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Div - D15A Roll no - 50
Batch - C

Experiment - 11

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

Theory -
Google Lighthouse is a powerful open-source tool designed to improve the quality of web pages by providing comprehensive audits across various metrics. Here's a breakdown of its features:

1. Performance:
- Provides valuable metrics to optimize site performance, including opportunities for improvement.
- Offers insights into render-blocking resources such as stylesheets, scripts, and HTML imports.
- Combines data from both real-world usage (Field Data) and simulated conditions (Lab Data) for a comprehensive analysis.
2. Accessibility:
- Highlights potential improvements to enhance accessibility and user experience.
- Ensures that websites are easily navigable and usable for all users, including those with disabilities.
- Improving accessibility can also positively impact search engine rankings.
3. Best Practices:
- Offers recommendations to improve overall site performance and user experience, particularly for mobile sites.
- Provides suggestions for adhering to best practices in web development and design.
4. SEO:
- Evaluates a website's optimization for search engine rankings.
- Provides essential tools to analyze and improve a page's visibility in search engine results.
- Covers fundamental aspects of SEO, though not all factors may be considered.
5. Progressive Web Applications (PWAs):
- Assess whether a website meets the criteria for being classified as a Progressive Web App.
- Focuses on key factors such as service worker registration, enabling push notifications, and offline capabilities.
- Helps developers enhance the user experience and engagement with modern web app features.

Overall, Google Lighthouse offers a comprehensive suite of metrics and recommendations to help developers optimize their websites for performance, accessibility, SEO, and PWA features. By addressing the issues identified in the Lighthouse report, developers can improve their site's user experience, search engine visibility, and overall quality.

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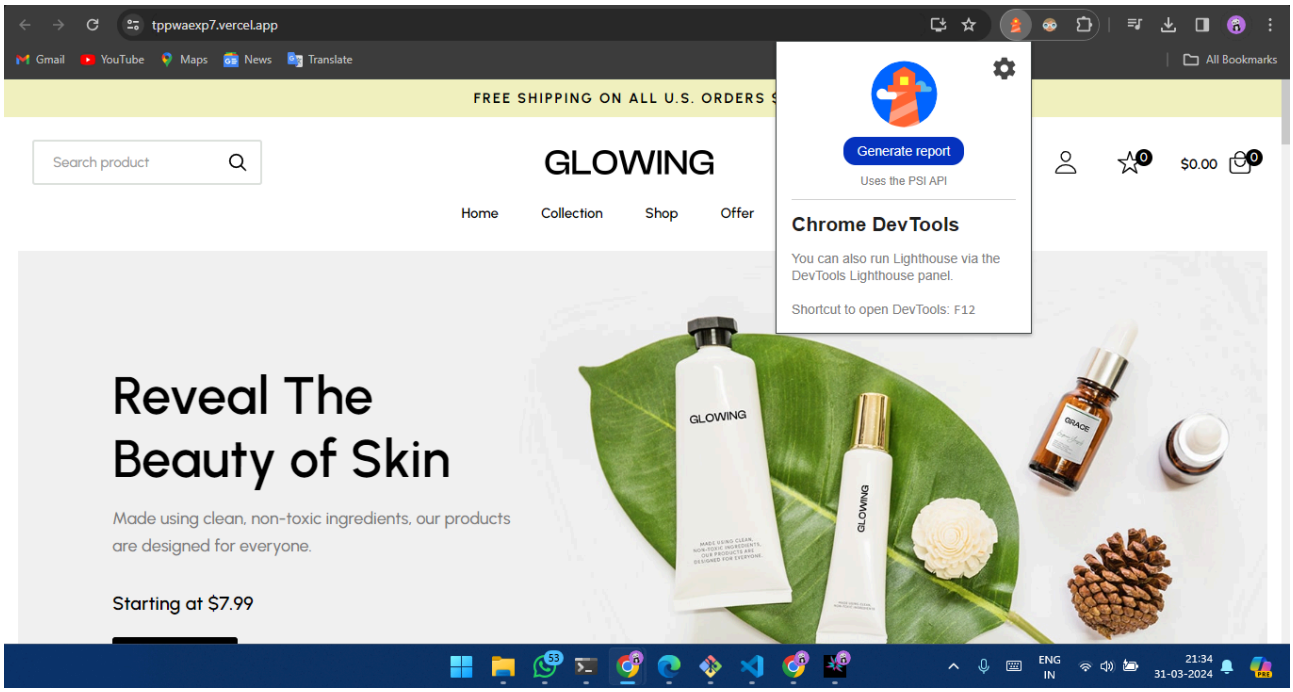
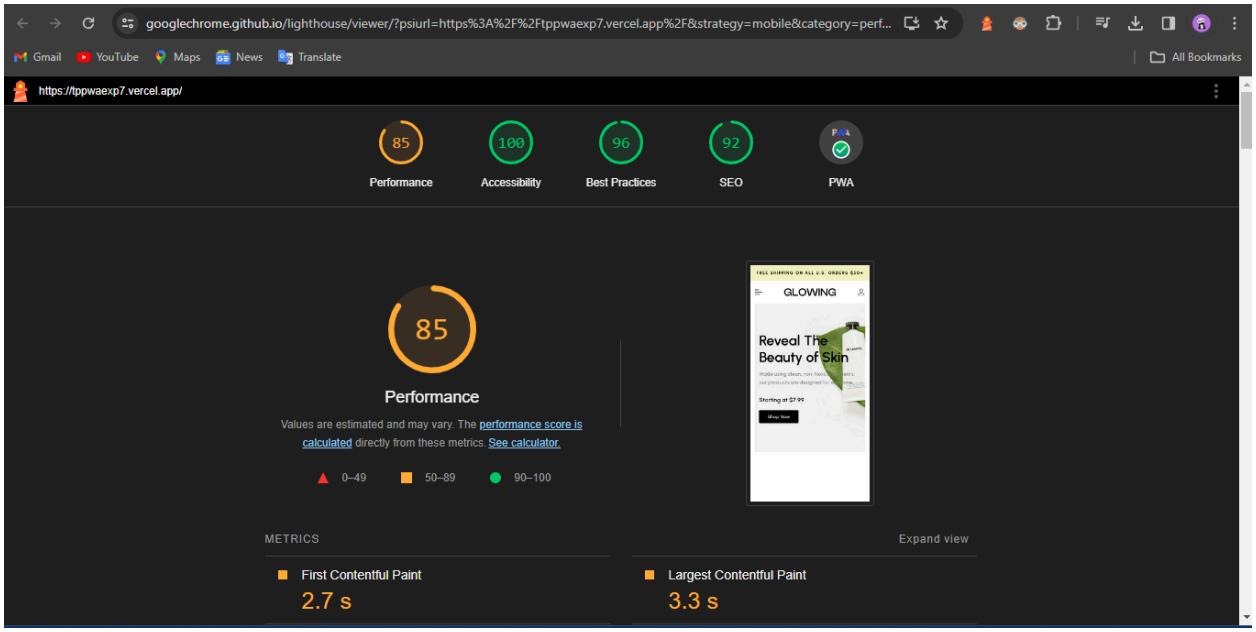
ScreenShot -

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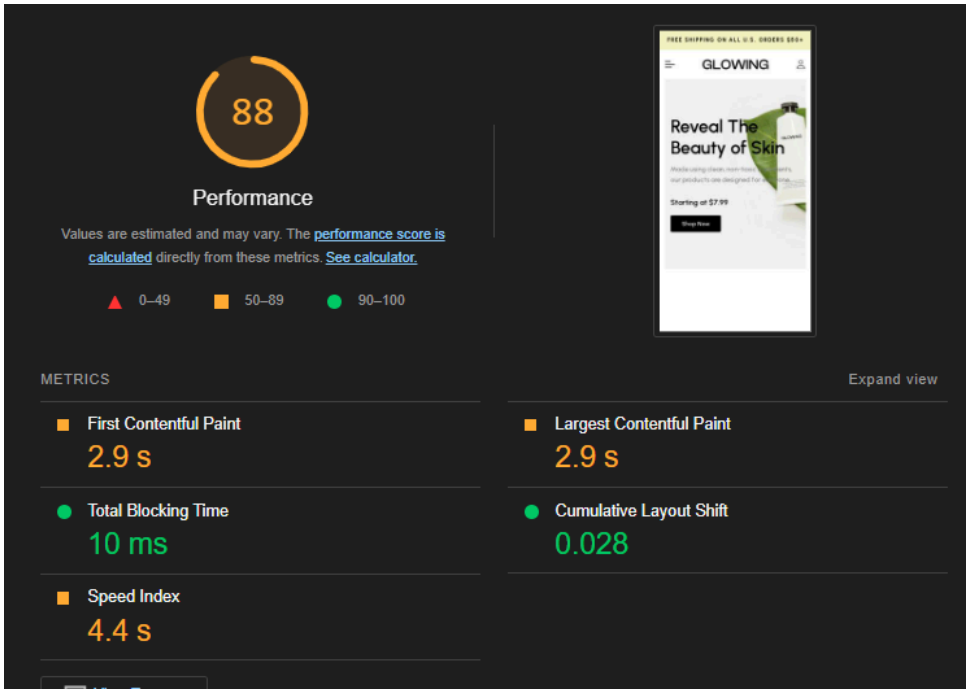
Gmail
YouTube
Maps
News
Translate
All Bookmarks
https://tppwaexp7.vercel.app/
85
Performance
100
Accessibility
96
Best Practices
92
SEO
PWA
85
Performance
Values are estimated and may vary. The performance score is calculated directly from these metrics. See calculator.
0–49
50–89
90–100
GLOWING
Reveal The Beauty of Skin
Starting at $7.99
METRICS
Expand view
First Contentful Paint
2.7 s
Largest Contentful Paint
3.3 s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Performance
Values are estimated and may vary. The performance score is calculated directly from these metrics. See calculator.
0–49
50–89
90–100
GLOWING
Reveal The Beauty of Skin
Starting at $7.99
METRICS
Expand view
First Contentful Paint
2.9 s
Largest Contentful Paint
2.9 s
Total Blocking Time
10 ms
Cumulative Layout Shift
0.028
Speed Index
4.4 s

DIAGNOSTICS

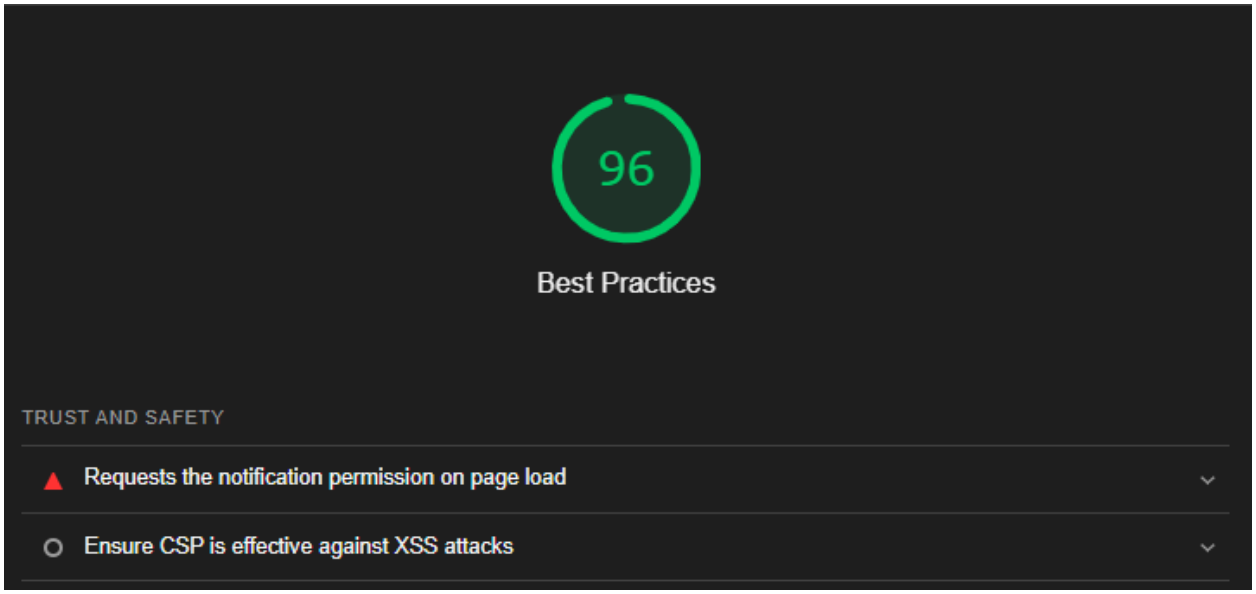
- ▲ Eliminate render-blocking resources — Potential savings of 840 ms
- ▲ Largest Contentful Paint element — 2,870 ms
- ■ Defer offscreen images — Potential savings of 36 KiB
- ■ Serve images in next-gen formats — Potential savings of 196 KiB
- ■ Serve static assets with an efficient cache policy — 23 resources found
- ■ Avoid an excessive DOM size — 1,071 elements
- ○ Initial server response time was short — Root document took 280 ms
- ○ Avoids enormous network payloads — Total size was 597 KiB
- ○ Avoid chaining critical requests — 4 chains found
- ○ JavaScript execution time — 0.2 s
- ○ Minimizes main-thread work — 0.8 s
- ○ Minimize third-party usage — Third-party code blocked the main thread for 0 ms

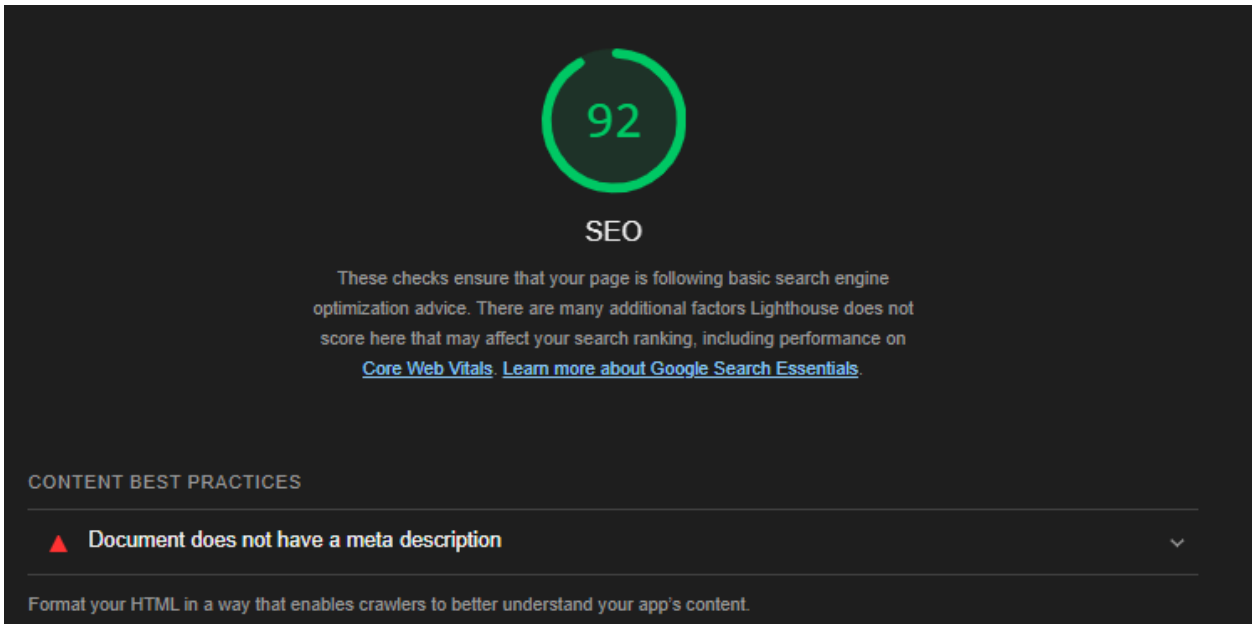
Accessibility

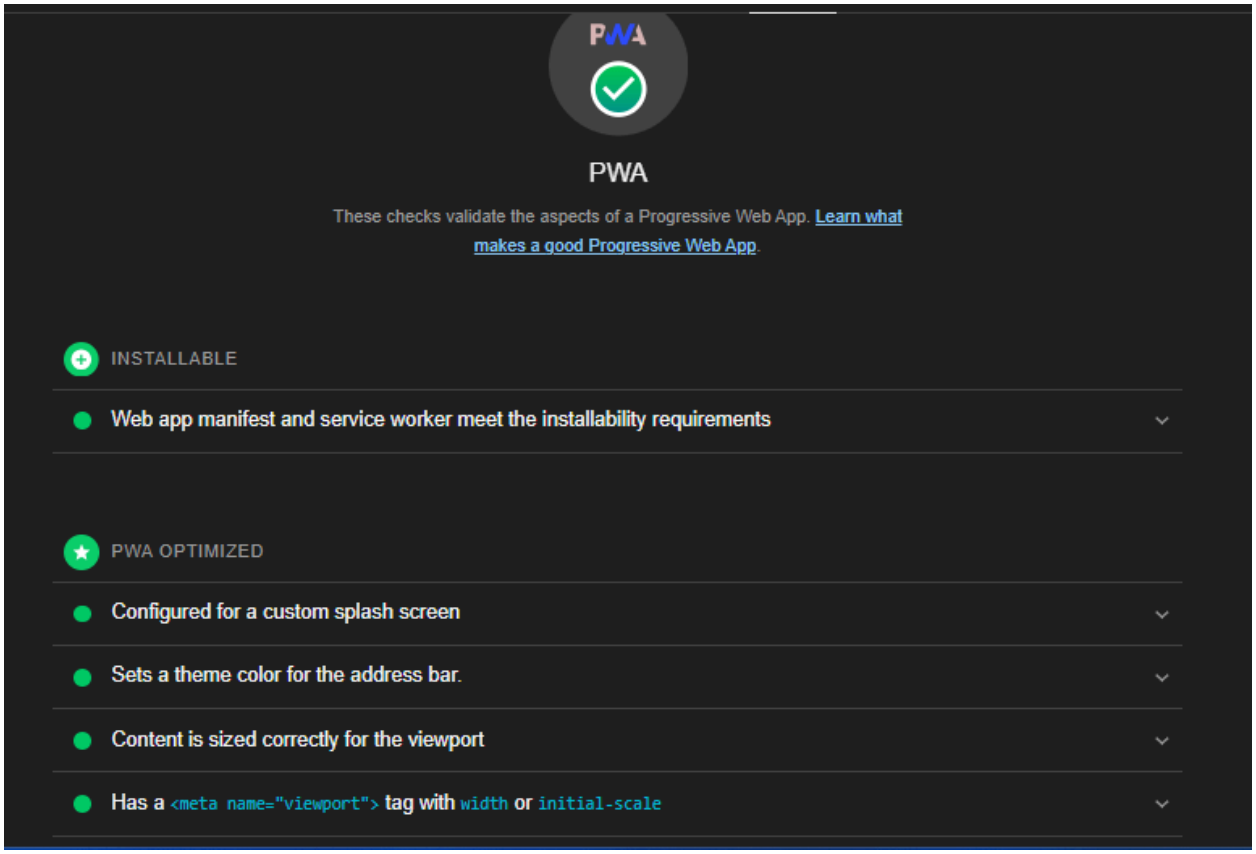
These checks highlight opportunities to improve the accessibility of your web app. Automatic detection can only detect a subset of issues and does not guarantee the accessibility of your web app, so manual testing is also encouraged.

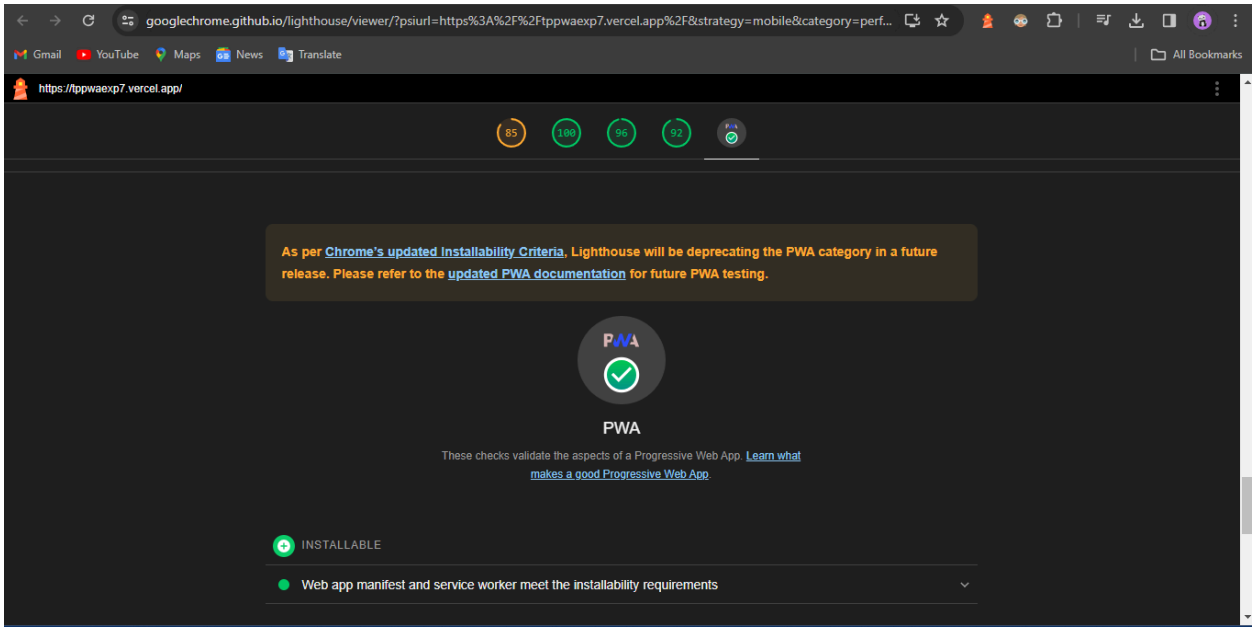
ADDITIONAL ITEMS TO MANUALLY CHECK (10) Hide

- ○ Interactive controls are keyboard focusable
- ○ Interactive elements indicate their purpose and state
- ○ The page has a logical tab order
- ○ Visual order on the page follows DOM order
- ○ User focus is not accidentally trapped in a region


96
Best Practices
TRUST AND SAFETY
Requests the notification permission on page load
Ensure CSP is effective against XSS attacks


92
SEO
These checks ensure that your page is following basic search engine optimization advice. There are many additional factors Lighthouse does not score here that may affect your search ranking, including performance on Core Web Vitals. Learn more about Google Search Essentials.
CONTENT BEST PRACTICES
Document does not have a meta description
Format your HTML in a way that enables crawlers to better understand your app's content.





Conclusion -

In this experiment, we have successfully used Google Lighthouse PWA Analysis Tool for testing the PWA functioning.