EXPERIMENT : 11

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

Theory :

What is Lighthouse?
Lighthouse is an open-source tool that audits your web app for various aspects, such as accessibility, performance, best practices, and SEO. You can run Lighthouse in Chrome DevTools, from the command line, or as a Node module. Lighthouse generates a report that gives you scores and recommendations for improving your web app.

How to use Lighthouse for PWAs?

To use Lighthouse for PWAs, you need to open Chrome DevTools and go to the Lighthouse tab, select the PWA option, and click Generate report. After the report is finished, review the results and fix any issues that Lighthouse identifies. Once you have made all of the necessary changes, rerun the audit until you get a high score. This will ensure that your web app meets the criteria for being a progressive web app, such as having a web app manifest, a service worker, responsive design, and more.
Objective: Utilize Google Lighthouse PWA Analysis Tool to evaluate the functionality of a Progressive Web App (PWA).

Key features include:

1. Audit Capabilities: Google Lighthouse conducts audits on different facets of web pages and applications, assessing performance metrics, accessibility standards, coding practices, SEO factors, and PWA criteria.

2. Scoring System: Lighthouse assigns scores ranging from 0 to 100 for each audit category, with higher scores indicating better compliance and performance. Detailed insights and recommendations accompany these scores.

3. Detailed Reports: Following an audit, Lighthouse generates detailed reports highlighting scores, metrics, and actionable recommendations to optimize web pages and applications.

4. Integration with DevTools: Lighthouse seamlessly integrates into Chrome DevTools, facilitating easy access for developers to conduct audits directly within the browser.

5. Open-Source and Extensible: Being open-source, Lighthouse allows for community contributions and customization. It supports plugins and extensions for enhanced functionality.

6. Focus on Performance Optimization: Lighthouse prioritizes performance optimization, aiding developers in identifying and rectifying issues that impact page load times and user experience.

Procedure:
To evaluate the functionality of a Progressive Web App using Google Lighthouse, follow these steps:

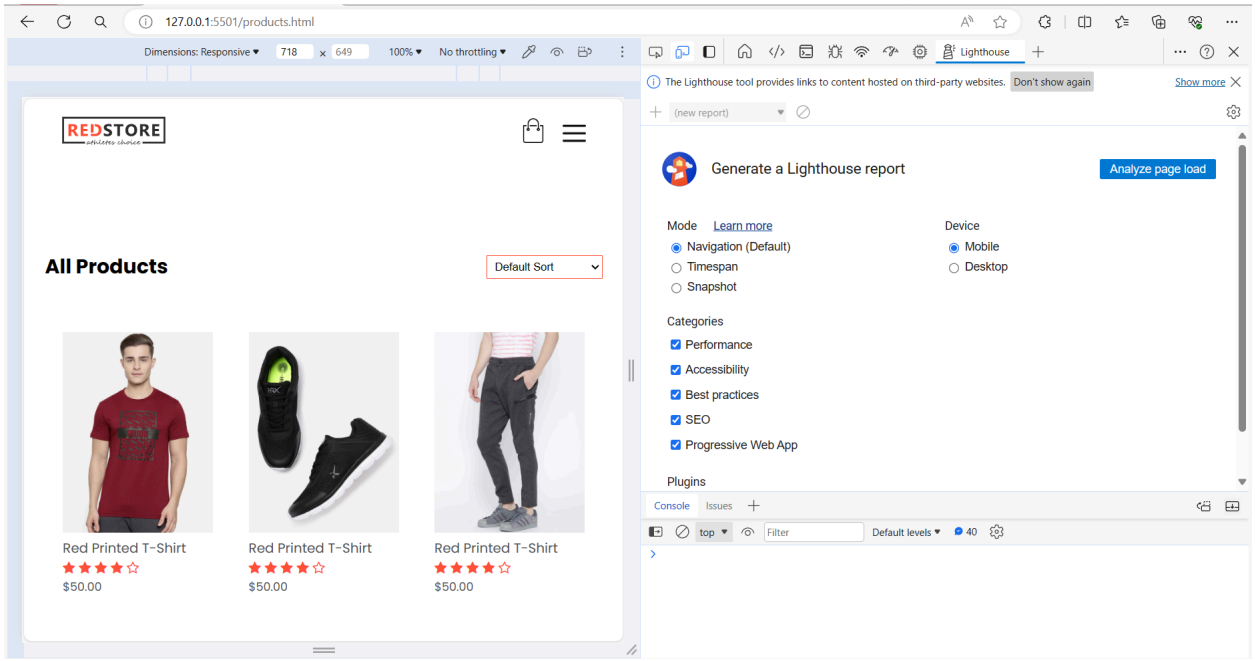
1. Open Chrome DevTools: Launch Google Chrome browser and navigate to the desired website. Right-click on the page and select "Inspect" or use the keyboard shortcut to open Chrome DevTools.

2. Access Lighthouse Tab: Within Chrome DevTools, navigate to the "Lighthouse" tab located at the top of the panel.

3. Run Lighthouse Audit: Initiate the audit process by clicking on the "Generate report" button. Select the audit categories, including "Progressive Web App," and proceed.

4. Review Audit Results: Once the audit completes, Lighthouse presents a comprehensive report containing scores and detailed insights for each category. Evaluate the PWA section to verify compliance with PWA criteria and receive suggestions for enhancements.

Output: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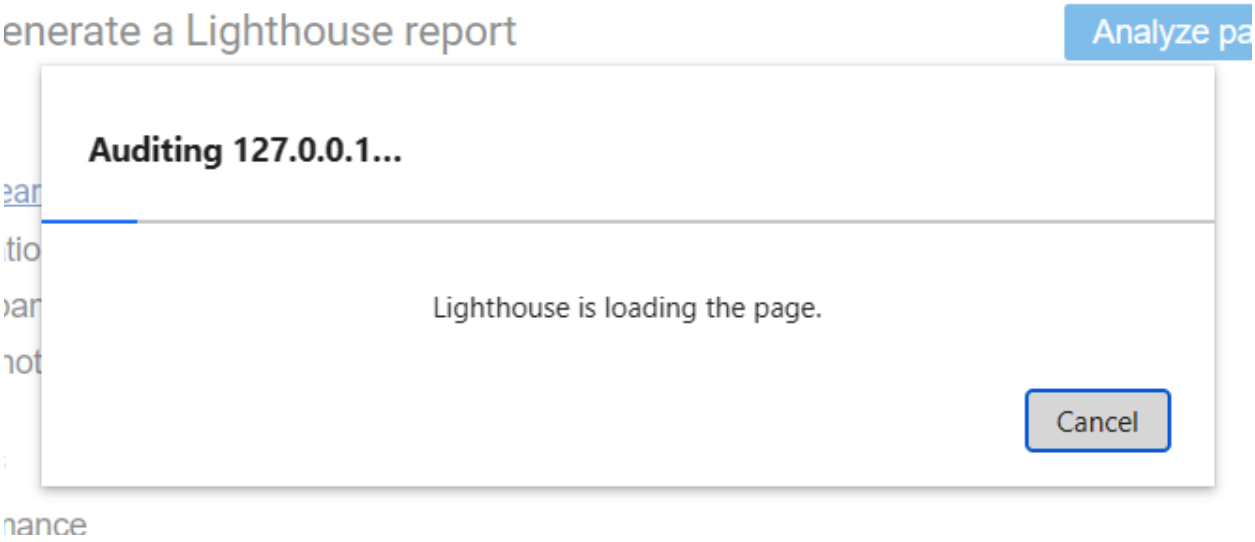
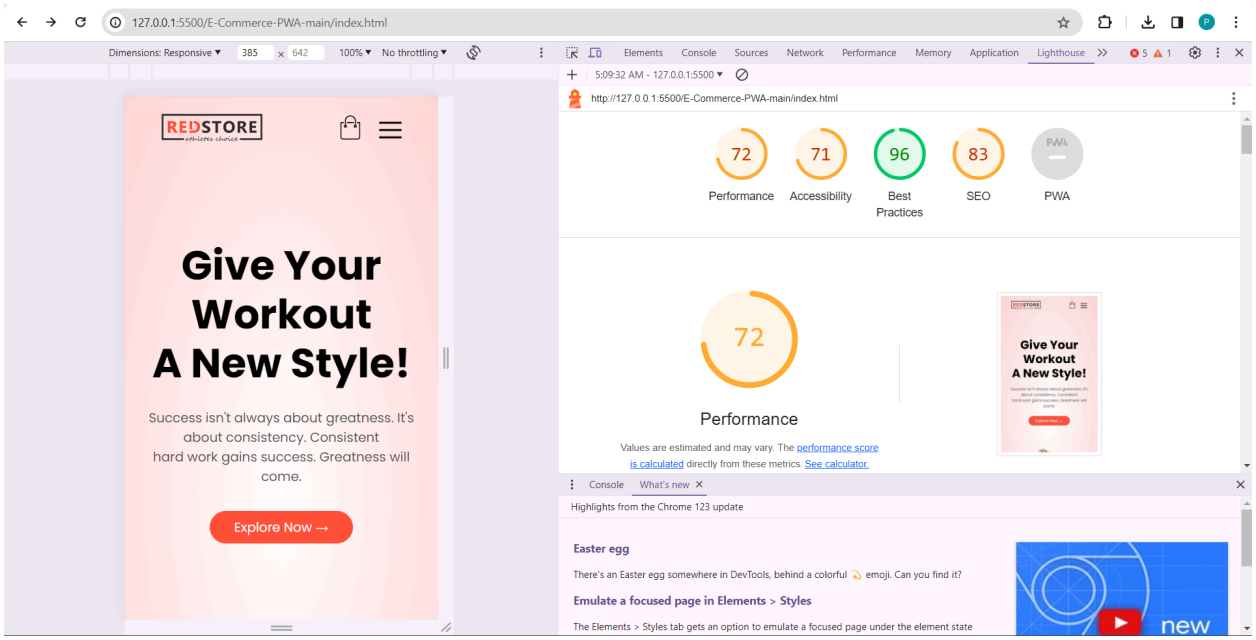
REDSTORE
All Products
Default Sort
Red Printed T-Shirt
$50.00
Red Printed T-Shirt
$50.00
Red Printed T-Shirt
$50.00
Lighthouse
Generate a Lighthouse report
Analyze page load
Mode
Learn more
Navigation (Default)
Timespan
Snapshot
Device
Mobile
Desktop
Categories
Performance
Accessibility
Best practices
SEO
Progressive Web App
Plugins
Console
Issues


Auditing 127.0.0.1...
Lighthouse is loading the page.
Cancel



Conclusion : We have explored the functionality of Google Lighthouse PWA Analysis Tool and utilized it to assess the performance statistics of our E-commerce Progressive Web Application, Kitter. Through Lighthouse's auditing capabilities, we gained valuable insights to optimize our PWA and enhance user experience.