

Name : Vivek Gupta

Div : D15B

Roll No : 19

MPL Practical 11

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

Theory:

Google Lighthouse is an open-source tool provided by Google that helps developers analyze the quality of web applications, including Progressive Web Apps (PWAs). It checks key performance aspects like speed, accessibility, SEO, best practices, and PWA standards.

Lighthouse simulates a mobile device and runs various audits to give scores (out of 100) for different categories. This helps identify how fast and optimized a web app is, and whether it meets PWA requirements like offline support, responsiveness, secure HTTPS hosting, and manifest availability.

What we implemented:

In this experiment, we tested our Maharashtrian Handloom & Textiles PWA using Lighthouse. The app was hosted on GitHub Pages and included PWA features such as:

- A valid web app manifest
- A registered and active service worker
- Offline caching of assets
- Responsive design and mobile-friendly layout

After running Lighthouse, we achieved the following scores:

- Performance: 87 – Fast load time with some optimization scope (e.g., reduce main-thread blocking).
- Accessibility: 100 – All content is easily accessible and screen reader-friendly.
- Best Practices: 96 – Follows security and coding standards well.
- SEO: 91 – Good search engine discoverability with minor improvements needed (e.g., add meta description).

These results confirm that our PWA meets the major requirements and performs well across devices.

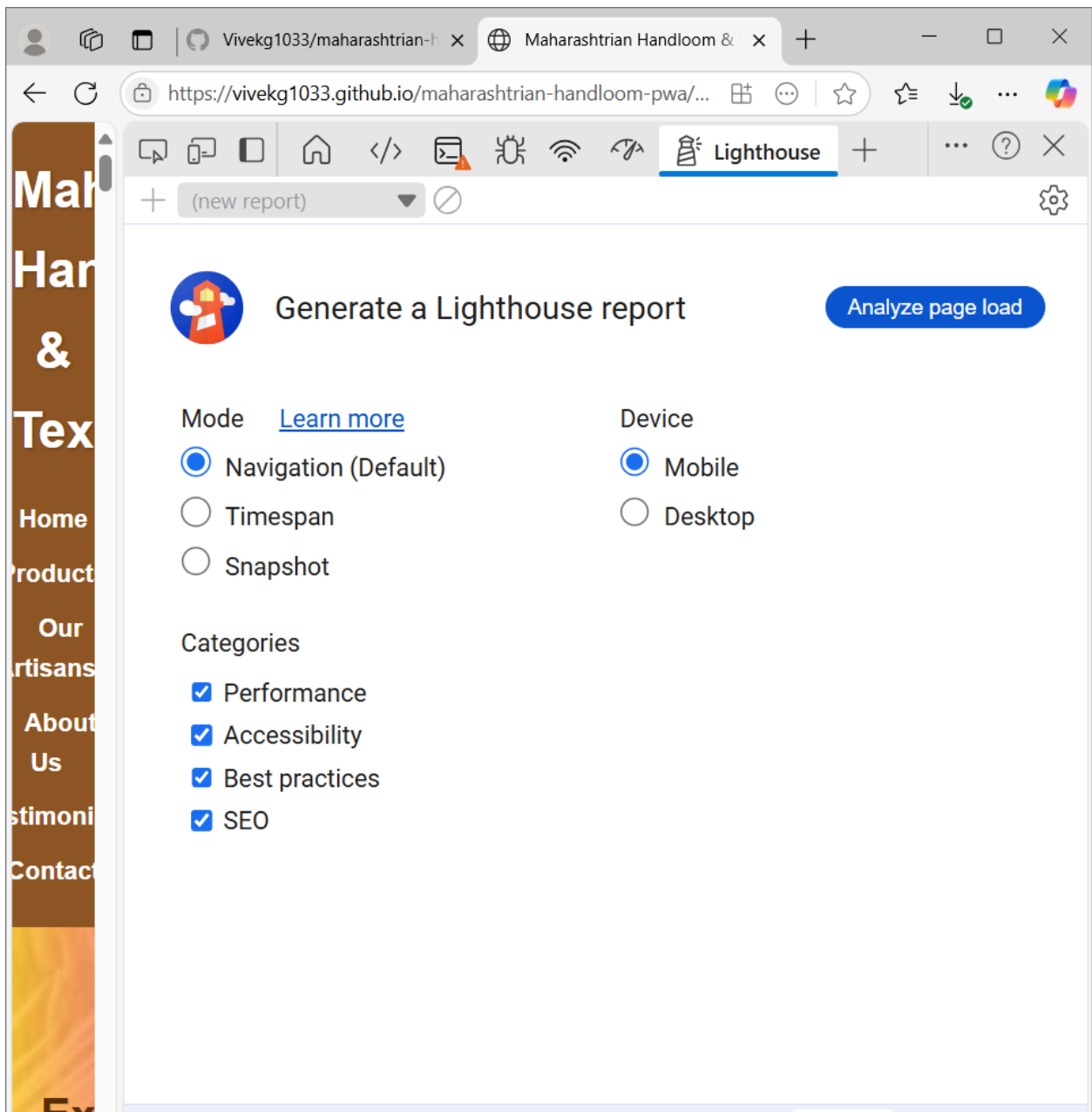
manifest.json

```
{  
  "name": "Maharashtrian Handloom & Textiles",  
  "short_name": "HandloomTextiles",  
  "start_url": "index.html",  
  "display": "standalone",  
  "background_color": "#fff8f0",  
  "theme_color": "#9e5c39",  
  "description": "Shop authentic Maharashtrian Paithani sarees, Himroo shawls, and Kolhapuri chappals.",  
}
```

```

"icons": [
  {
    "src": "icons/icon-192x192.png",
    "sizes": "192x192",
    "type": "image/png",
    "purpose": "any maskable"
  },
  {
    "src": "icons/icon-512x512.png",
    "sizes": "512x512",
    "type": "image/png",
    "purpose": "any maskable"
  }
]
}

```



Conclusion

In this experiment, we successfully tested our Maharashtrian Handloom & Textiles PWA using Google Lighthouse and achieved high scores by implementing a valid manifest, service worker, and responsive design. Initially, we faced issues like missing theme color and improper icon formats, which we resolved by updating the manifest.json and adding necessary meta tags in index.html.