PWA EXPERIMENT NO : 11

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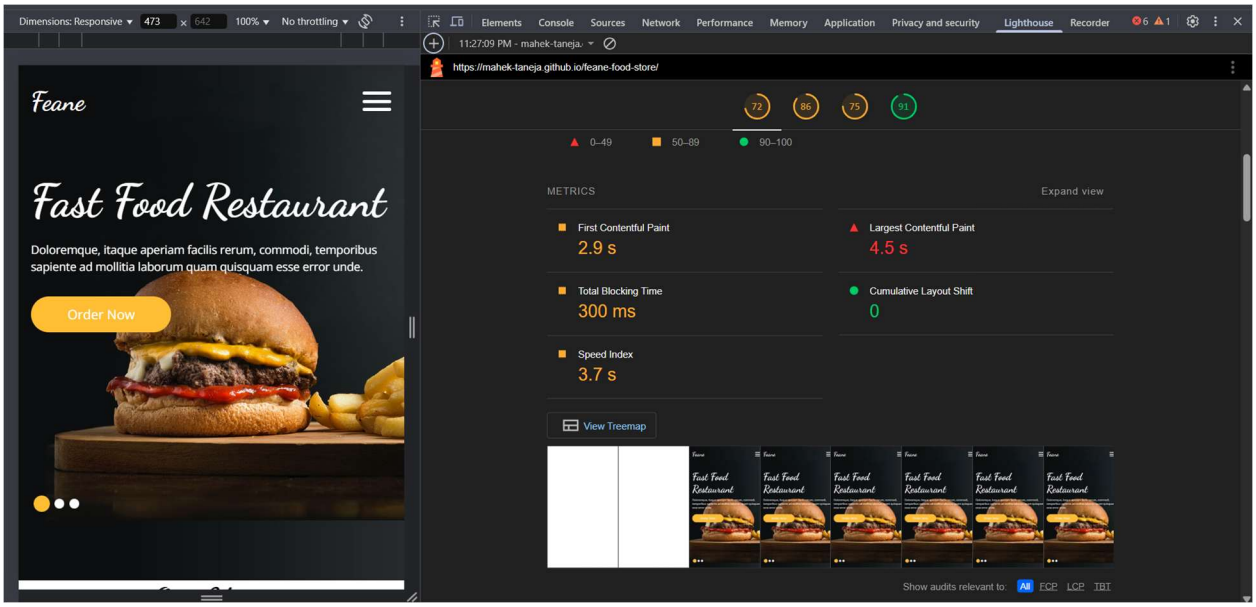
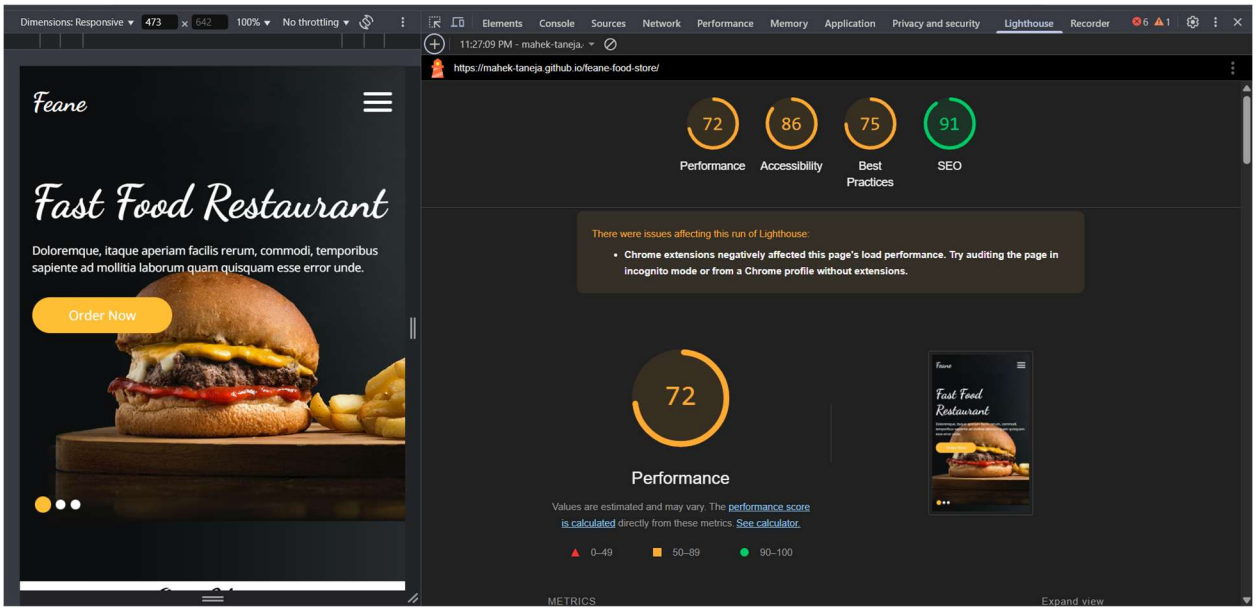
Aim: To study and implement google lighthouse PWA analysis toll to test the progressive Web App (PWA) functionality

Theory:
Progressive Web Apps (PWAs) are web applications that use modern web technologies to deliver app-like experiences to users. They are reliable, fast, and engaging. A key tool for analyzing and improving the performance and PWA features of a web app is Google Lighthouse.
Google Lighthouse is an open-source, automated tool developed by Google that audits web applications for performance, accessibility, best practices, SEO, and PWA features. It is available as a Chrome DevTools extension, a Node.js CLI, or through PageSpeed Insights.
When using Lighthouse to test for PWA functionality, it checks for the following criteria:

- Presence of a valid web app manifest.
- Availability of a service worker that controls pages and supports offline functionality.
- Use of HTTPS for secure delivery.
- Responsive design and compatibility across various screen sizes.
- Fast loading times and good performance metrics.

The PWA audit in Lighthouse provides a detailed report and suggestions for improving the app to meet PWA standards. Meeting these standards ensures the web app can be added to a device’s home screen, works offline, and provides a user experience similar to native apps.





Conclusion:

The use of Google Lighthouse for PWA analysis provides valuable insights into the performance and compliance of a web app with PWA standards. By running a Lighthouse audit, developers can identify areas where their application lacks in terms of offline support, responsiveness, and user engagement. Implementing the recommended improvements enhances the overall quality and user experience of the web app, ensuring it behaves like a native app and is accessible even in poor network conditions. This helps in building more reliable, engaging, and high-performing web applications.