

## **Experiment No.11**

### **MAD & PWA LAB**

I. **Aim:** : To use google Lighthouse PWA Analysis Tool to test the PWA functioning.

II. **Theory:**

✓ **Google Lighthouse: Enhancing Web Page Quality**

Google Lighthouse is a powerful, open-source, and automated tool designed to improve the quality of web pages. It can be used to audit any web page, whether public or requiring authentication, and provides audits for performance, accessibility, progressive web apps (PWAs), SEO, and more. The tool can be accessed through Chrome DevTools, the command line, or as a Node module. After running an audit, Lighthouse generates a detailed report highlighting areas for improvement.

✓ **Performance Audit**

The Performance audit in Google Lighthouse is highly valuable, offering metrics that can help improve a website's performance and climb Google's rankings. It provides insights such as opportunities for optimization, field data, lab data, and diagnostics metrics. For example, it flags render-blocking resources like stylesheets, scripts, and HTML imports, providing a precise analysis of a site's performance and suggestions for improvement.

✓ **Accessibility Audit**

The Accessibility audit is a new feature in Google Lighthouse that highlights potential improvements to make a website more accessible and user-friendly. Following the recommendations from this audit can ensure that users can easily navigate and use the site, potentially improving its search engine ranking.

✓ **Best Practices Audit**

Another new feature in Google Lighthouse is the Best Practices audit, which provides recommendations to improve a site's performance and user experience, especially for mobile sites. While it doesn't directly provide performance-related data, it offers valuable suggestions for enhancing the overall site experience.

### ✓ SEO Audit

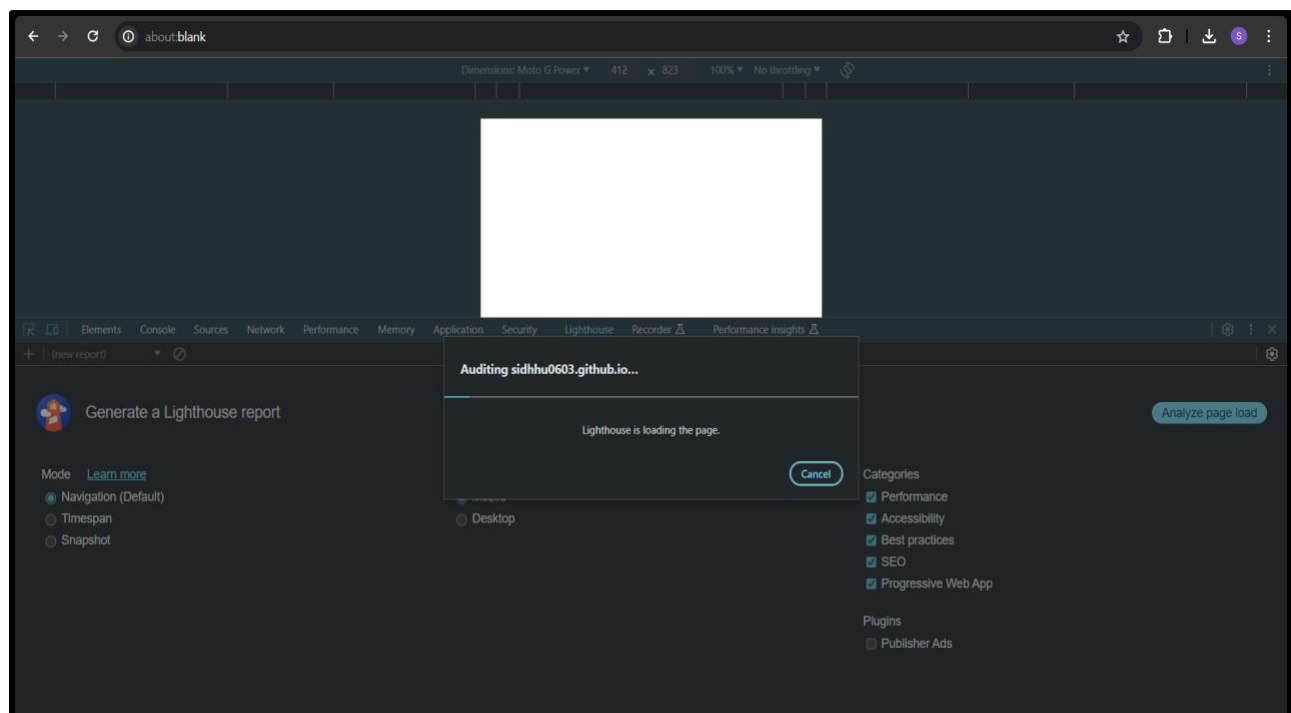
The SEO audit in Google Lighthouse is a dynamic and advanced feature not found in PageSpeed Insights. It provides essential tools to analyze a page's optimization for search engine result rankings, making it a preferred choice for web designers and SEO specialists. While it may not cover all factors, it focuses on the most crucial aspects of SEO optimization.

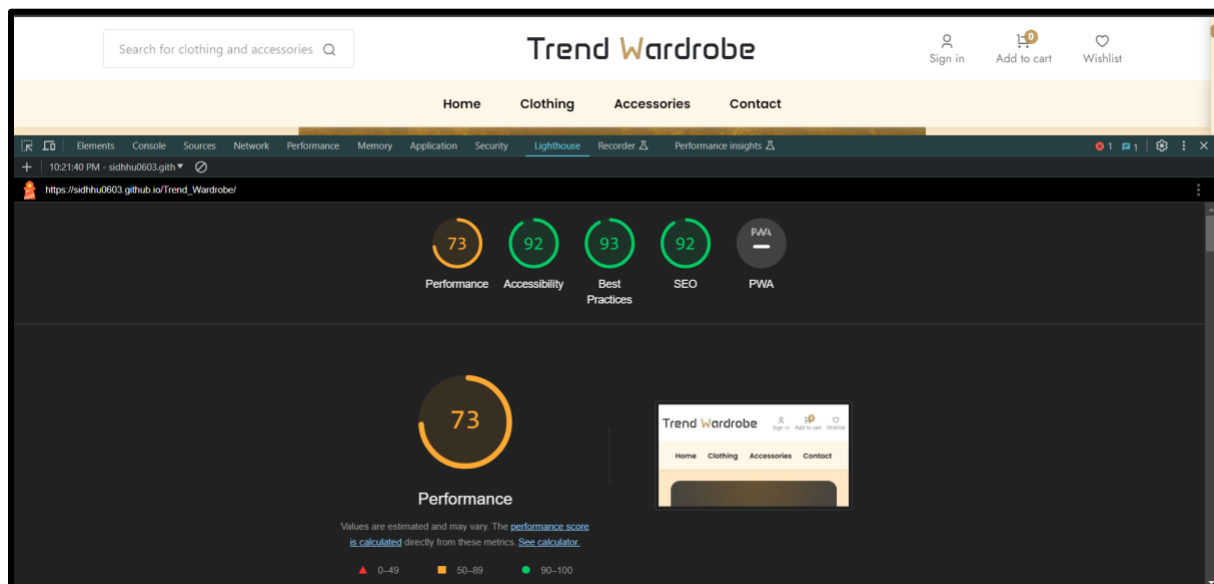
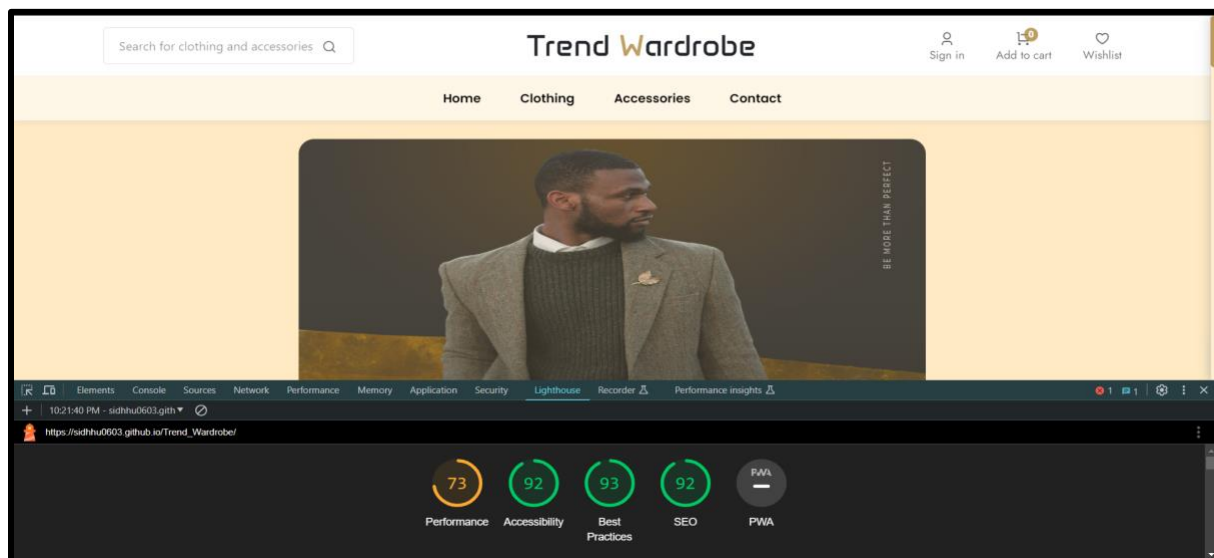
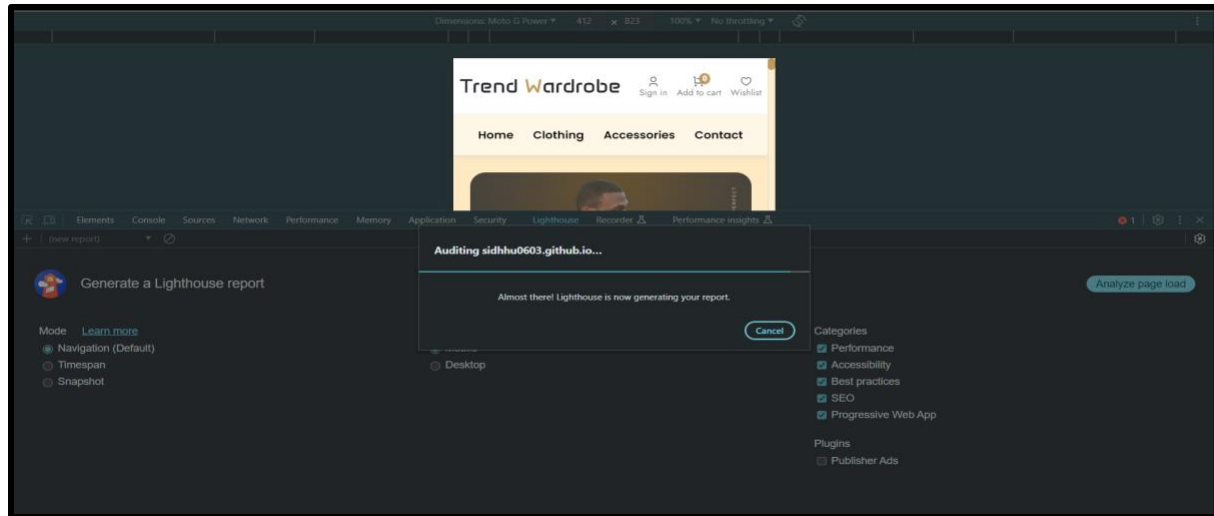
### ✓ Progressive Web Applications (PWAs) Audit

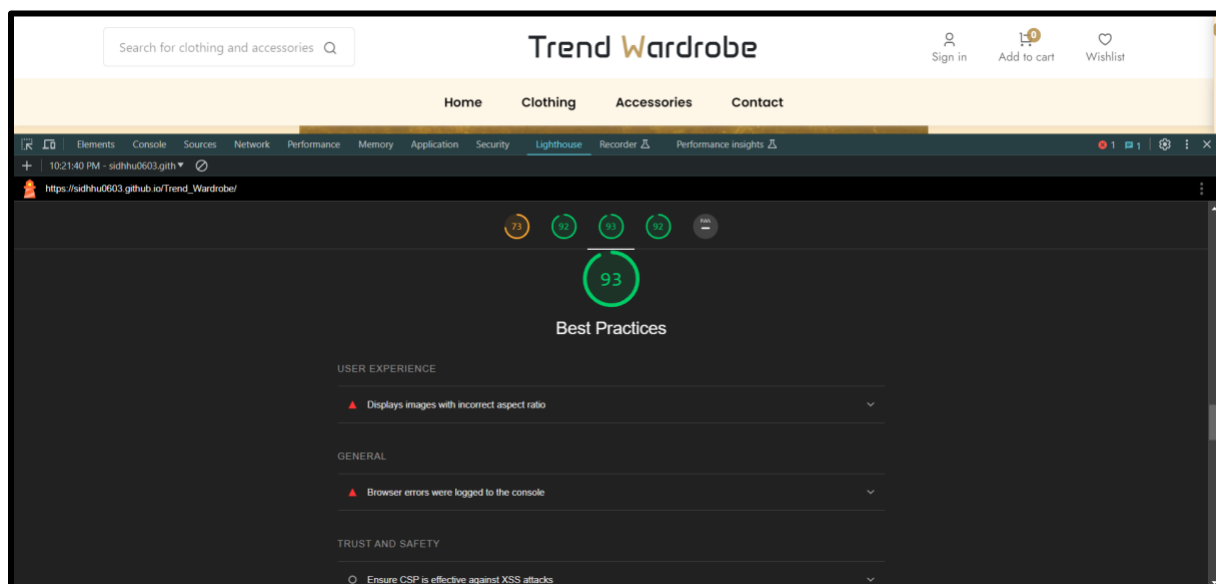
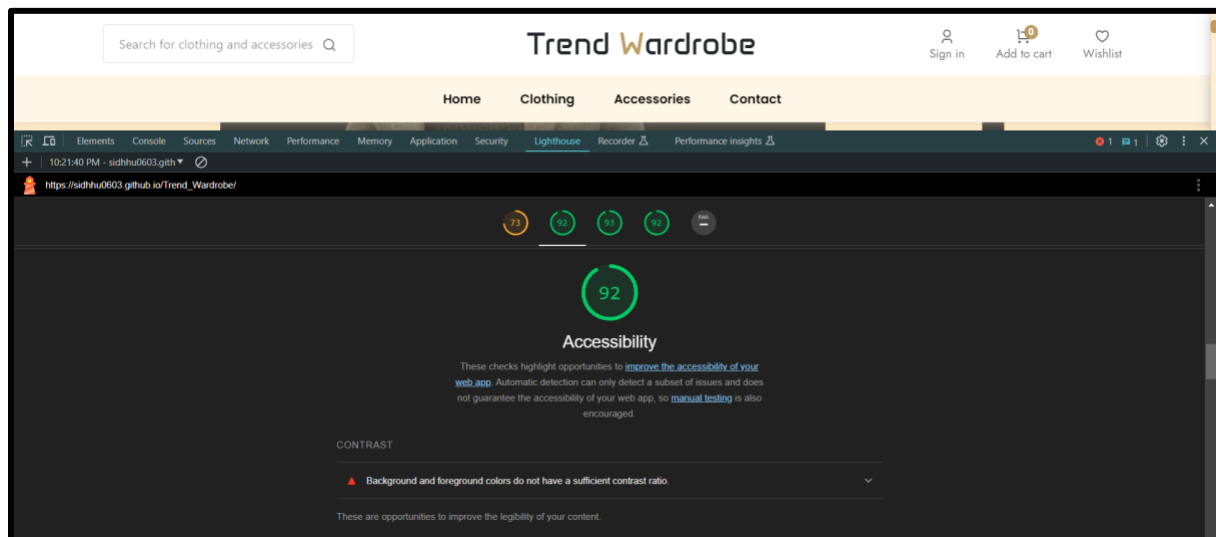
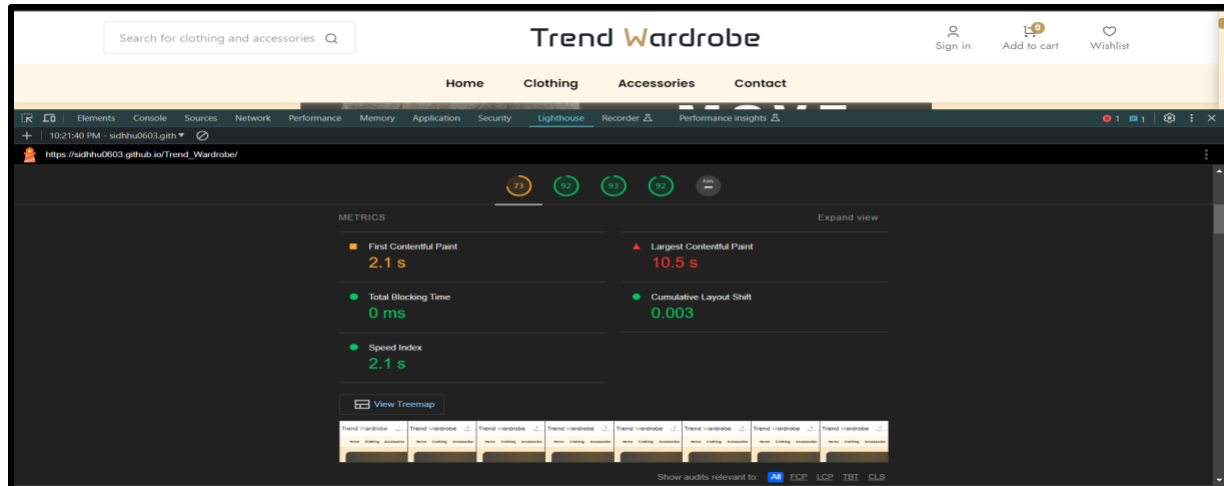
The Progressive Web Applications audit is another recent addition to Google Lighthouse, focusing on the key factors that make a site a PWA. One of the notable features of this audit is the ability to register service workers, enabling push notifications on web apps and enhancing the user experience.

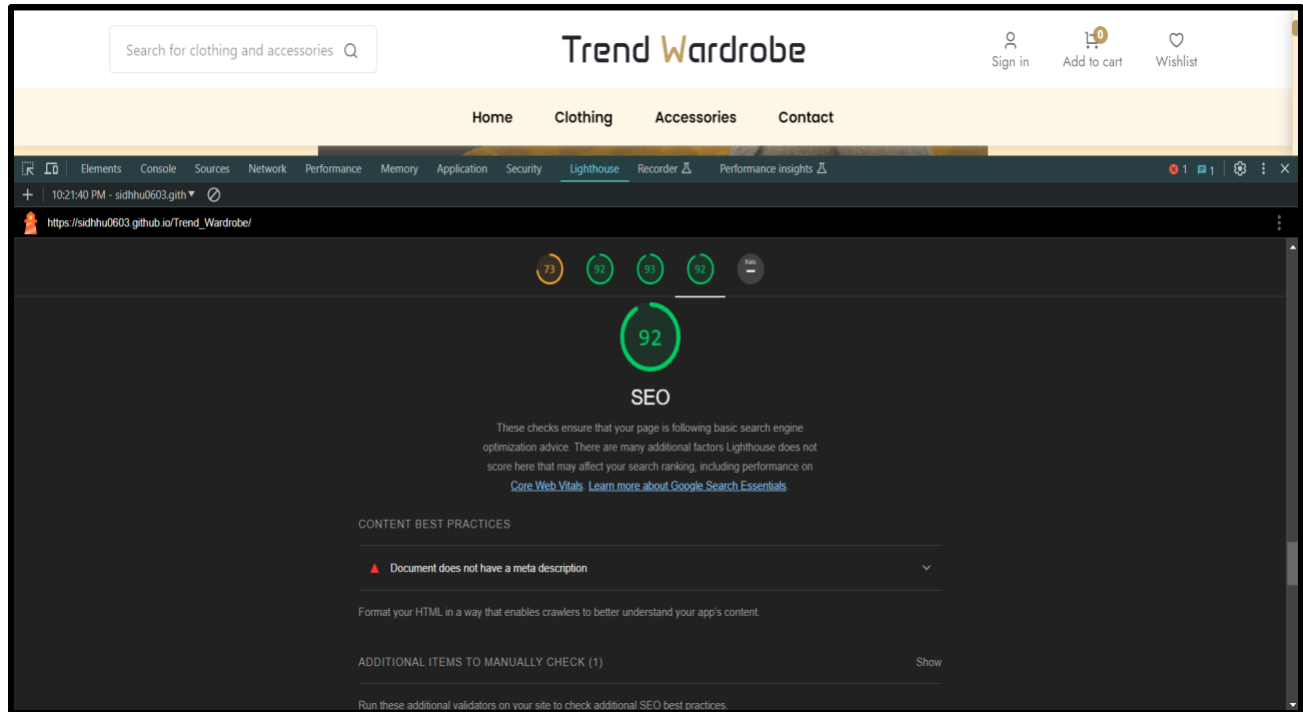
## III. OUTPUT:

### For Mobile:

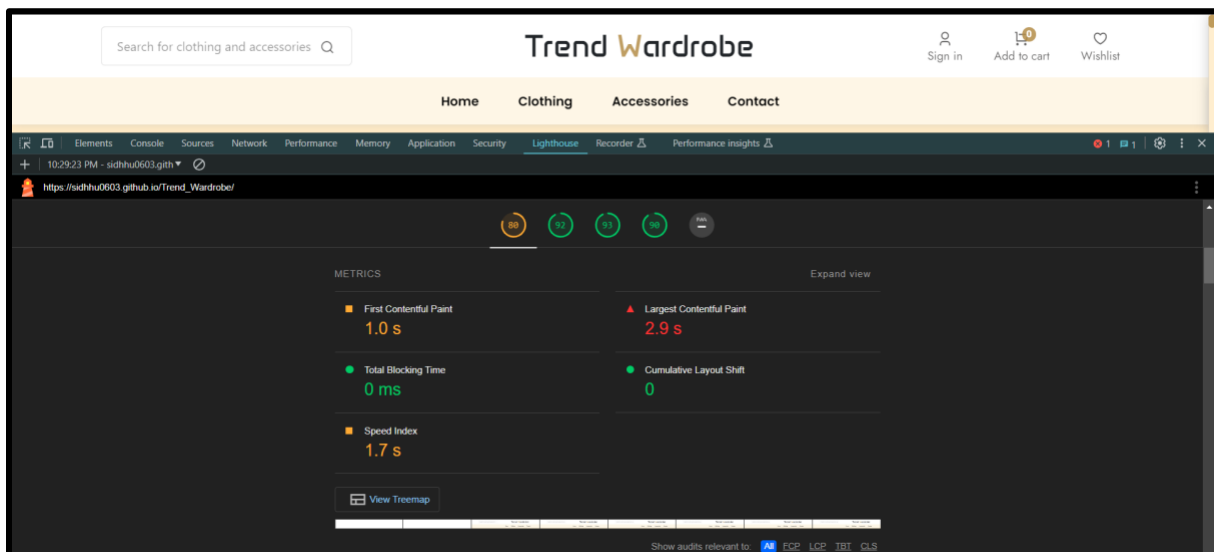
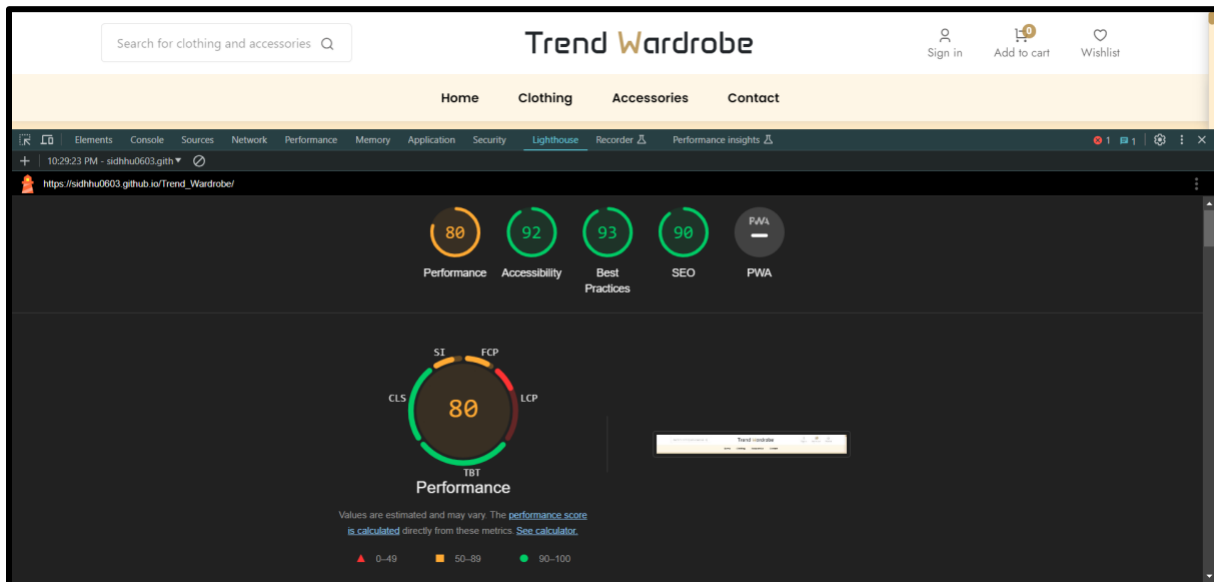
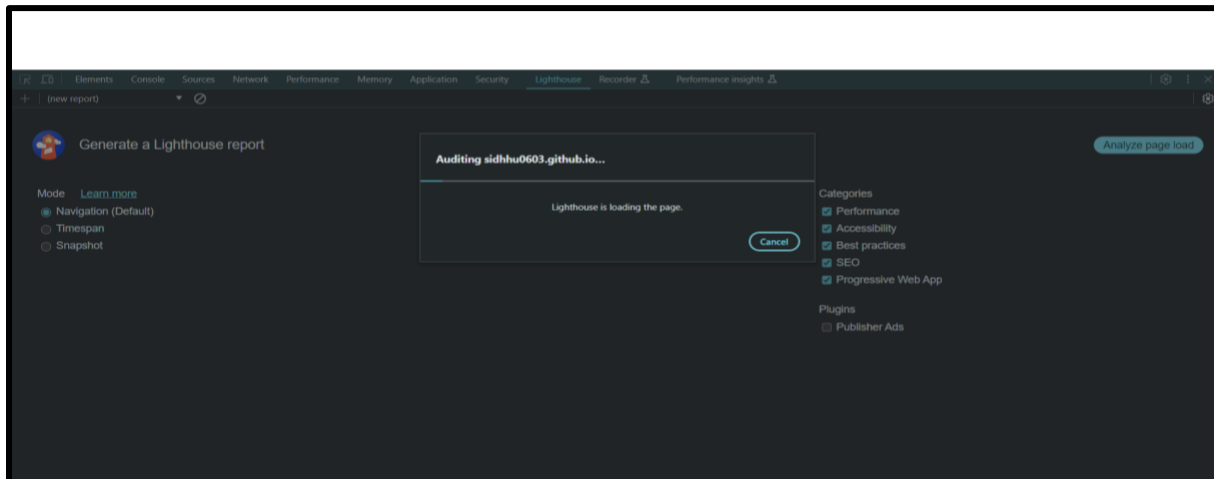


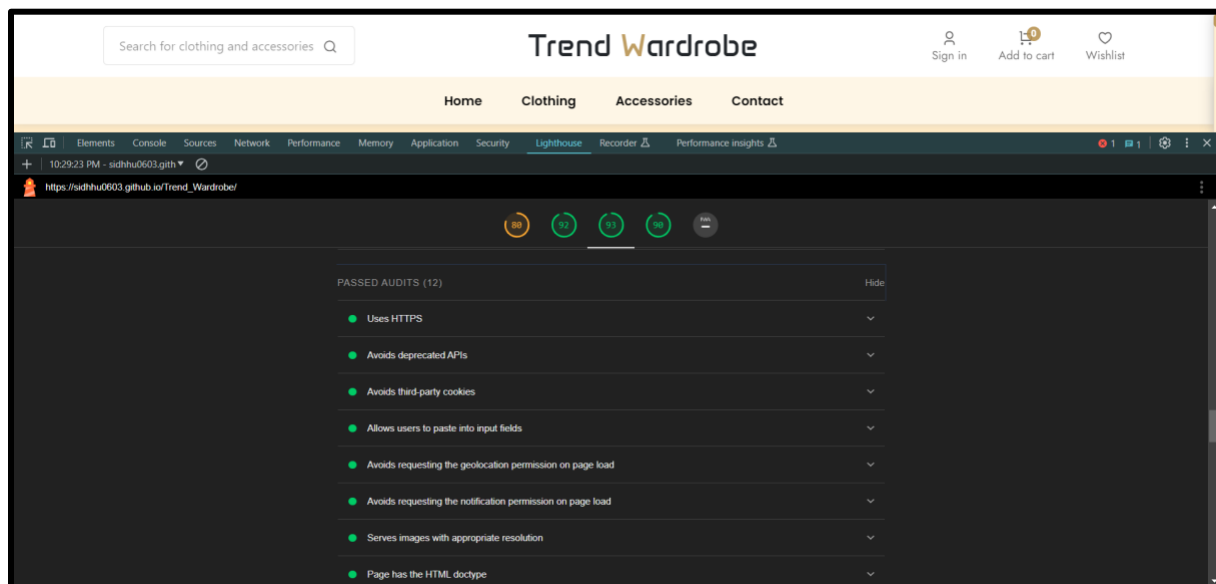
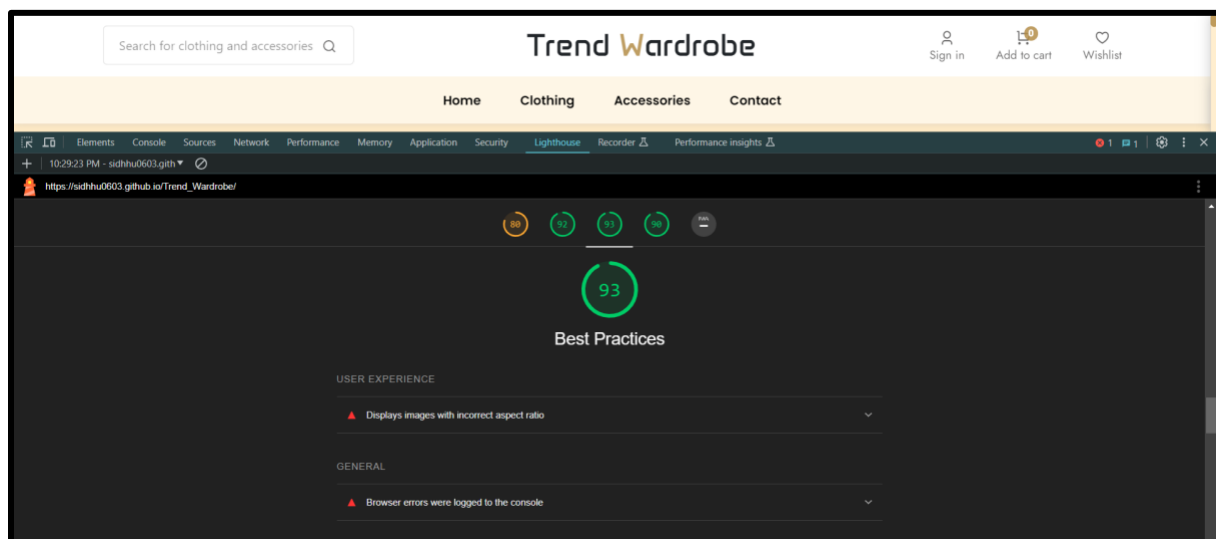
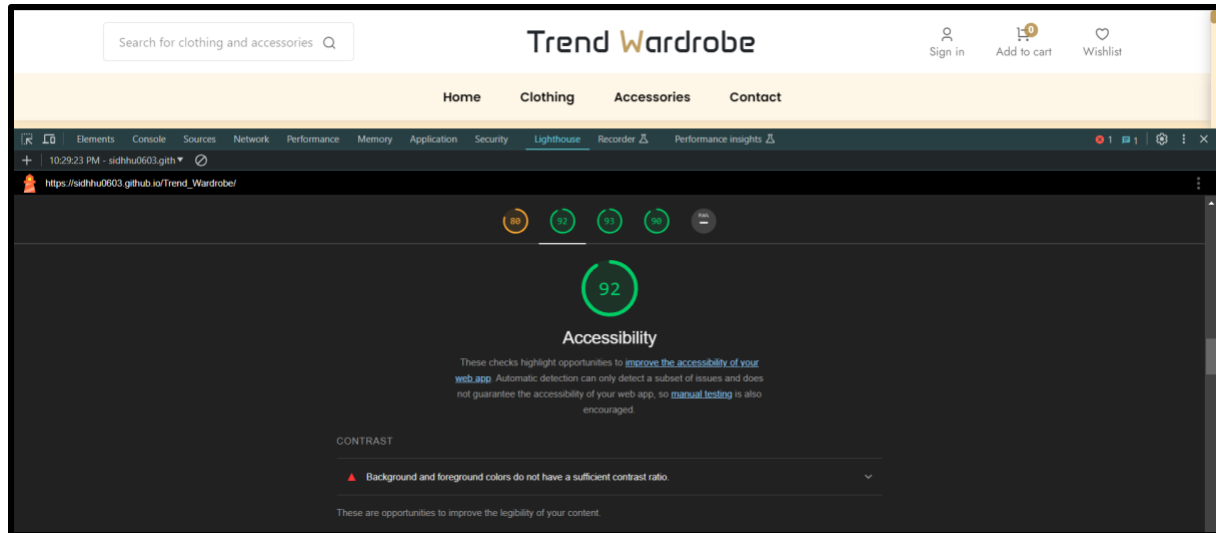


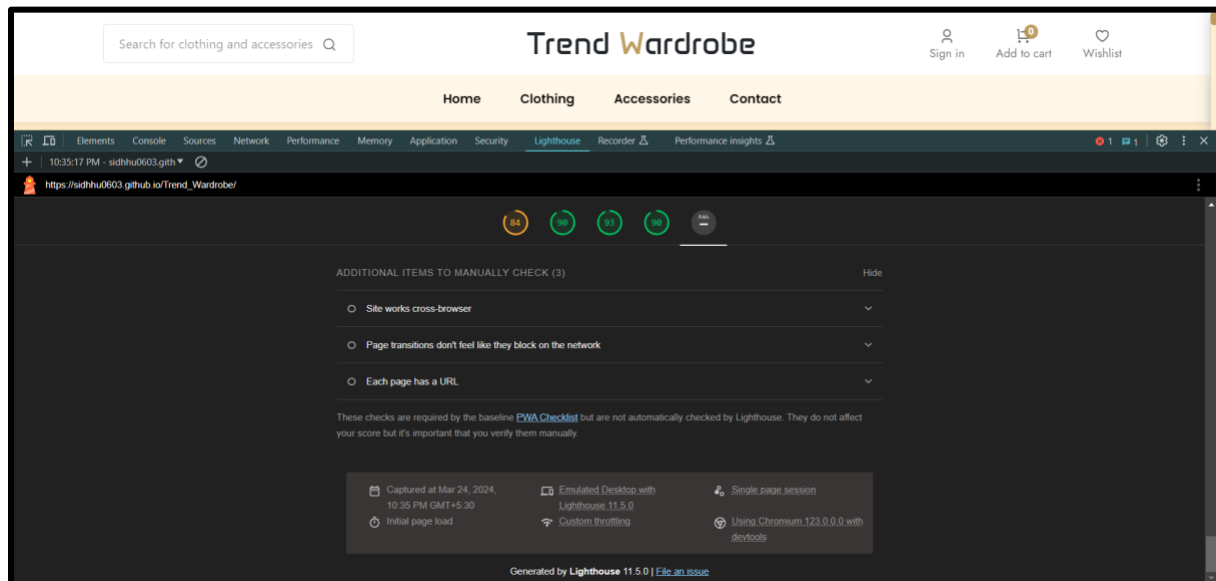
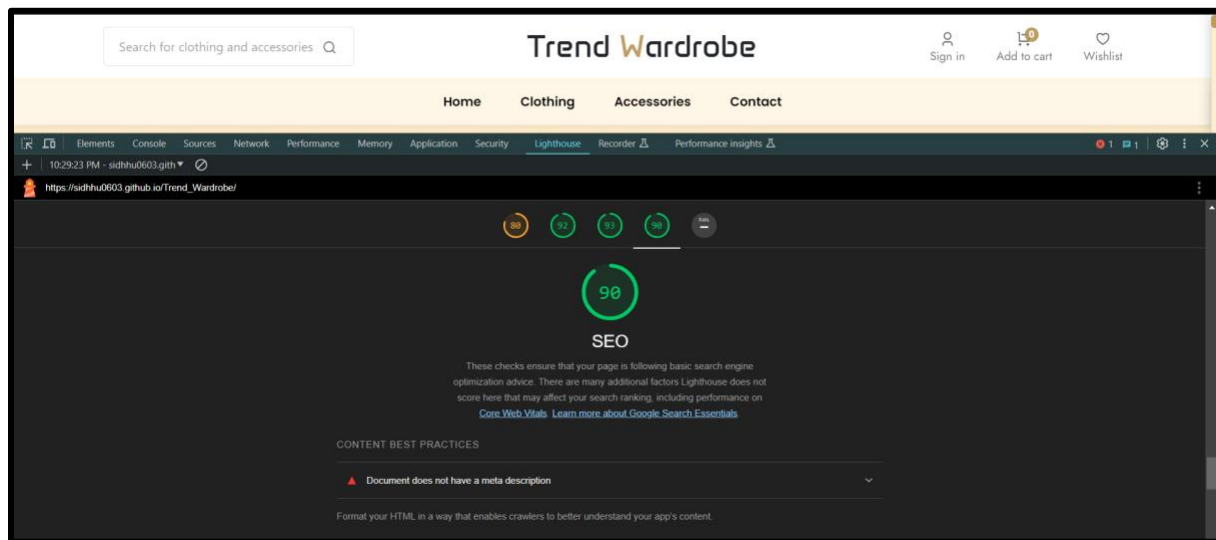




PASSED AUDITS (11)		Hide
●	Has a <code>&lt;meta name="viewport"&gt;</code> tag with width or initial-scale	▼
●	Document has a <code>&lt;title&gt;</code> element	▼
●	Page has successful HTTP status code	▼
●	Links have descriptive text	▼
●	Links are crawlable	▼
●	Page isn't blocked from indexing	▼
●	Image elements have <code>[alt]</code> attributes	▼
●	Document has a valid hreflang	▼
●	Document uses legible font sizes — 97.14% legible text	▼

**For Desktop:**





#### IV. CONCLUSION:

Google Lighthouse is a comprehensive tool that offers valuable insights and recommendations for improving a website's performance, accessibility, SEO, and overall user experience. Its versatility and ease of use make it an essential tool for web developers and designers looking to optimize their websites.