

EXP 11

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

Theory:

Google Lighthouse is an open-source automated tool used to analyze the performance and quality of web apps, including Progressive Web Apps (PWA). It checks how well your app meets PWA standards such as offline support, service worker functionality, responsive design, fast load times, and installability.

By running Lighthouse in Chrome DevTools, developers get a detailed report highlighting strengths and improvement areas related to PWA features like:

- Service worker registration
- Manifest file validity
- HTTPS usage
- Performance and accessibility
- App install prompt availability

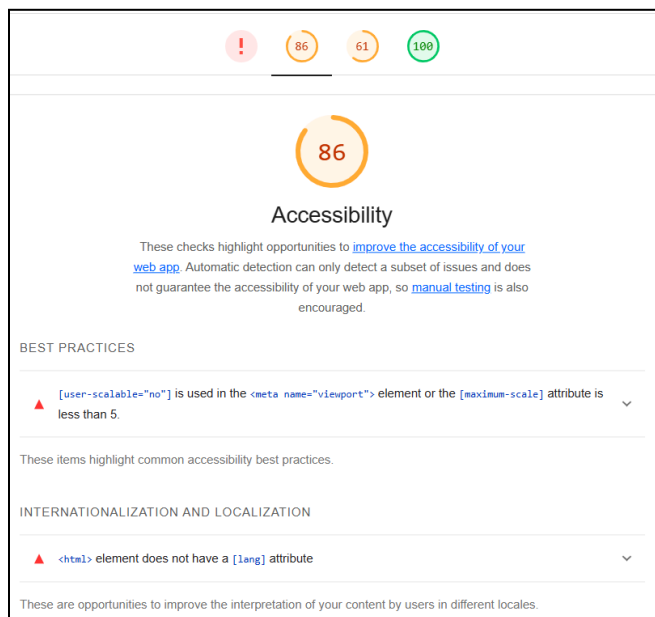
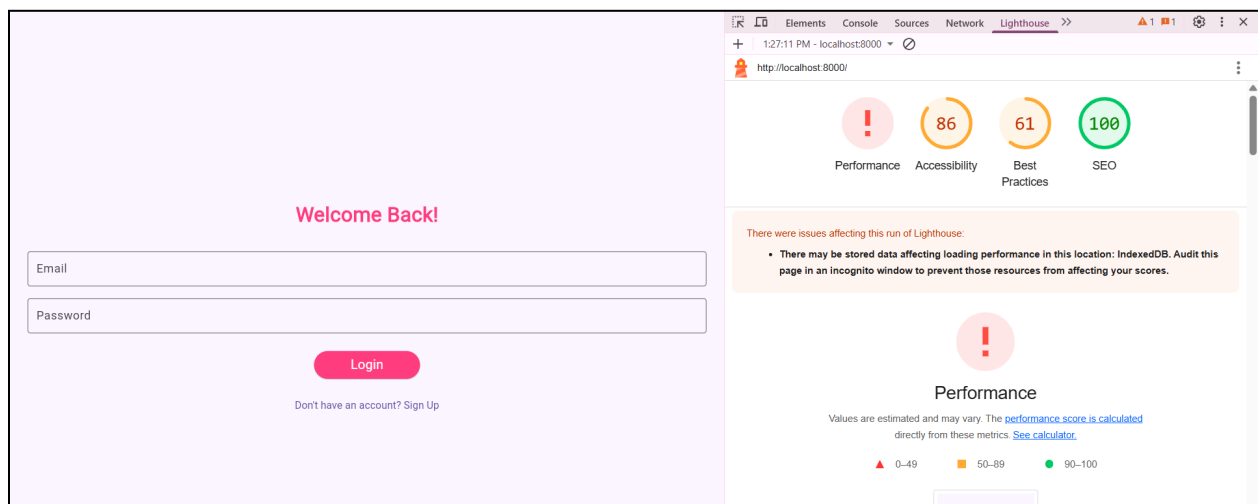
Advantages:

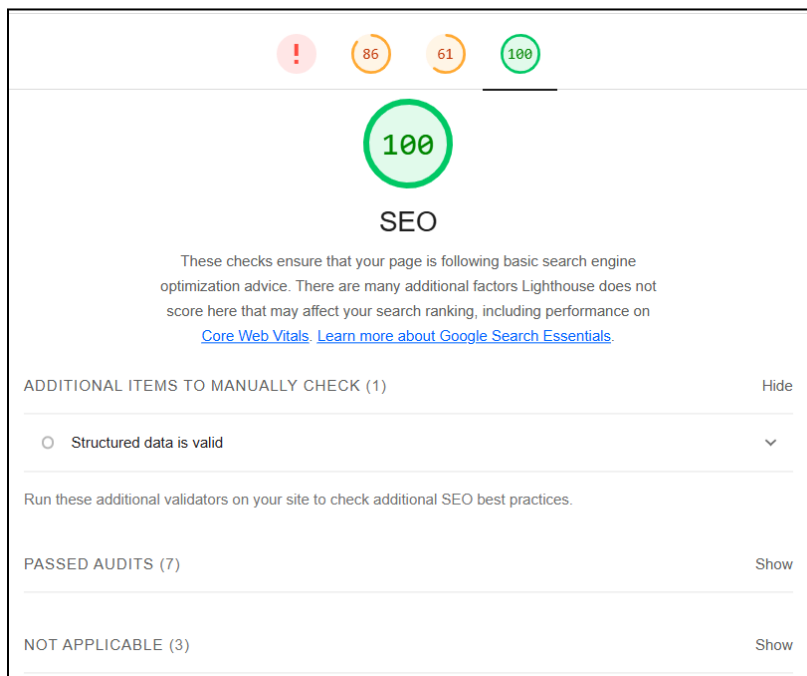
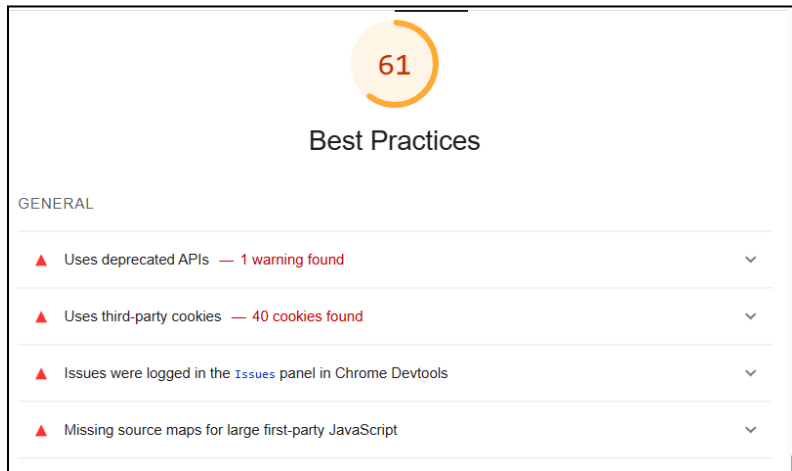
1. Comprehensive Audit:
Evaluates performance, accessibility, SEO, and PWA compliance in one report.
2. Built-in Tool:
Easily accessible via Chrome DevTools — no extra setup needed.
3. Actionable Suggestions:
Provides detailed recommendations to improve app quality.
4. Free and Open Source:
No cost involved, and it's maintained by Google with regular updates.
5. PWA-Specific Checks:
Focuses on service workers, manifest files, and offline support essential for PWAs.

Disadvantages:

1. **Simulated Environment:**
Tests are run in a simulated environment, which may not reflect real-world usage perfectly.
2. **Limited Offline Test Accuracy:**
Might not catch all edge cases of offline behavior or background sync functionality.
3. **Performance May Vary:**
Different results can appear on different devices or under varying conditions.
4. **Doesn't Replace Manual Testing:**
Can't test UI/UX or real-time functionality thoroughly — manual checks are still needed.
5. **Requires Understanding:**
Interpreting some technical suggestions may be difficult for beginners.

Output:





Conclusion:

In this experiment, the Google Lighthouse PWA Analysis Tool was used to evaluate the functioning of a Progressive Web App. The tool provided comprehensive insights into SEO, accessibility, and best practices. It helped identify areas for improvement and ensured the application adheres to modern web standards, resulting in a more optimized, user-friendly, and reliable web experience.