

BIT607 Web Development

Assessment 2

Name: Jigneshkumar Maheshvari

Student ID: 5073878

Task 1: Design planning and analysis.....	2
Task 2: Develop a web application.....	4
Part 1: Development.....	4
Part 2: Hosting pages.....	4
Part 3: Validating your HTML and CSS.....	4
Part 4: Performance and speed testing.....	10
Part 5: Content delivery networks (CDNs) and caching.....	20
Reference.....	21

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

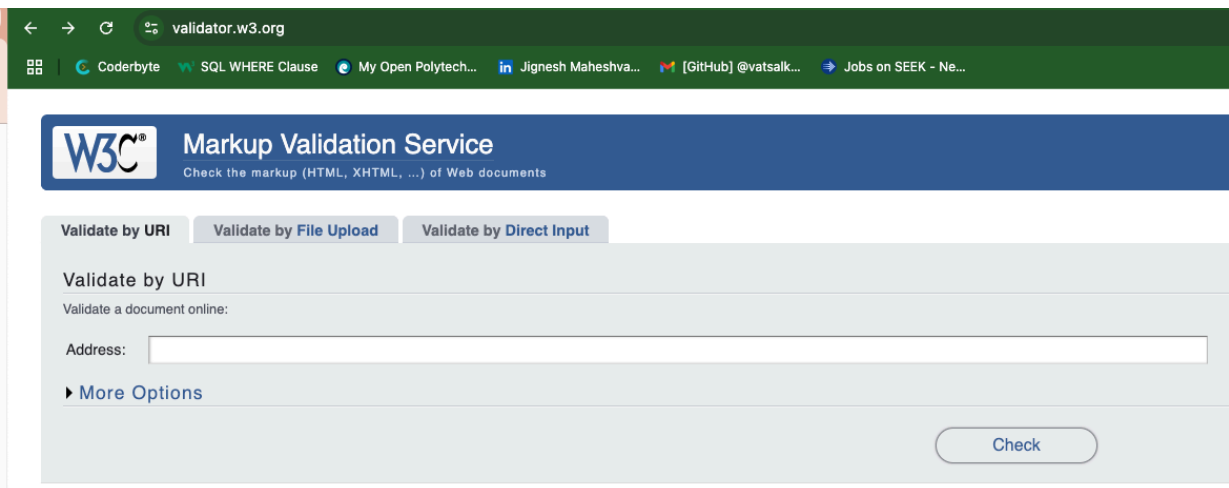
Part 1: Development

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

Part 2: Hosting pages

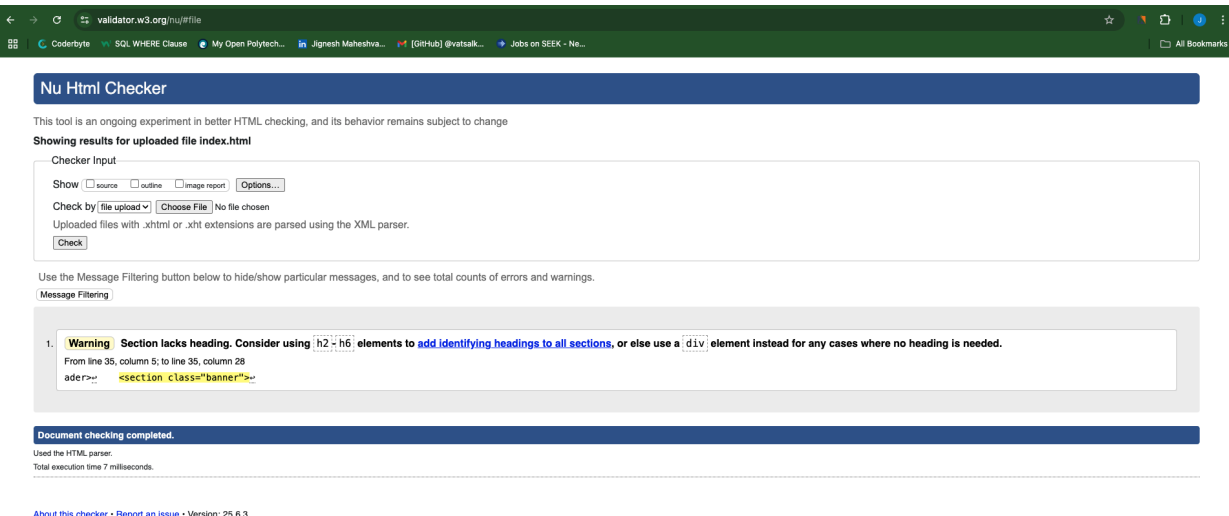
https://github.com/jignesh-prog/BIT607Assessment2_5073878/

Part 3: Validating your HTML and CSS



The screenshot shows the W3C Markup Validation Service website. The browser address bar displays 'validator.w3.org'. The page has a dark green header with the W3C logo and the text 'Markup Validation Service'. Below the header, there are three tabs: 'Validate by URI', 'Validate by File Upload', and 'Validate by Direct Input'. The 'Validate by URI' tab is selected. Under this tab, there is a text input field labeled 'Address:' and a 'Check' button. A 'More Options' link is also visible.

Image 1: Validator used for validating HTML and CSS



The screenshot shows the Nu Html Checker results for an uploaded file named 'index.html'. The browser address bar displays 'validator.w3.org/nu/#file'. The page has a dark blue header with the text 'Nu Html Checker'. Below the header, there is a section titled 'Showing results for uploaded file index.html'. Under this section, there is a 'Checker Input' box with a 'Show' dropdown menu set to 'source'. Below the input box, there is a 'Check' button. The results section shows a warning message: 'Warning: Section lacks heading. Consider using h2-h6 elements to add identifying headings to all sections, or else use a div element instead for any cases where no heading is needed. From line 35, column 5; to line 35, column 28'. The message is highlighted in yellow. At the bottom of the page, there is a footer with the text 'Document checking completed. Used the HTML parser. Total execution time 7 milliseconds.' and links to 'About this checker' and 'Report an issue'.

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

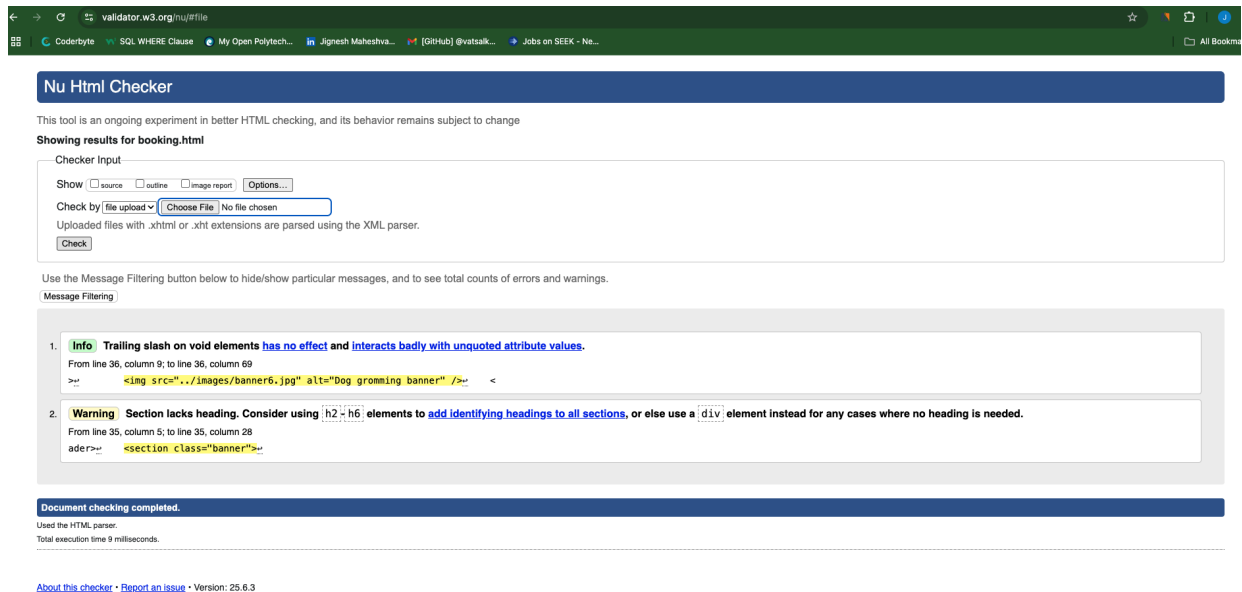


Image 3: Validate the booking.html page from the local upload

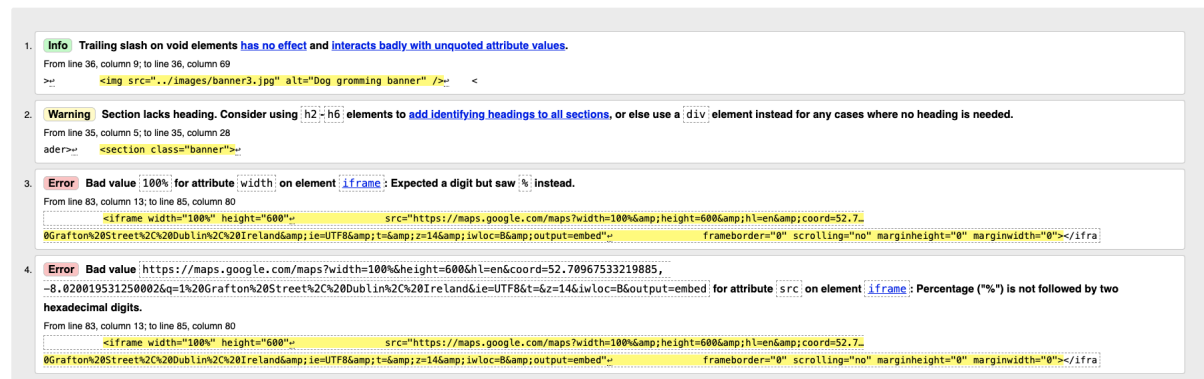


Image 4: Validate the contact.html page from the local upload

- Error** The `frameborder` attribute on the `iframe` element is obsolete. [Use CSS instead.](#)

From line 83, column 13; to line 85, column 80

```
<iframe width="100%" height="600%" src="https://maps.google.com/maps?width=100%&height=600&ph=en&coord=52.7,
06&format=205&tree%2C%20Dublin%2C%20Ireland&map;ie=UTF8&map;t=6&z=14&map;iwloc=8&map;output=embed" frameborder="0" scrolling="no" marginheight="0" marginwidth="0"></ifra
```
- Error** The `scrolling` attribute on the `iframe` element is obsolete. [Use CSS instead.](#)

From line 83, column 13; to line 85, column 80

```
<iframe width="100%" height="600%" src="https://maps.google.com/maps?width=100%&height=600&ph=en&coord=52.7,
06&format=205&tree%2C%20Dublin%2C%20Ireland&map;ie=UTF8&map;t=6&z=14&map;iwloc=8&map;output=embed" frameborder="0" scrolling="no" marginheight="0" marginwidth="0"></ifra
```
- Error** The `marginheight` attribute on the `iframe` element is obsolete. [Use CSS instead.](#)

From line 83, column 13; to line 85, column 80

```
<iframe width="100%" height="600%" src="https://maps.google.com/maps?width=100%&height=600&ph=en&coord=52.7,
06&format=205&tree%2C%20Dublin%2C%20Ireland&map;ie=UTF8&map;t=6&z=14&map;iwloc=8&map;output=embed" frameborder="0" scrolling="no" marginheight="0" marginwidth="0"></ifra
```
- Error** The `marginwidth` attribute on the `iframe` element is obsolete. [Use CSS instead.](#)

From line 83, column 13; to line 85, column 80

```
<iframe width="100%" height="600%" src="https://maps.google.com/maps?width=100%&height=600&ph=en&coord=52.7,
06&format=205&tree%2C%20Dublin%2C%20Ireland&map;ie=UTF8&map;t=6&z=14&map;iwloc=8&map;output=embed" frameborder="0" scrolling="no" marginheight="0" marginwidth="0"></ifra
```
- Info** Trailing slash on void elements [has no effect](#) and [interacts badly with unquoted attribute values](#).

From line 85, column 90; to line 85, column 95

```
></iframe><br />
```

Message Filtering

1.

Info

Trailing slash on void elements **has no effect** and **interacts badly with unquoted attribute values**.

From line 36, column 5; to line 36, column 65

```
ner">......</s>
```

2.

Warning

Section lacks heading. Consider using `h2` - `h6` elements to **add identifying headings to all sections**, or else use a `div` element instead for any cases where no heading is needed.

From line 35, column 3; to line 35, column 26

```
header>...<section class="banner">...<
```

Document checking completed.

Used the HTML parser.

Total execution time 6 milliseconds.

About this checker

Report an issue

Version: 25.6.3

1. **Info** Trailing slash on void elements [has no effect](#) and [interacts badly with unquoted attribute values](#).
From line 36, column 9; to line 36, column 69
``
2. **Warning** Section lacks heading. Consider using `h2`~`h6` elements to [add identifying headings to all sections](#), or else use a `div` element instead for any cases where no heading is needed.
From line 35, column 5; to line 35, column 28
`<section class="banner">`
3. **Info** Trailing slash on void elements [has no effect](#) and [interacts badly with unquoted attribute values](#).
From line 51, column 17; to line 51, column 74
``
4. **Info** Trailing slash on void elements [has no effect](#) and [interacts badly with unquoted attribute values](#).
From line 55, column 17; to line 55, column 74
``
5. **Info** Trailing slash on void elements [has no effect](#) and [interacts badly with unquoted attribute values](#).
From line 58, column 17; to line 58, column 75
``
6. **Info** Trailing slash on void elements [has no effect](#) and [interacts badly with unquoted attribute values](#).
From line 62, column 17; to line 62, column 74
``
7. **Info** Trailing slash on void elements [has no effect](#) and [interacts badly with unquoted attribute values](#).
From line 65, column 17; to line 65, column 74
``
8. **Info** Trailing slash on void elements [has no effect](#) and [interacts badly with unquoted attribute values](#).
From line 68, column 17; to line 68, column 74
``

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

9. **Info** Trailing slash on void elements [has no effect](#) and [interacts badly with unquoted attribute values](#).
From line 71, column 17; to line 71, column 74
``
10. **Info** Trailing slash on void elements [has no effect](#) and [interacts badly with unquoted attribute values](#).
From line 74, column 17; to line 74, column 74
``
11. **Info** Trailing slash on void elements [has no effect](#) and [interacts badly with unquoted attribute values](#).
From line 77, column 17; to line 77, column 75
``
12. **Info** Trailing slash on void elements [has no effect](#) and [interacts badly with unquoted attribute values](#).
From line 80, column 17; to line 80, column 74
``
13. **Info** Trailing slash on void elements [has no effect](#) and [interacts badly with unquoted attribute values](#).
From line 83, column 17; to line 83, column 74
``
14. **Info** Trailing slash on void elements [has no effect](#) and [interacts badly with unquoted attribute values](#).
From line 86, column 17; to line 86, column 74
``
15. **Info** Trailing slash on void elements [has no effect](#) and [interacts badly with unquoted attribute values](#).
From line 89, column 17; to line 89, column 74
``
16. **Info** Trailing slash on void elements [has no effect](#) and [interacts badly with unquoted attribute values](#).
From line 92, column 17; to line 92, column 74
``

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

17. **Info** Trailing slash on void elements [has no effect](#) and [interacts badly with unquoted attribute values](#).
From line 95, column 17; to line 95, column 75
``
18. **Info** Trailing slash on void elements [has no effect](#) and [interacts badly with unquoted attribute values](#).
From line 98, column 17; to line 98, column 74
``

Document checking completed.

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

Use the Message Filtering button below to hide/show particular messages, and to see total counts of errors and warnings.

Message Filtering

- Info** Trailing slash on void elements **has no effect** and **interacts badly with unquoted attribute values**.
From line 36, column 9; to line 36, column 69

```

```
- Warning** Section lacks heading. Consider using `h2` - `h6` elements to **add identifying headings to all sections**, or else use a `div` element instead for any cases where no heading is needed.
From line 35, column 5; to line 35, column 28

```
<section class="banner">
```


Document checking completed.
Used the HTML parser.
Total execution time 5 milliseconds.

[About this checker](#) • [Report an issue](#) • Version: 25.6.3

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

← → ↺ jigsaw.w3.org/css-validator/validator

Coderbyte SQL WHERE Clause My Open Polytech... Jignesh Mahesha... [GitHub] @vatsalk... Jobs on SEEK - Ne...



Interested in "developing" your developer skills? In W3C's hands-on Professional Development Program

[Dor](#)

If you like, you can download a copy of this image to keep in your local web directory, and change the XHTML fragment above to re

If you would like to create a link to this page (i.e., this validation result) to make it easier to re-validate this page in the future or to al

```
https://jigsaw.w3.org/css-validator/validator$link
or
https://jigsaw.w3.org/css-validator/check/referer (for HTML/XML document only)
```

(Or, you can just add the current page to your bookmarks or hotlist.)

Warnings (5)

URI : style.css

1	Imported style sheets are not checked in direct input and file upload modes
449	The property <code>clip</code> is deprecated
449	Invalid separator in shape definition. It must be a comma.
450	The property <code>clip</code> is deprecated
451	<code>-webkit-clip-path</code> is a vendor extension

Valid CSS information

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

Part 4: Performance and speed testing

Report from Jun 3, 2025, 8:53:10 PM

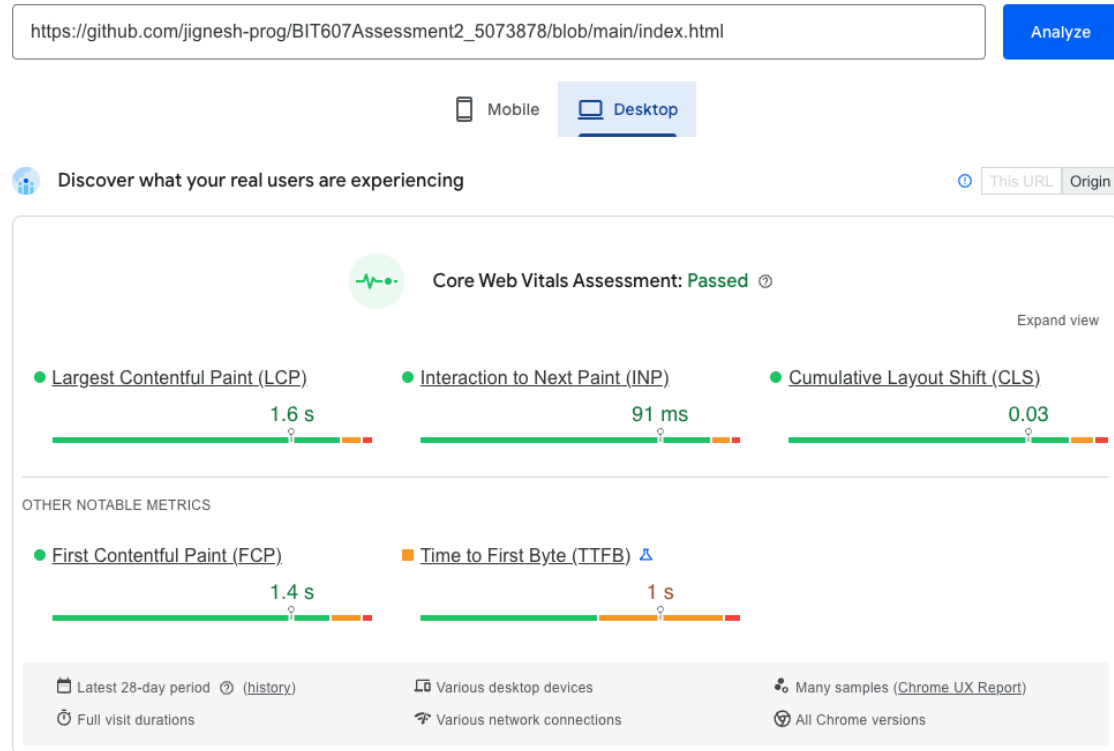


Image 12: Performance test for the index.html page

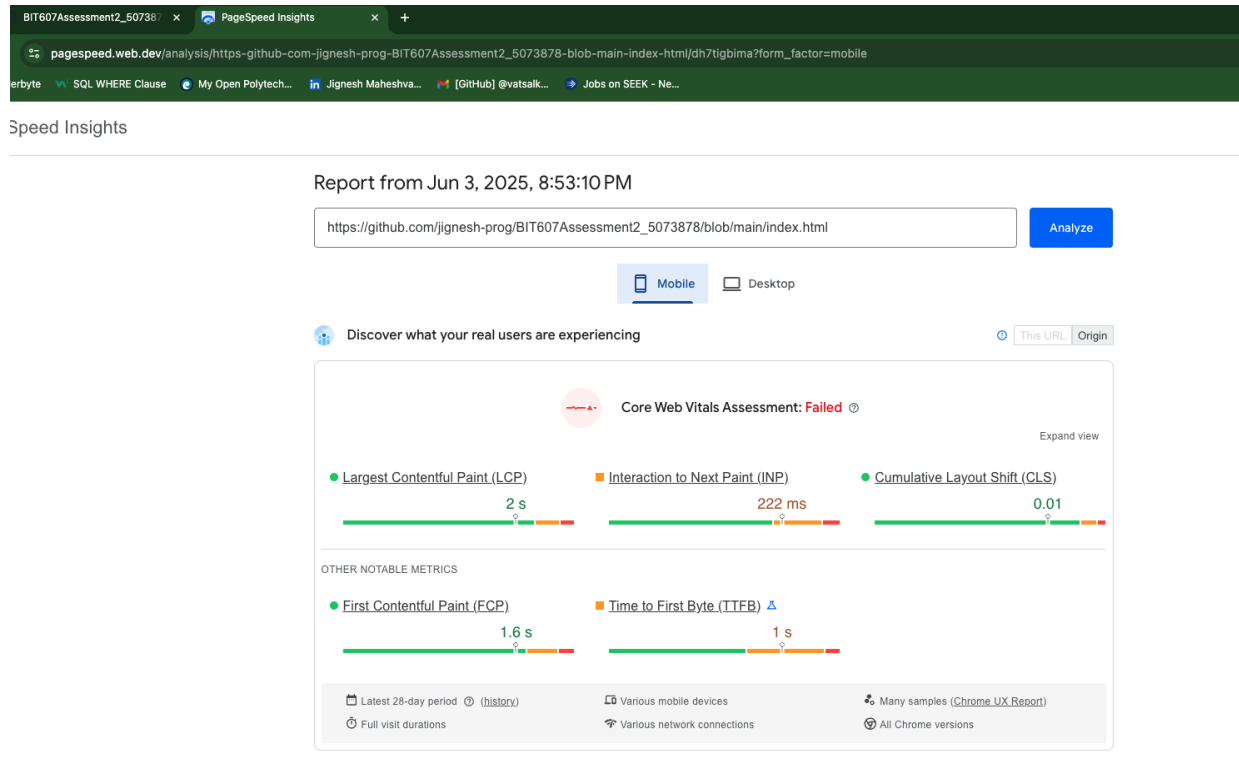


Image 13: Performance test for the index.html page

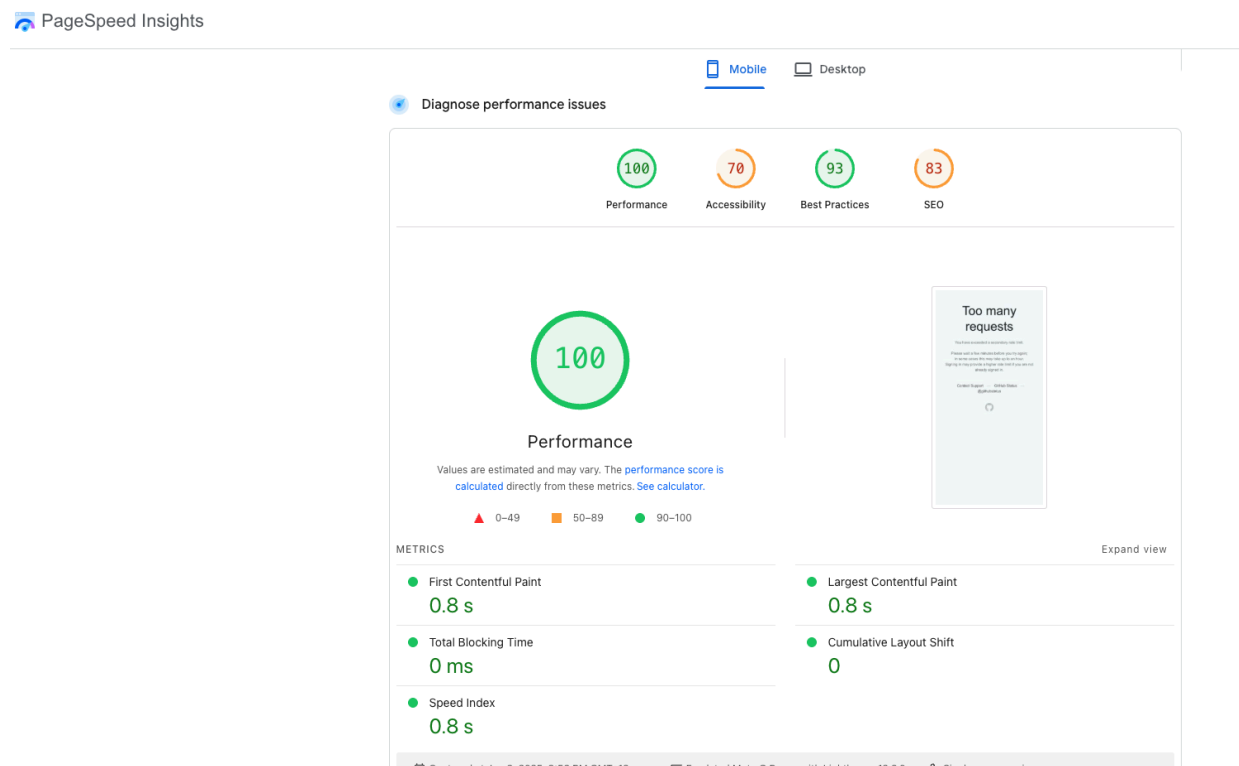


Image 14: Detailed Performance test for the index.html page

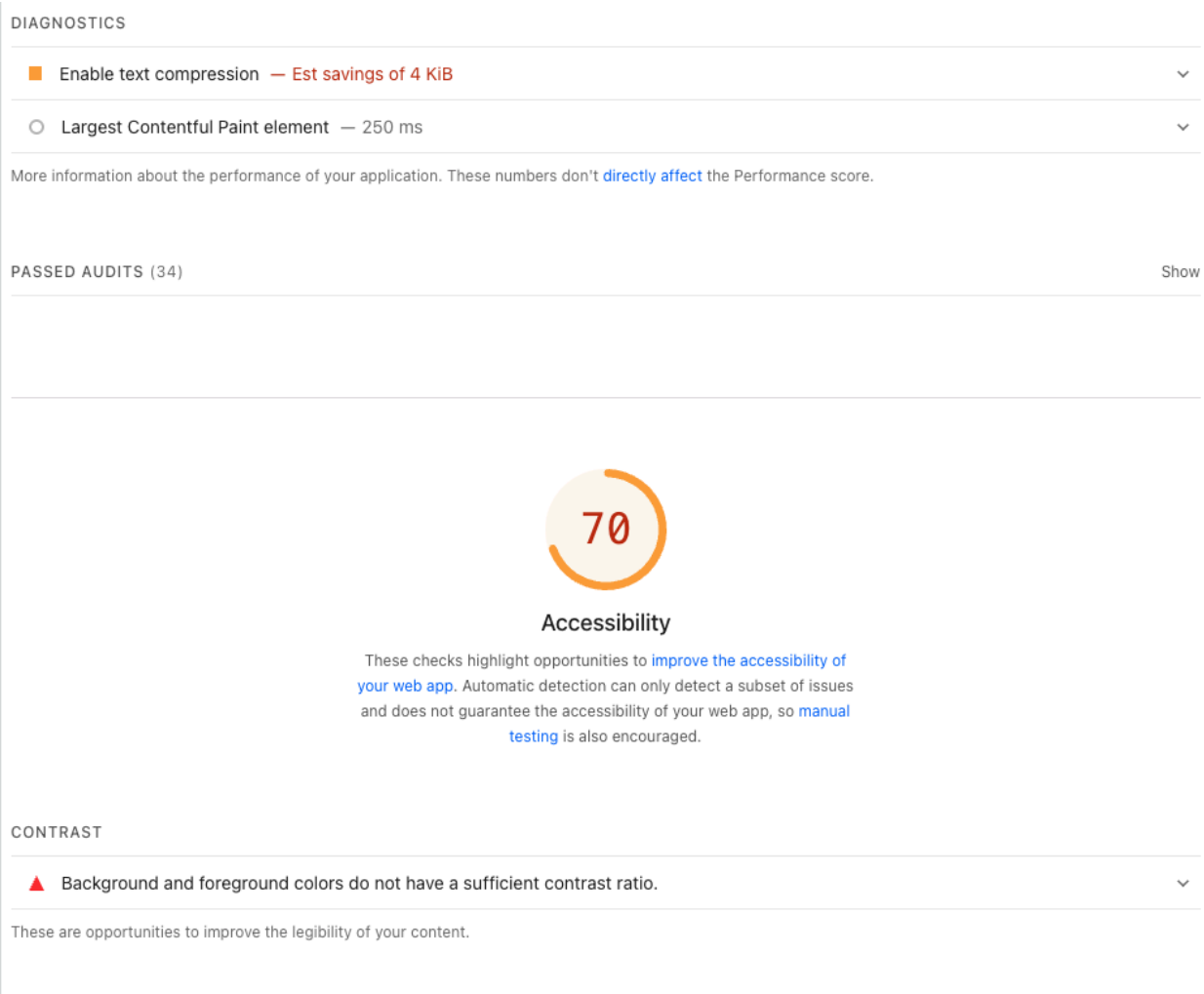


Image 15: Detailed Performance test for the index.html page

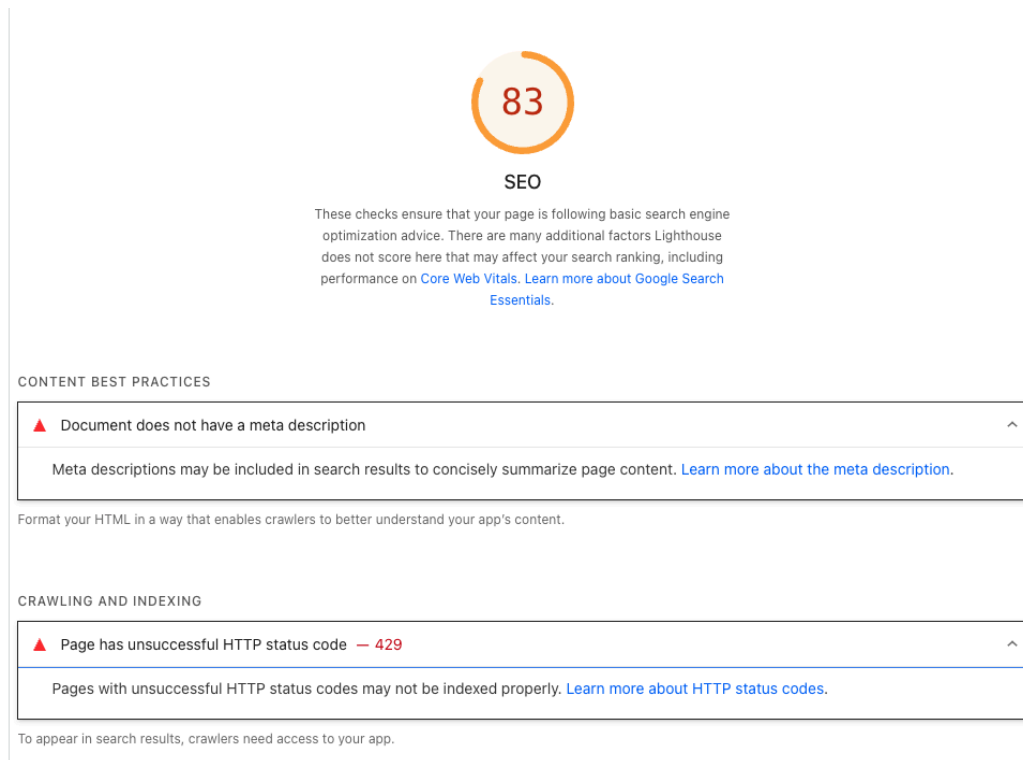


Image 16: Detailed Performance test for the `index.html` page

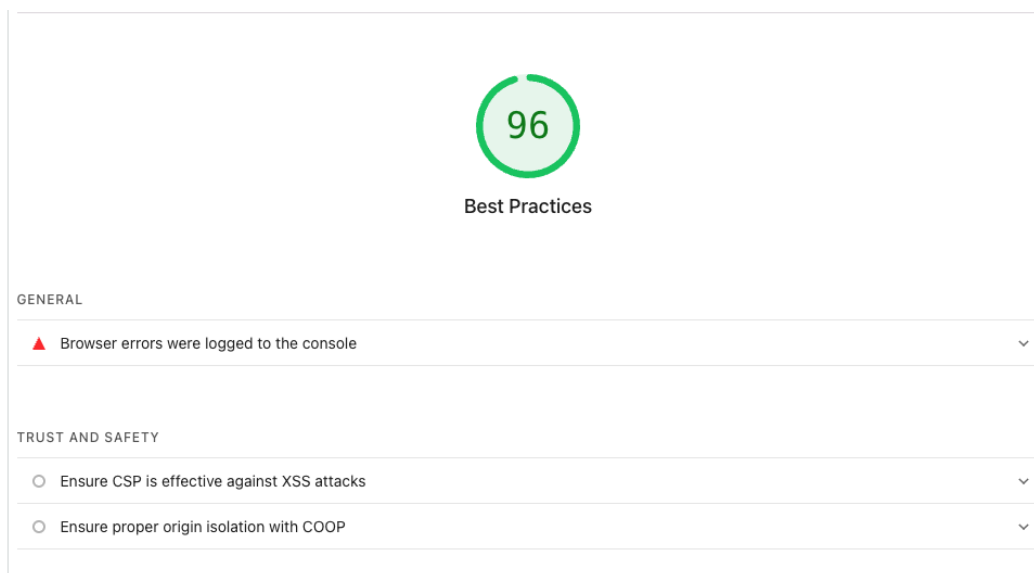


Image 17: Detailed Performance test for the `index.html` page

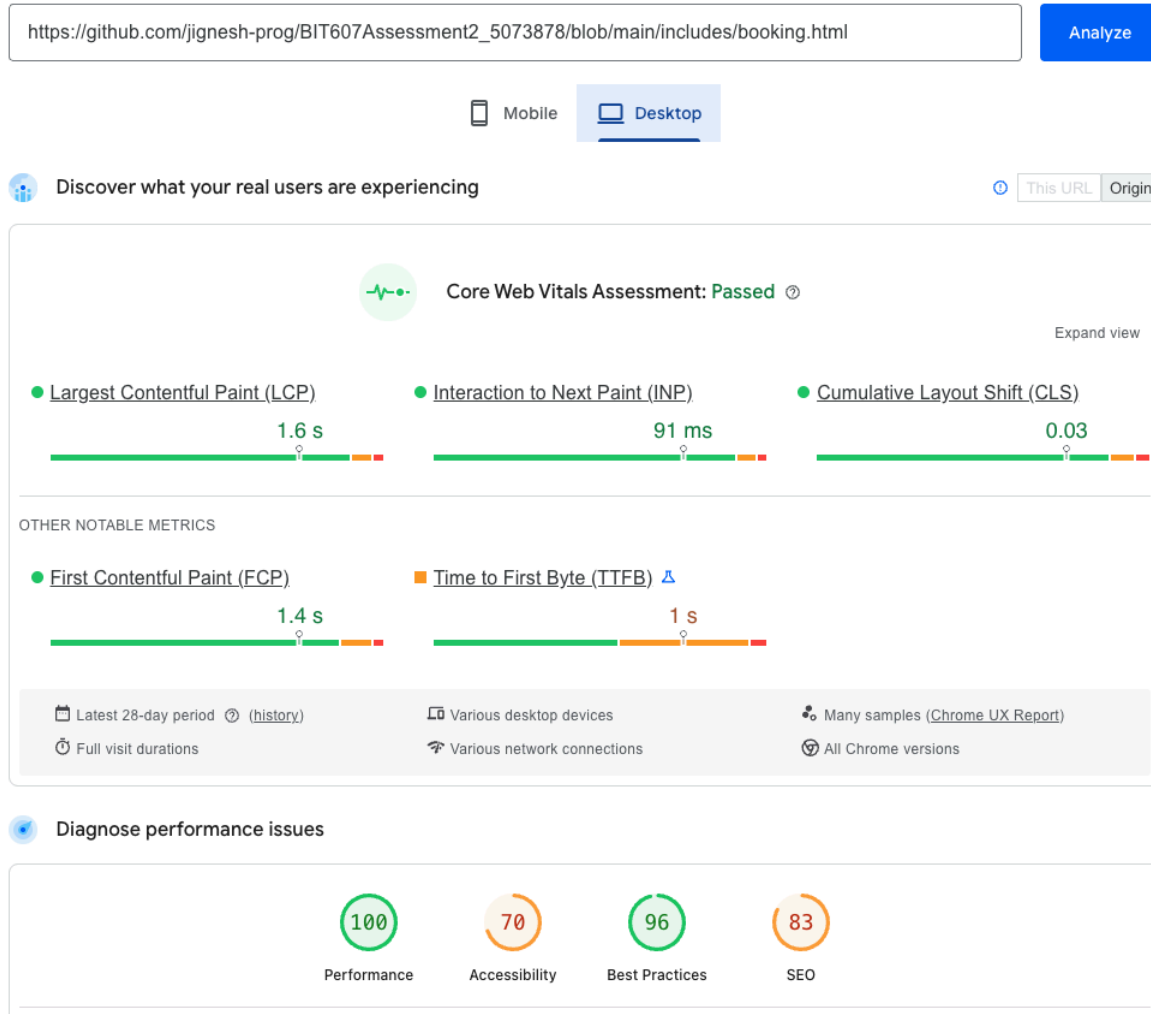


Image 18: Performance test for the booking.html page

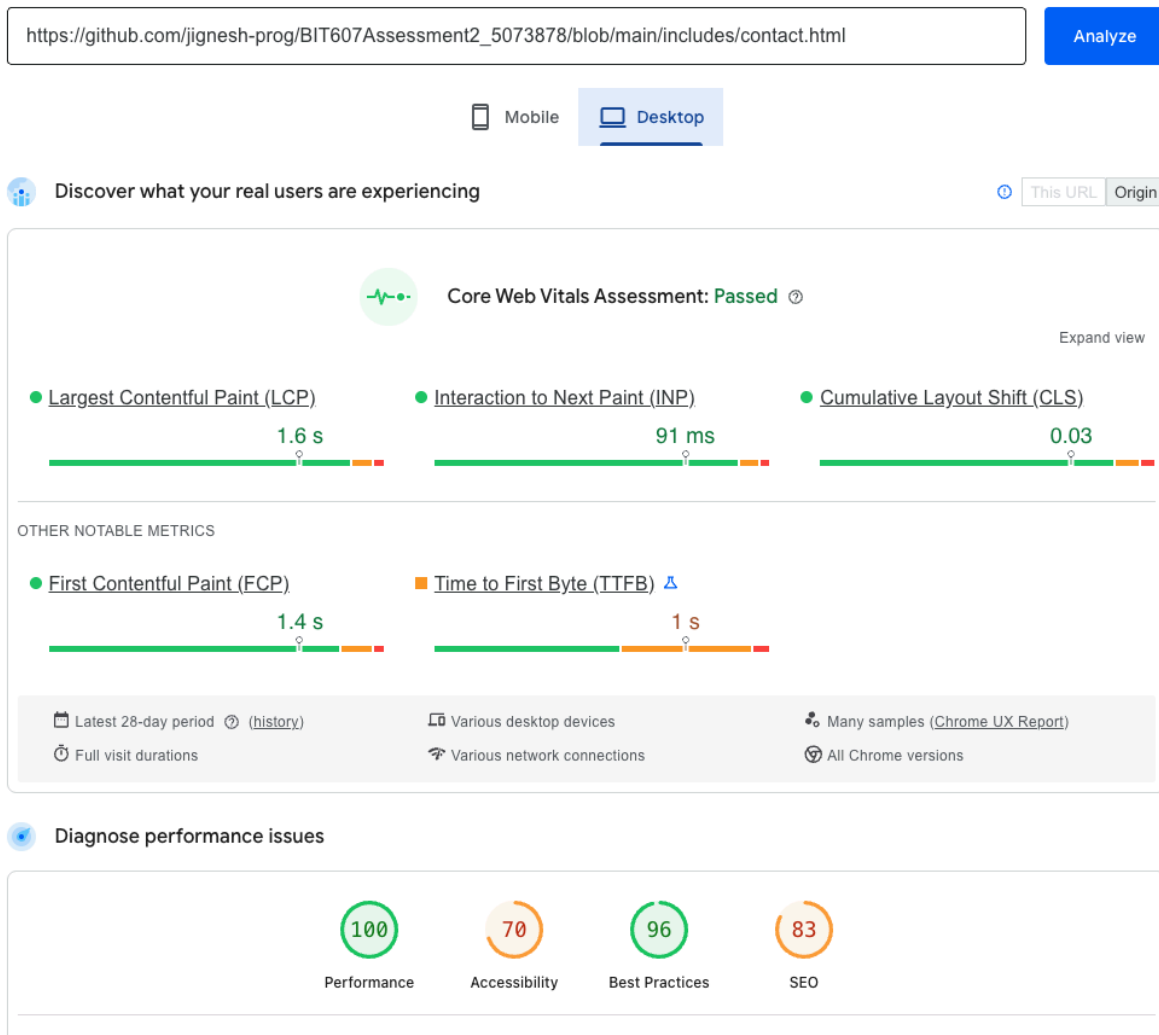


Image 19: Performance test for the contact.html page

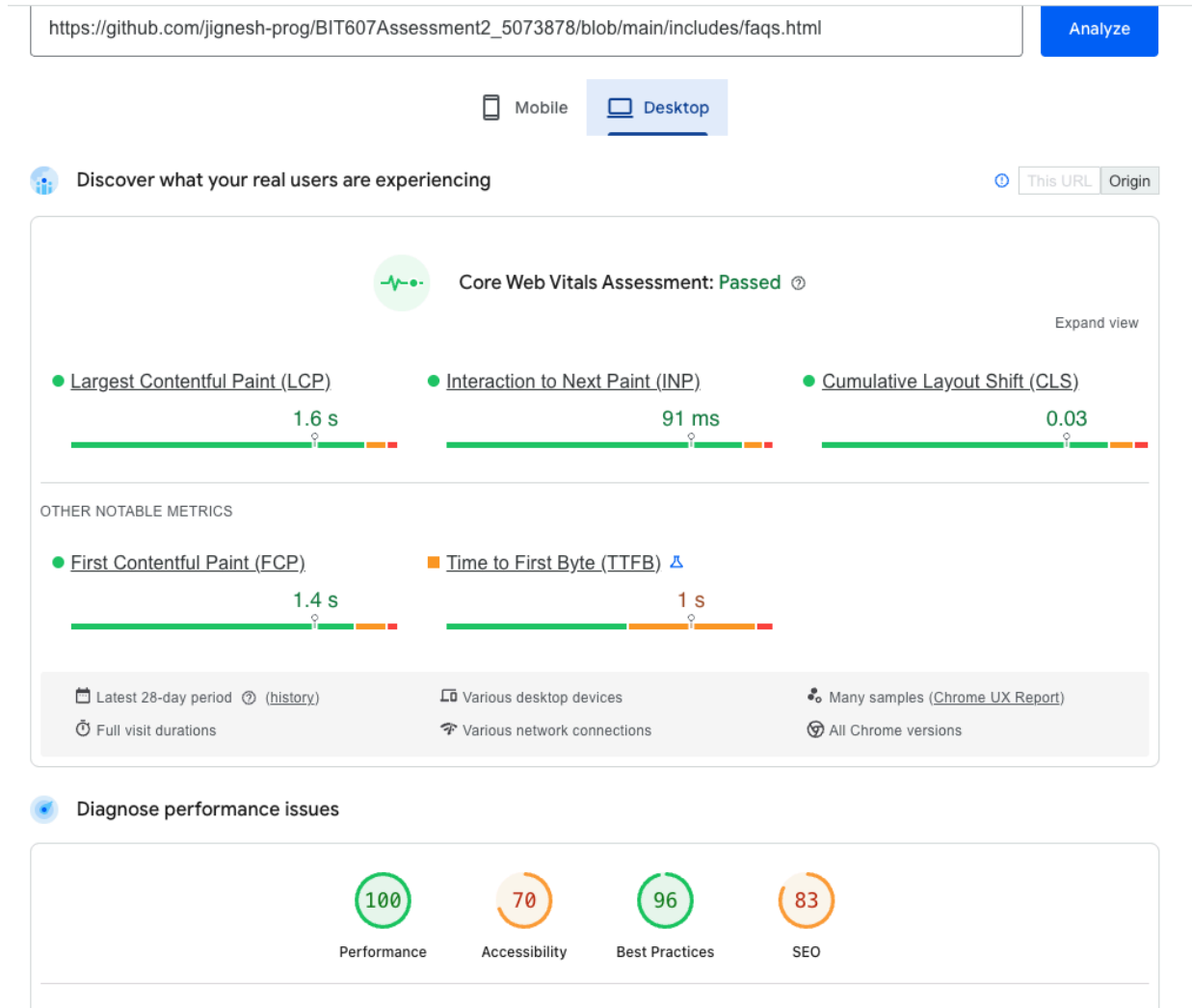


Image 20: Performance test for the faqs.html page

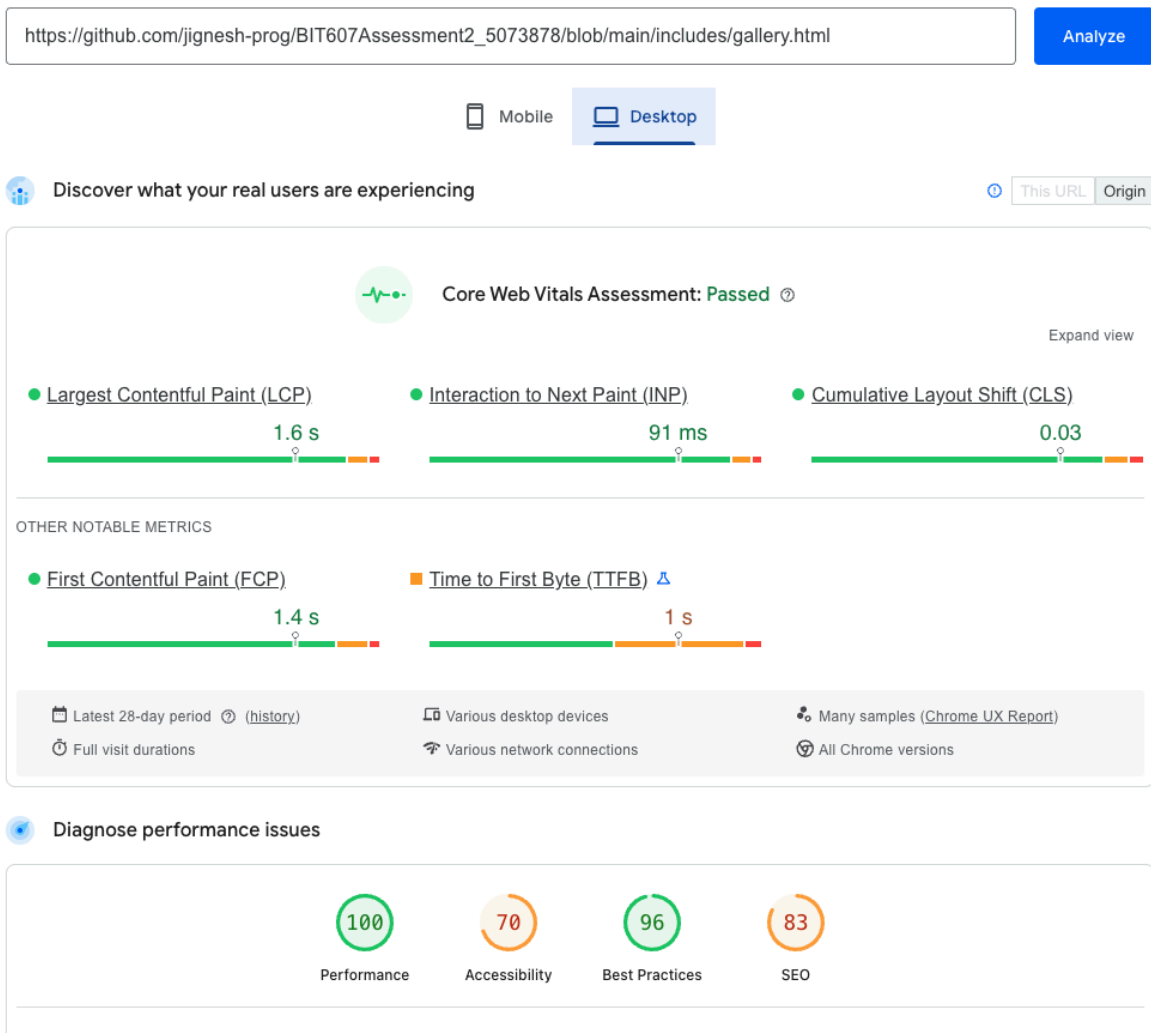


Image 21: Performance test for the gallery.html page

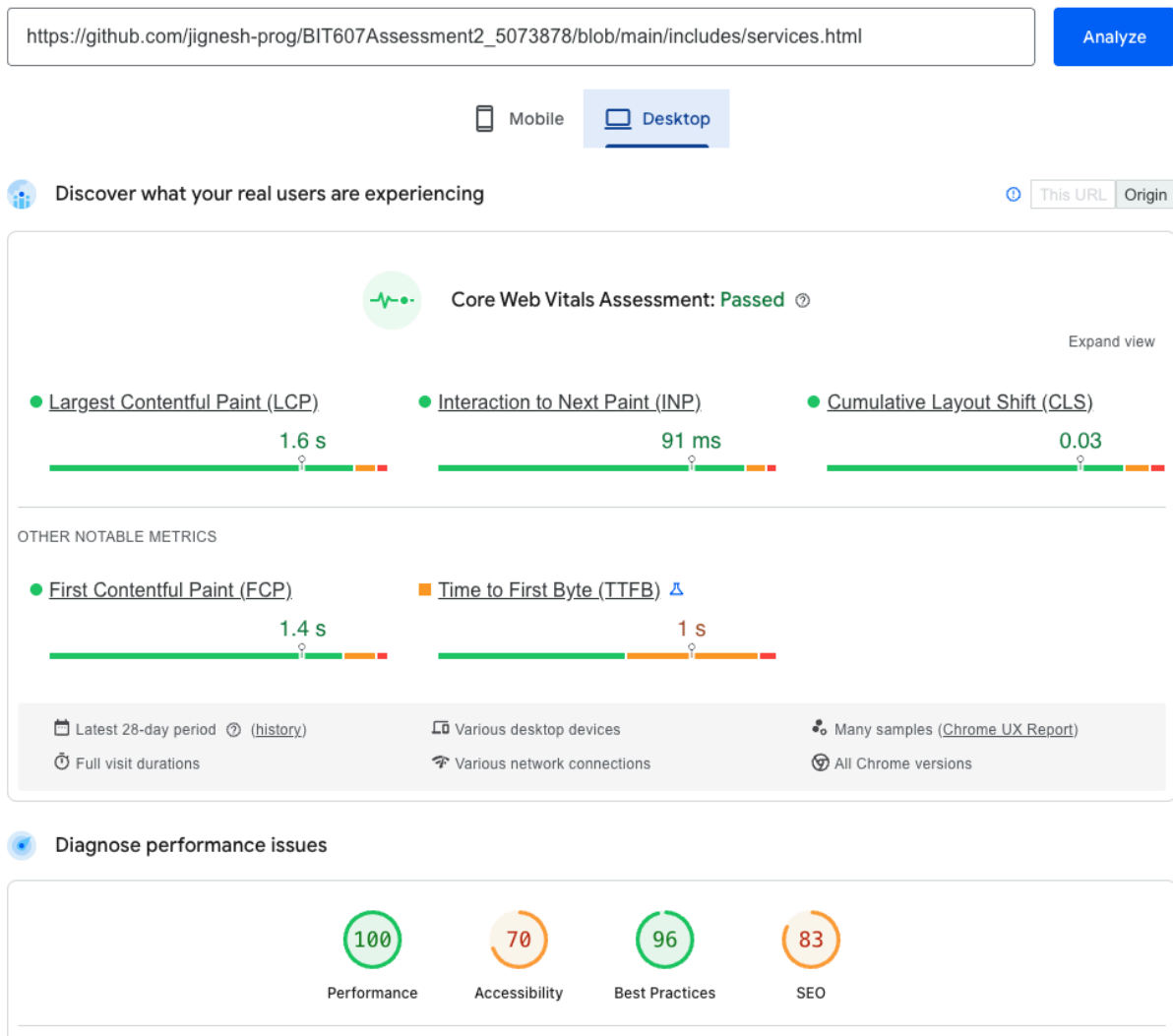
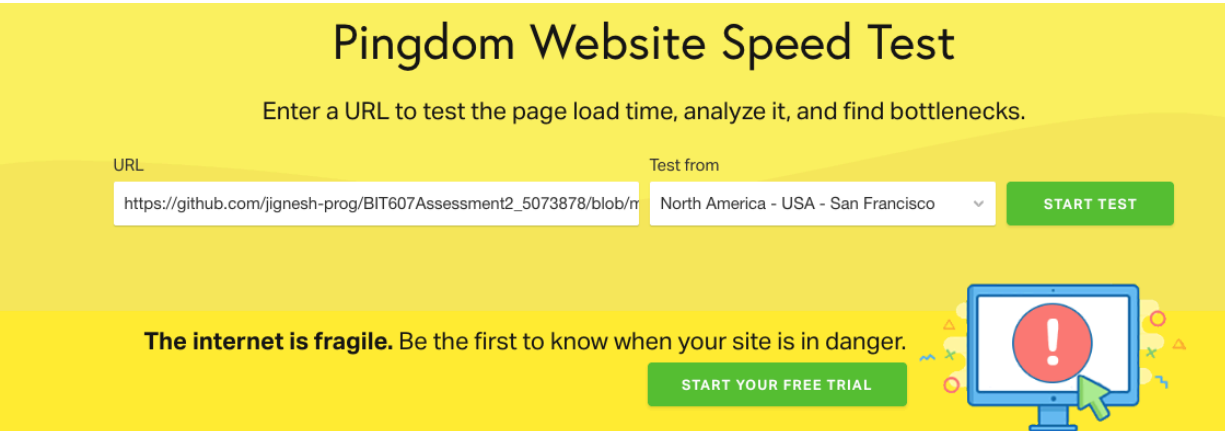


Image 22: Performance test for the service.html page



Your Results:

[DOWNLOAD HAR](#)

[SHARE RESULT](#)

	Performance grade C 79	Page size 1.1 MB
	Load time 577 ms	Requests 75

Image 23: Pingdom Website Speed Test for contact page

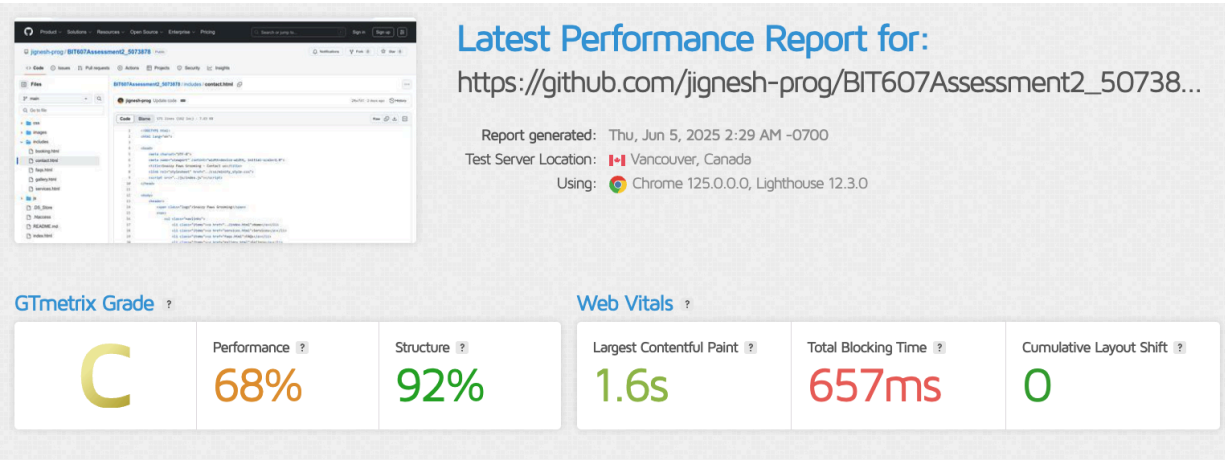


Image 23: GTmetrix Website Speed Test for contact page

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.co%252Fm%252F#>