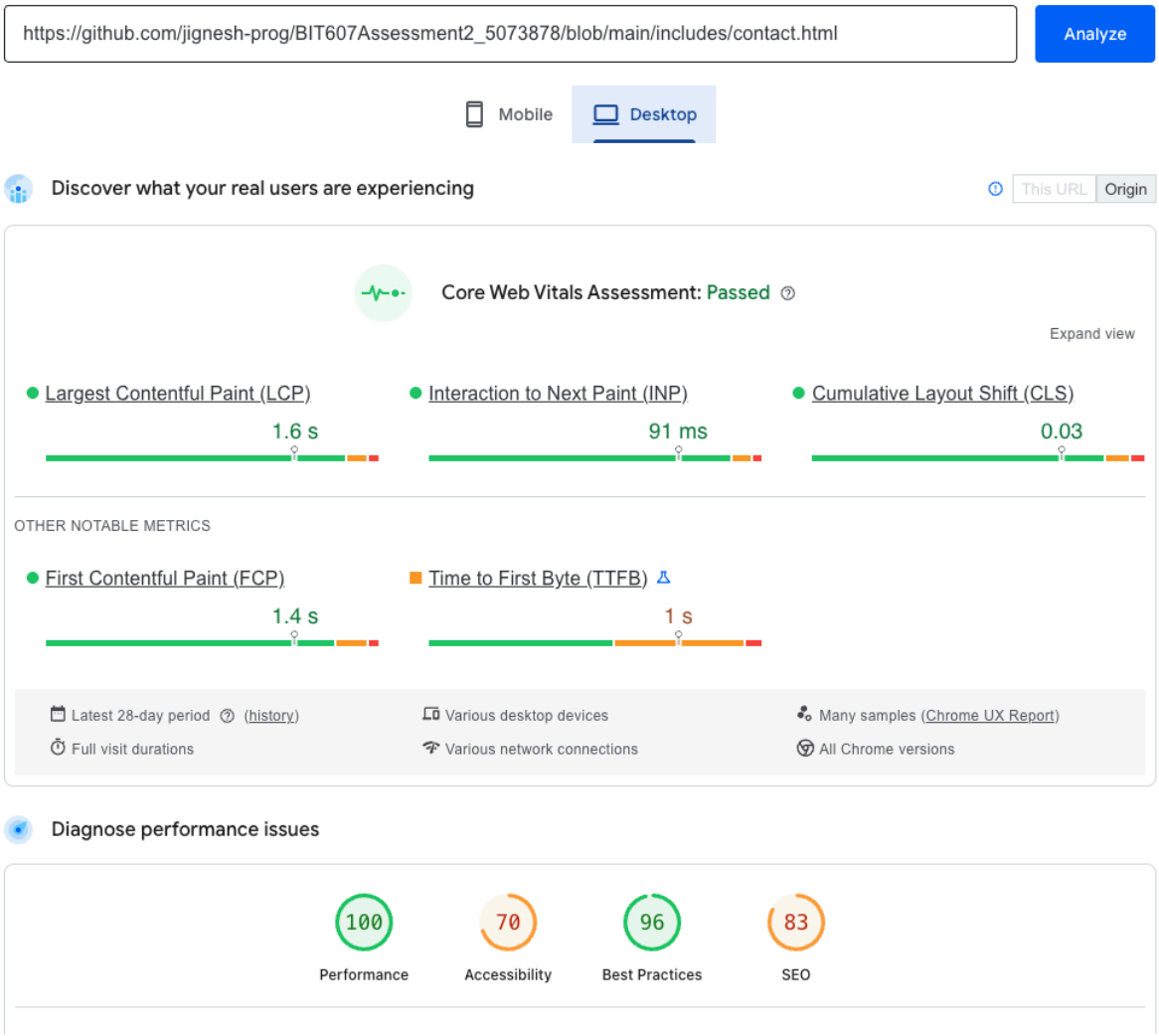

Image 19: Performance test for the contact.html page

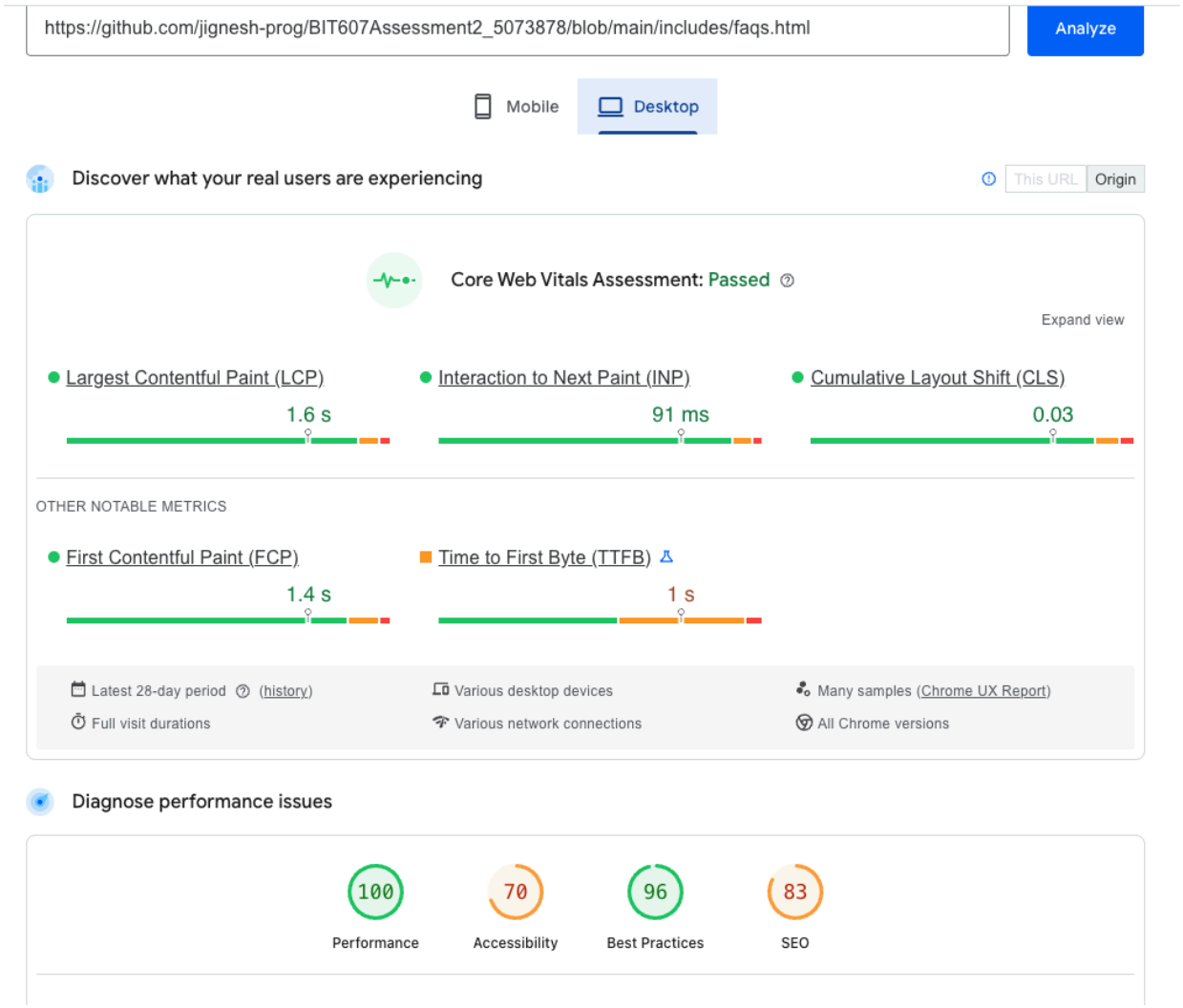

Image 20: Performance test for the faqs.html page

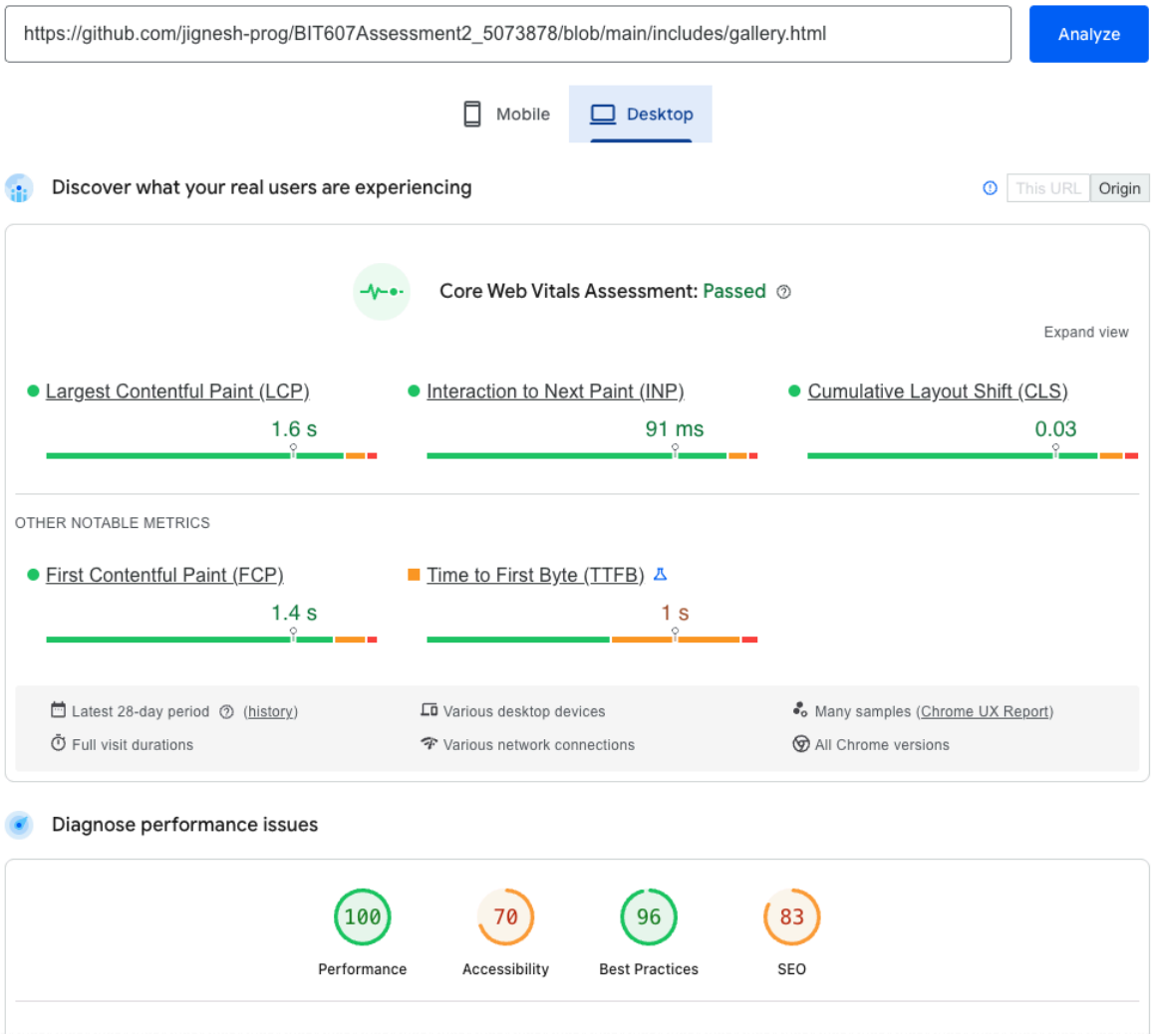

Image 21: Performance test for the gallery.html page

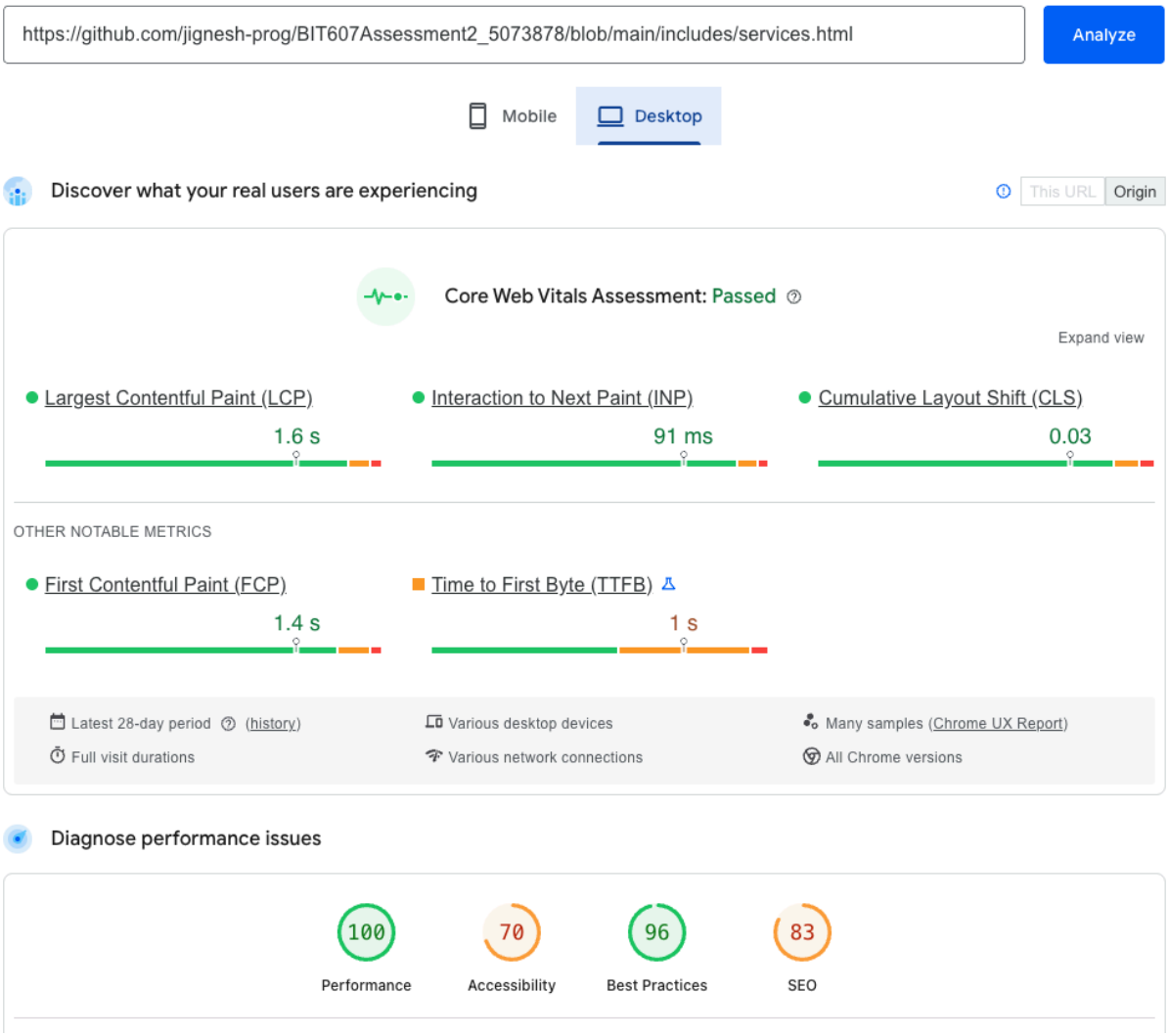

Image 22: Performance test for the service.html page

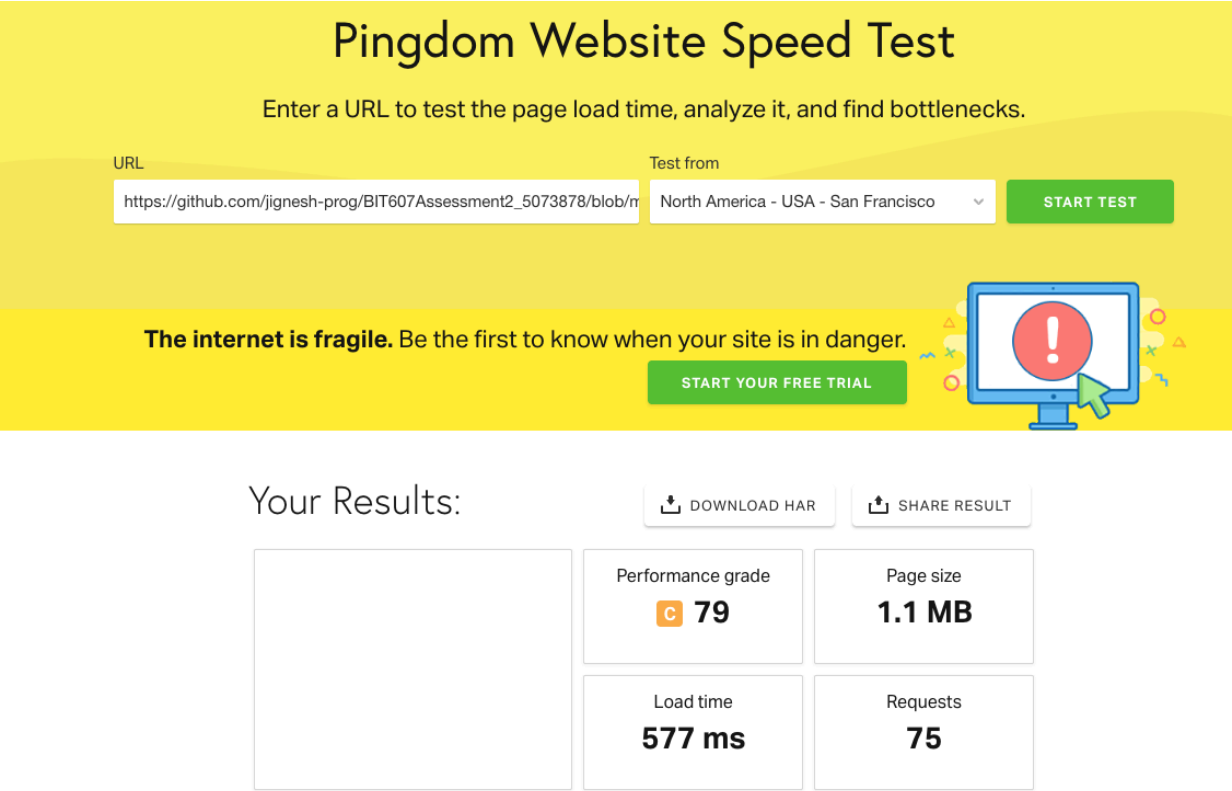

Image 23: Pingdom Website Speed Test for contact page

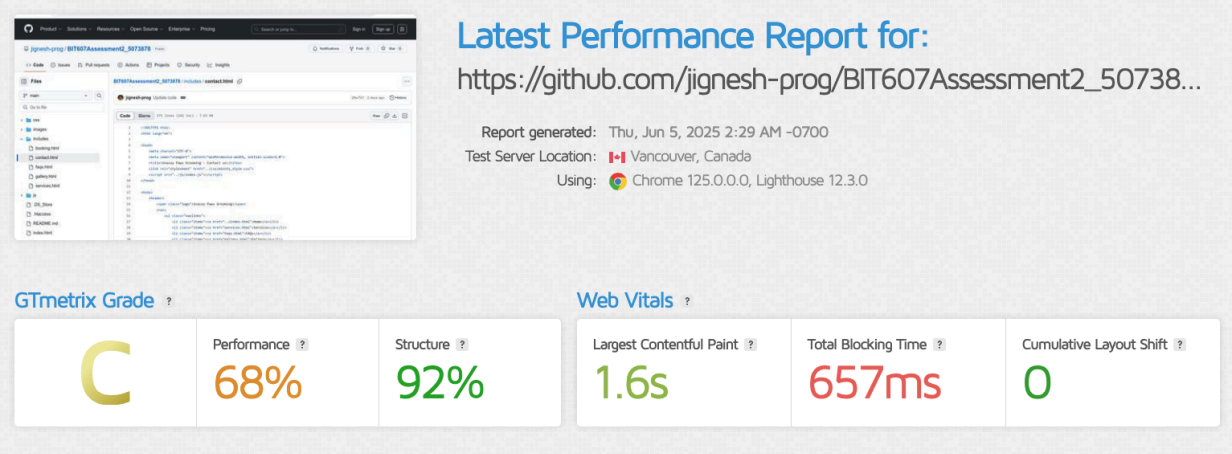

Image 23: GTmetrix Website Speed Test for contact page

Part 5: Content delivery networks (CDNs) and caching

A Content Delivery Network (CDN) is crucial for enhancing website performance and ensuring a seamless user experience. It works by caching and storing critical website assets—such as HTML, CSS, JavaScript, images, and videos—on a network of strategically located edge servers. By delivering content from the server closest to the user, a CDN significantly reduces latency and improves page load times.

CDNs play a main role in enhancing website speed across all devices, including mobile. Whether users are accessing a blog, streaming media, or playing mobile games, a CDN ensures content loads quickly and efficiently. This not only improves user satisfaction but also contributes to better SEO rankings and lower bounce rates.

Another key benefit of CDNs is their ability to handle high volumes of traffic. Through load balancing, a CDN evenly distributes traffic across multiple servers, making it easier to scale and maintain performance during traffic spikes or peak usage times.

Moreover, CDNs provide built-in reliability through intelligent failover systems. If a server experiences a failure or goes offline, the CDN reroutes traffic to the next available server without disrupting service. This ensures consistent uptime and minimizes the risk of downtime due to server issues.

In summary, CDNs enhance website speed, reliability, and scalability. By caching content close to users, balancing traffic loads, and offering failover capabilities, a CDN plays a crucial role in delivering fast, reliable, and seamless digital experiences across the globe.

Reference

1. https://validator.w3.org/
2. https://jigsaw.w3.org/css-validator/
3. https://pagespeed.web.dev/
4. https://tool.pingdom.com/#65cfda7723400000
5. https://gtmetrix.com/reports/github.com/16dOFmnf/
6. https://www.cloudflare.com/learning/cdn/what-is-a-cdn/
7. https://www.lenovo.com/in/en/glossary/cdn/?orgRef=https%253A%252F%252Fwww.google.com%252F#