

## Experiment - 11

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### AIM:

To use Google Lighthouse PWA Analysis Tool to test the PWA functioning.

### Theory:

**Google Lighthouse** is an open-source, automated tool used to audit web applications. It helps developers evaluate and improve the quality of Progressive Web Apps (PWAs) by generating detailed reports based on performance, accessibility, best practices, SEO, and PWA standards.

#### 1. What is the Lighthouse PWA Audit?

Lighthouse checks whether a web app qualifies as a PWA by testing features like offline capability, HTTPS usage, responsive design, and “Add to Homescreen” readiness. The audit provides a score and suggestions for improvement.

#### 2. How to Use Lighthouse

Lighthouse can be accessed through:

- **Chrome DevTools (Audits tab)**
- **Command line (lighthouse <url>)**
- **Lighthouse CI or GitHub Actions**

Users can run audits directly on their live or local PWA by generating a report within seconds.

#### 3. Key Checks for PWA Audit

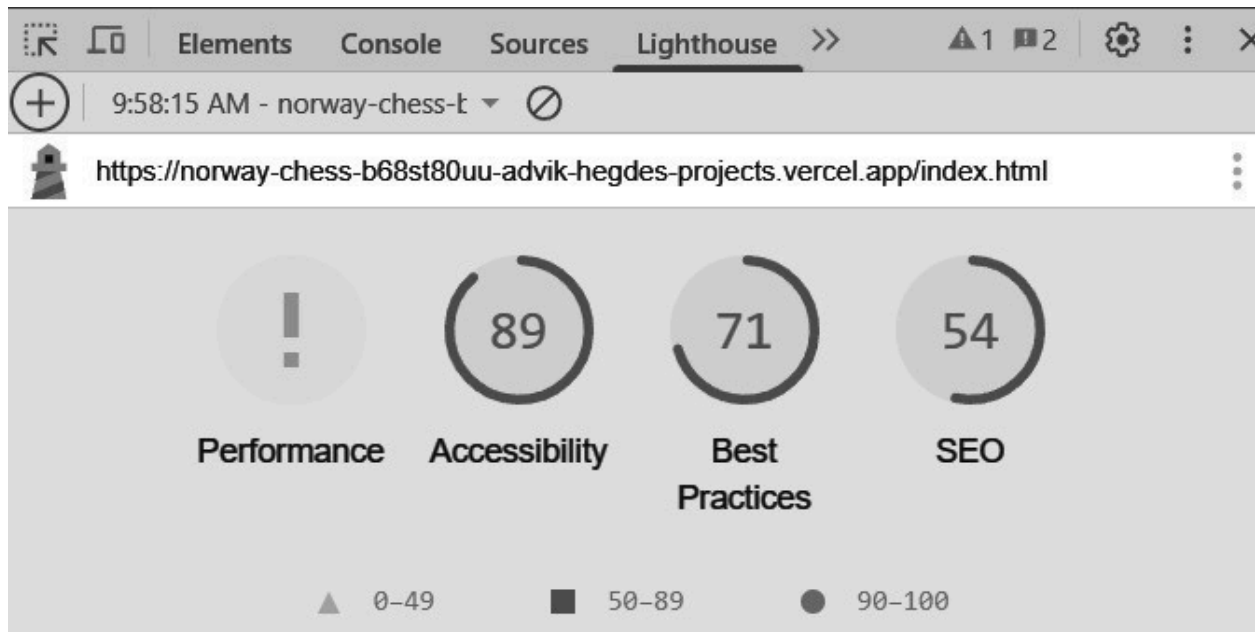
- App is served over HTTPS
- Service worker is registered and active
- Web App Manifest is valid
- Responsive and works offline

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- Provides custom splash screen and install prompt

### 4. Benefits for E-commerce PWAs

- Ensures the app delivers a fast, reliable, and engaging experience
- Identifies and fixes performance and accessibility issues
- Helps in meeting PWA requirements for better user retention



**Conclusion:** Using Google Lighthouse for PWA analysis ensures the E-commerce app meets modern web standards. It improves reliability, usability, and performance, leading to a better user experience and increased engagement.