**St. Francis Institute of Technology, Mumbai-400 103**

**Department of Information Technology**

**A.Y. 2024-2025**

**Class: TE-ITA/B, Semester: VI**

**Subject: MAD & PWA LAB**

**Experiment – 11: Testing the PWA functioning using Google Lighthouse PWA Analysis Tool**

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

2. Objectives: After study of this experiment, the student will be able to

● Test and Deploy PWA.

3. Outcomes: After study of this experiment, the student will be able to

● Analyse PWA Features.

4. Prerequisite: HTML/ CSS/ JavaScript.

5. Requirements: Visual Studio Code, Google Chrome, Internet Connection.

6. Pre-Experiment Exercise:

Brief Theory:

Lighthouse:

Google Lighthouse is an open-source, automated tool originally developed by Google, for measuring the quality of web pages. Lighthouse can be used to automatically audit your app against a set of PWA best practices. It has audits for performance, accessibility, progressive web apps, SEO and more.

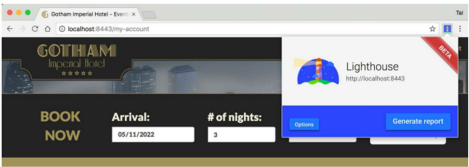
Lighthouse is available both as a browser extension (shown in Figure 1), and as a command line tool that you can integrate into your continuous integration pipeline. You give Lighthouse a URL to audit, it runs a series of audits against the page, and then it generates a report on how well the page did. From there, use the failing audits as indicators on how to improve the page. Each audit has a reference doc explaining why the audit is important, as well as how to fix it.

Testing PWA using Google Lighthouse:

Various lighthouse workflows possible to test your PWA.

1. In Chrome DevTools. Easily audit pages that require authentication, and read your reports in a user-friendly format.

2. From the command line. Automate your Lighthouse runs via shell scripts. 3. As a Node module. Integrate Lighthouse into your continuous integration systems. 4. From a web UI. Run Lighthouse and link to reports without installing a thing.

Figure 1: Lighthouse Chrome extension testing the PWA.

**7. Laboratory Exercise**

A. Program

1. Test and analyze your PWA using Google Lighthouse PWA analysis tool.

**B. Result/Observation**

1. Print out of program code and output.

**8. Post-Experimental Exercise**

A. Questions:

1. How to test PWAs?

**B. Conclusion:**

1. Write what you have learnt in the experiment.

**C. References:**

1. https://developers.google.com/web/tools/lighthouse

2. Building Progressive Web Apps, O’Reilly 2017.

