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

Theory -

- **Google Lighthouse :**
1. Google Lighthouse is a tool that audits web applications based on various parameters, such as performance, mobile compatibility, and PWA implementations.
2. It provides a comprehensive report that is similar to what a professional auditor would compile in about a week.
3. To use Google Lighthouse, you just need to run it on a page or pass a URL to it.
4. You don't have to set up anything to get started with Google Lighthouse.
5. Some of the top features and audit criteria used by Google Lighthouse include performance metrics, mobile compatibility, and PWA implementation.

- **Key features :**
1. Google Lighthouse audits the performance of both desktop and mobile versions of your webpage.
2. The top metrics measured in the audit include Performance, PWA Score (for mobile), Accessibility, and Best Practices.
3. Performance measures aspects such as loading speed, displaying content, and more.
4. PWA Score focuses on making web applications behave like native mobile applications and is based on Google's Baseline PWA checklist.
5. Accessibility measures how accessible your website is across various accessibility features and uses a pass/fail basis for scoring.
6. Best Practices measures adherence to industry best practices, such as using HTTPS and avoiding deprecated code elements.
7. Performance and Accessibility scores are based on percentile, with 100 indicating the 98th percentile and 50 indicating the 75th percentile.

Changes made to the code :

Error - Does not provide a valid apple-touch-icon. For ideal appearance on iOS when users add a progressive web app to the home screen, define an apple-touch-icon. It must point to a non-transparent 192px (or 180px) square PNG.

Added the apple-touch-icon tag in **index.html** file
<link rel="apple-touch-icon" href="favicon/apple-touch-icon.png">
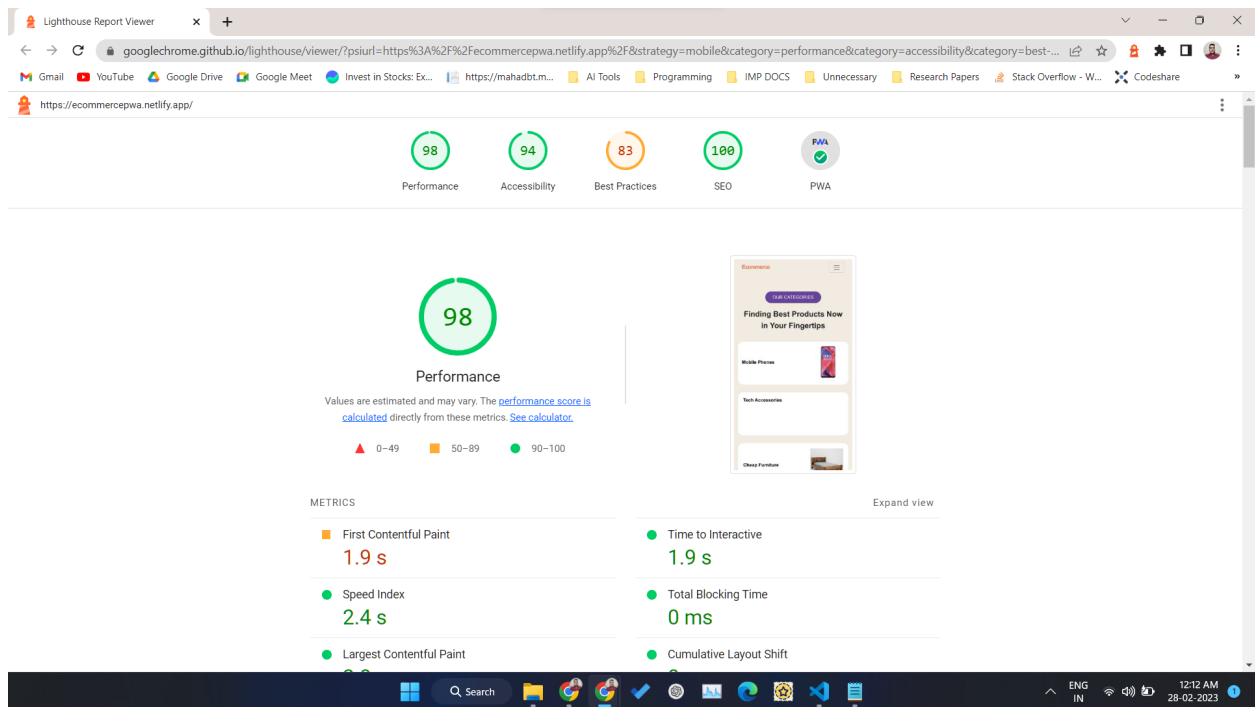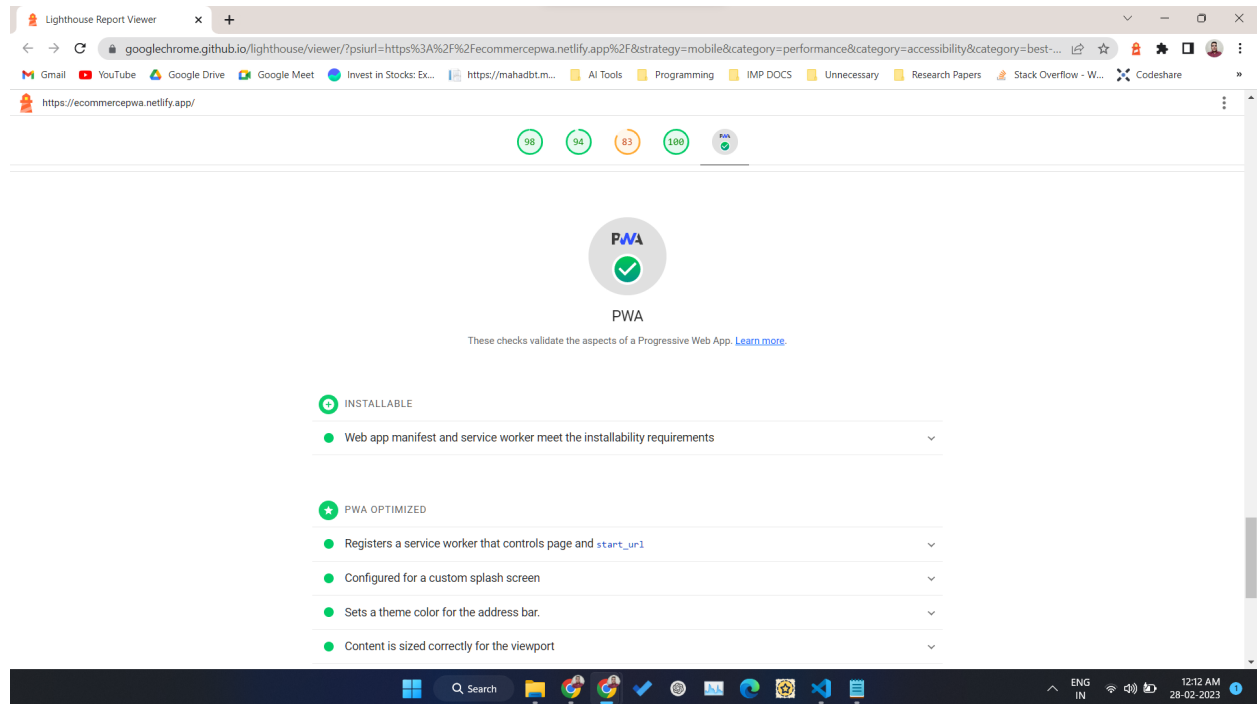
Updated manifest.json file

```
{
    "name": "Ecommerce PWA",
    "short_name": "Ecommerce",
    "start_url": ".",
    "display": "standalone",
    "background_color": "#fafafa",
    "theme_color": "#FFD567",
    "description": "Preview maskable icons in the browser.",
    "icons": [
        {
            "src": "favicon/favicon_512.png",
            "sizes": "512x512",
            "type": "image/png",
            "purpose": "any"
        },
        {
            "src": "favicon/favicon.svg",
            "sizes": "any",
            "type": "image/svg+xml",
            "purpose": "any"
        },
        {
            "src": "favicon/maskable_512.png",
            "sizes": "512x512",
            "type": "image/png",
            "purpose": "maskable"
```

```
    },
    {
     "src": "favicon/maskable.svg",
     "sizes": "any",
     "type": "image/svg+xml",
     "purpose": "maskable"
    },
    {
     "src": "favicon/monochrome_256.png",
     "sizes": "256x256",
     "type": "image/png",
     "purpose": "monochrome"
    },
    {
    "src": "favicon/apple-touch-icon.png",
    "sizes": "180x180",
    "type": "image/png"
    }
   ],
   "shortcuts": [
    {
     "name": "Editor",
     "description": "Build your own maskable icon",
     "url": "/editor",
     "icons": [
       {
        "src": "favicon/editor_192.png",
        "sizes": "192x192",
        "type": "image/png",
        "purpose": "any monochrome"
       },
       {
        "src": "favicon/editor.svg",
        "sizes": "any",
        "type": "image/svg+xml",
```

```
        "purpose": "any monochrome"
      }
    ]
  }
]
}
```

Output:

Conclusion: Thus we successfully used google Lighthouse PWA Analysis Tool for testing the PWA functioning.