Experiment No: - 11

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

Theory:-

Google Lighthouse is a Google-developed automated tool integrated into Chrome browser, assessing web page performance, accessibility, best practices, and SEO. It includes a Progressive Web App (PWA) Analysis Tool, focusing on PWA-specific features like service worker, offline capabilities, app-like behavior, and responsive design.

To utilize the PWA Analysis Tool:

1. Launch Chrome and navigate to your PWA's webpage.
2. Right-click and select "Inspect" to open Chrome DevTools.
3. Navigate to the "Audits" tab and choose "Progressive Web App."
4. Click "Run audits" and wait for analysis completion.
5. Review results, including performance metrics and PWA-specific features.
6. Utilize feedback to optimize and enhance your PWA's functionality and user experience.

Lighthouse evaluates several key factors:

1. Service Worker: Lighthouse checks if the web page has a service worker registered and properly configured. Service workers are essential for enabling features like offline caching and background sync in PWAs.

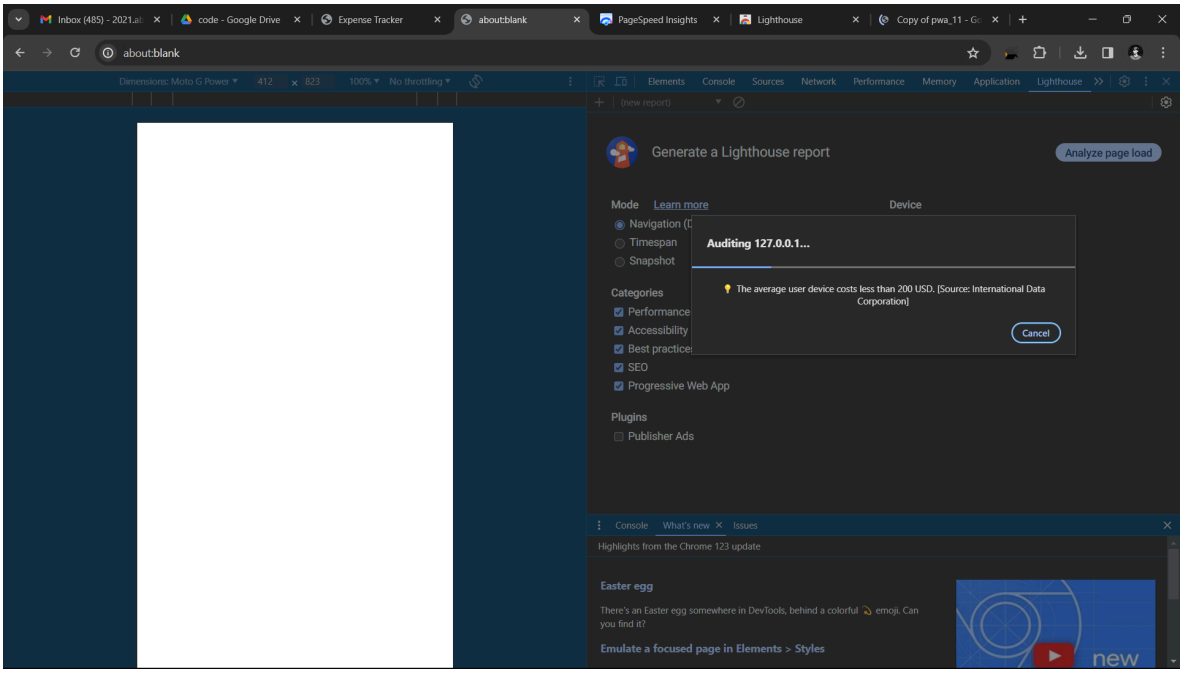
2. Offline Capabilities: Lighthouse assesses whether the PWA can function offline by caching essential resources and providing a meaningful offline experience to users.

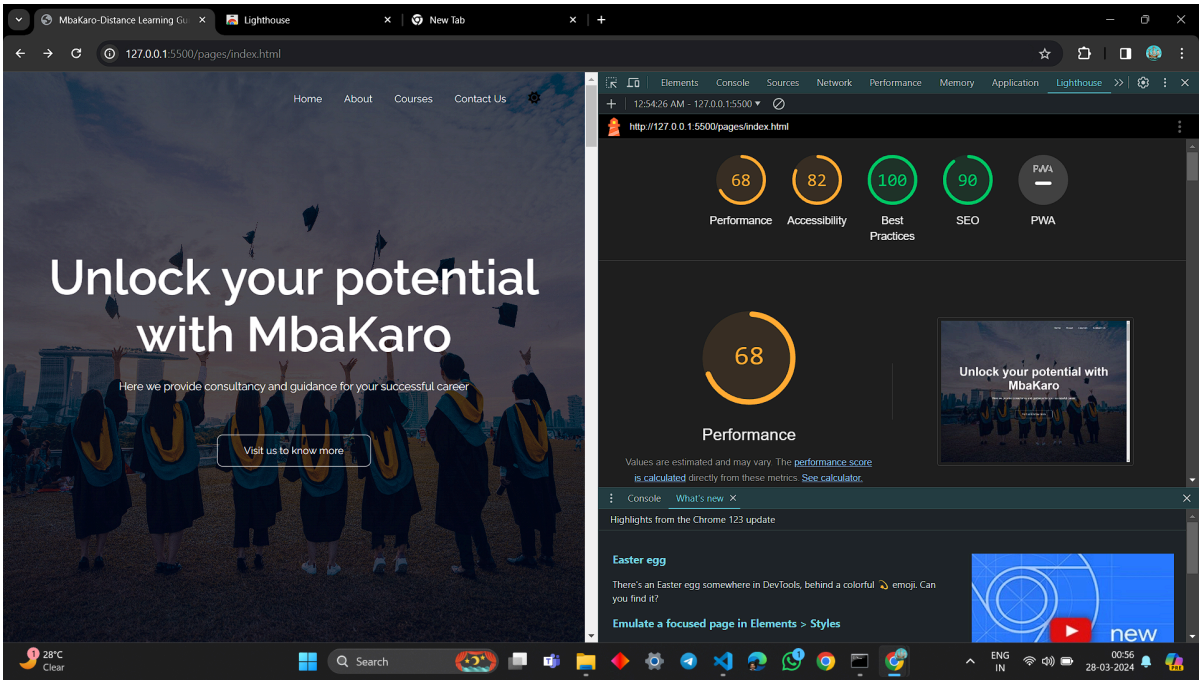
3. App-like Behavior: Lighthouse examines if the PWA behaves like a native app, including features such as a splash screen, full-screen mode, and home screen installation prompts.

4. Responsive Design: Lighthouse verifies that the PWA is responsive and works well across various devices and screen sizes, ensuring a consistent user experience.

5. Performance: While not specific to PWAs, Lighthouse evaluates the performance of the web page, including metrics such as load time, speed index, and time to interactive. A fast and optimized PWA enhances user engagement and satisfaction.

Output:




MbaKaro-Distance Learning Gu
Lighthouse
New Tab
127.0.0.1:5500/pages/index.html
Home
About
Courses
Contact Us
Unlock your potential with MbaKaro
Here we provide consultancy and guidance for your successful career
Visit us to know more
Elements
Console
Sources
Network
Performance
Memory
Application
Lighthouse
12:54:26 AM - 127.0.0.1:5500
http://127.0.0.1:5500/pages/index.html
68
82
100
90
PWA
Performance
Accessibility
Best Practices
SEO
PWA
68
Performance
Values are estimated and may vary. The performance score is calculated directly from these metrics. See calculator.
Unlock your potential with MbaKaro
Console
What's new
Highlights from the Chrome 123 update
Easter egg
There's an Easter egg somewhere in DevTools, behind a colorful emoji. Can you find it?
Emulate a focused page in Elements > Styles
new
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Clear
Search
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IN
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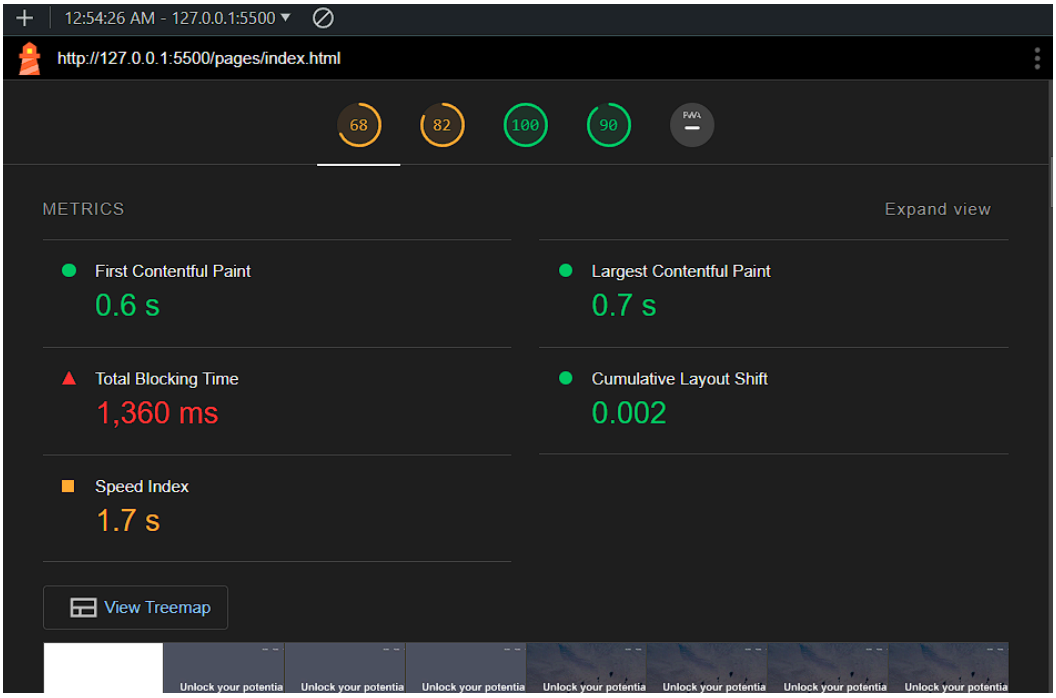
28-03-2024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PWA
METRICS
Expand view
First Contentful Paint
0.6 s
Largest Contentful Paint
0.7 s
Total Blocking Time
1,360 ms
Cumulative Layout Shift
0.002
Speed Index
1.7 s
View Treemap
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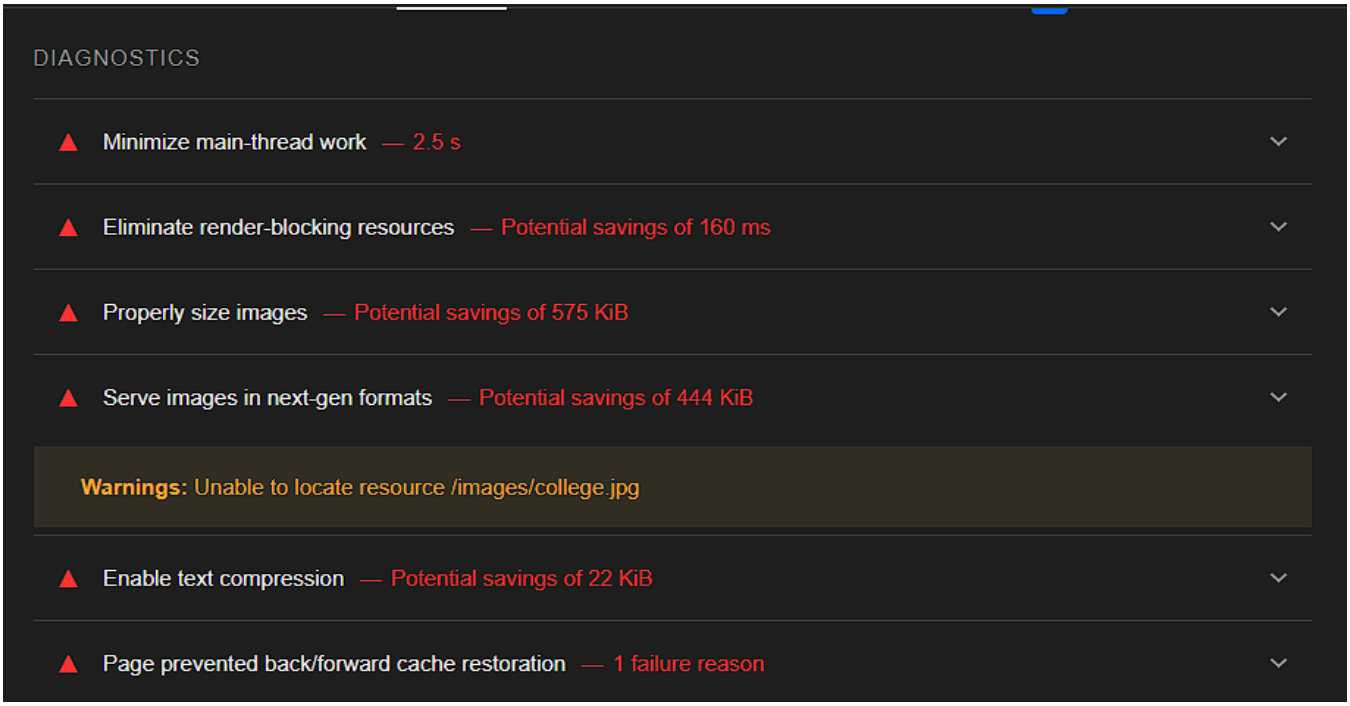
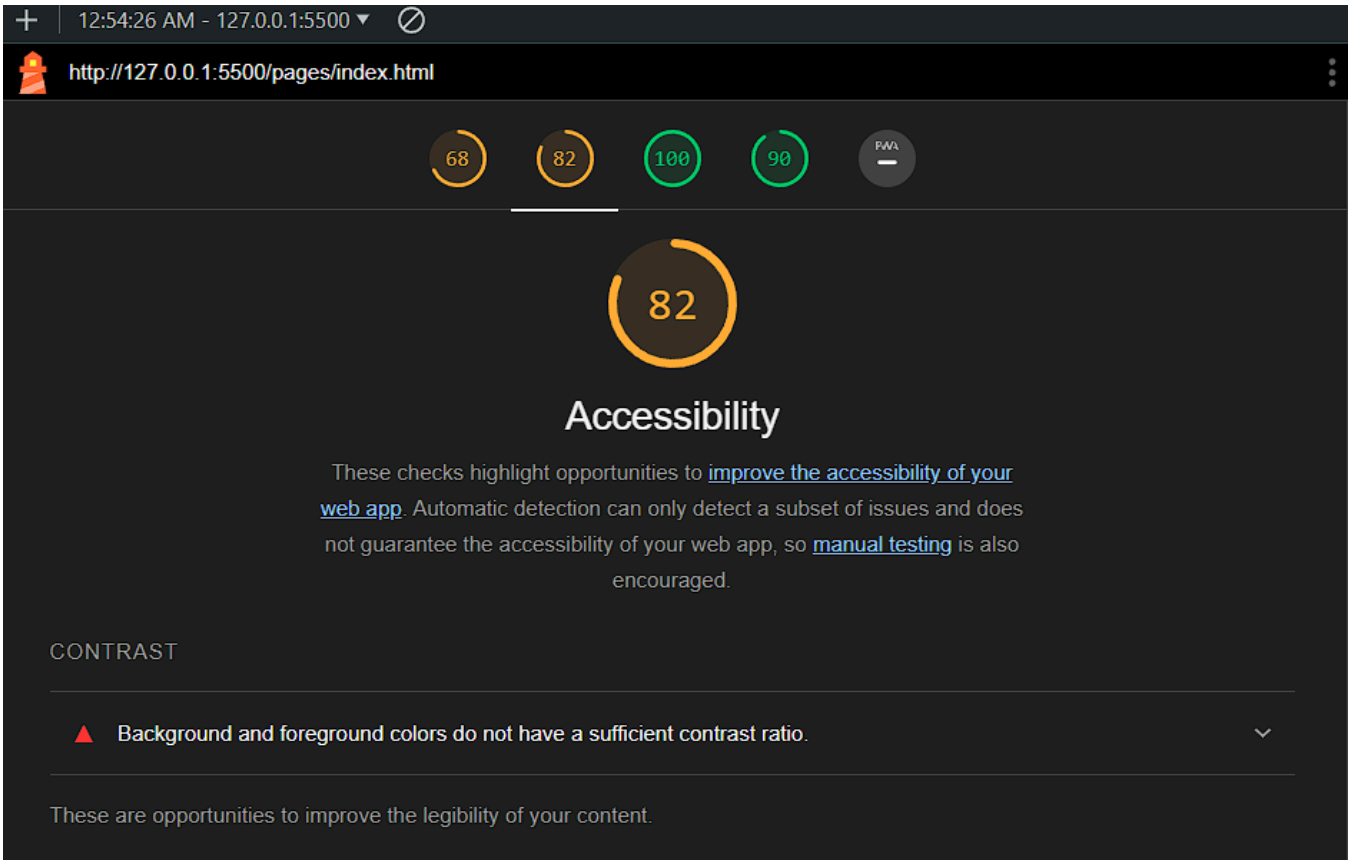

DIAGNOSTICS
Minimize main-thread work — 2.5 s
Eliminate render-blocking resources — Potential savings of 160 ms
Properly size images — Potential savings of 575 KiB
Serve images in next-gen formats — Potential savings of 444 KiB
Warnings: Unable to locate resource /images/college.jpg
Enable text compression — Potential savings of 22 KiB
Page prevented back/forward cache restoration — 1 failure reason


12:54:26 AM - 127.0.0.1:5500
http://127.0.0.1:5500/pages/index.html
68
82
100
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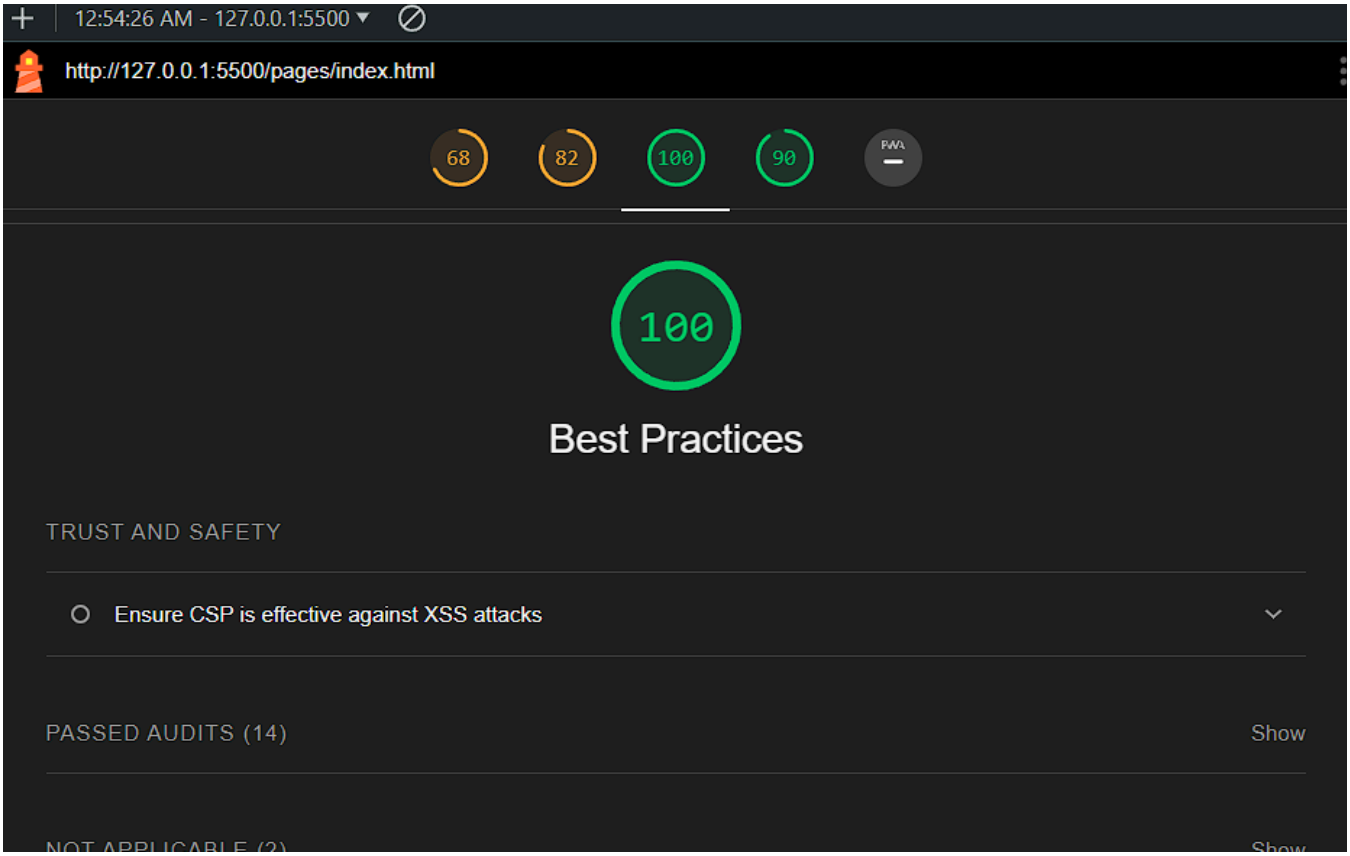
82
Accessibility
These checks highlight opportunities to improve the accessibility of your web app. Automatic detection can only detect a subset of issues and does not guarantee the accessibility of your web app, so manual testing is also encouraged.
CONTRAST
Background and foreground colors do not have a sufficient contrast ratio.
These are opportunities to improve the legibility of your content.



Conclusion:

In conclusion, utilizing Google Lighthouse PWA Analysis Tool to test the PWA functionality has provided valuable insights into its performance, accessibility, and best practices. This comprehensive analysis helps identify areas for improvement, ensuring that the PWA delivers an optimal user experience across various devices and network conditions.