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Batch B

MAD PWA Lab 11

Aim:

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

Theory:

Google Lighthouse

Google Lighthouse is a tool that lets you audit your web application based on a number of parameters including (but not limited to) performance, based on a number of metrics, mobile compatibility, Progressive Web App (PWA) implementations, etc. All you have to do is run it on a page or pass it a URL, sit back for a couple of minutes and get a very elaborate report, not much short of one that a professional auditor would have compiled in about a week.
The best part is that you have to set up almost nothing to get started. Let's begin by looking at some of the top features and audit criteria used by Lighthouse.

Performance:

- First Contentful Paint (FCP): Measures how long it takes for the first content to be painted on the screen.
- Speed Index: Calculates how quickly content is visually displayed during page load.
- Largest Contentful Paint (LCP): Indicates the render time of the largest content element visible in the viewport.
- Time to Interactive (TTI): Measures how long it takes for the page to become fully interactive.

Accessibility:

- A11y: Evaluates the accessibility of the web page based on best practices and standards such as WCAG (Web Content Accessibility Guidelines).
- Color Contrast: Checks if text and background colors have sufficient contrast for readability.
- Keyboard Navigation: Assesses if all interactive elements are accessible via keyboard navigation.

Best Practices:

- Avoids Application Cache: Recommends not using the deprecated Application Cache.
- Uses HTTPS: Encourages using HTTPS to ensure secure communication between the server and the user's browser.
- No Broken Links: Checks for broken links on the page.

SEO:

- Meta Tags: Checks for the presence of important meta tags like title, description, and viewport.

- Structured Data: Evaluates if structured data markup is correctly implemented for search engines.
- Mobile Friendly: Assesses if the page is mobile-friendly and responsive.

Progressive Web App (PWA):

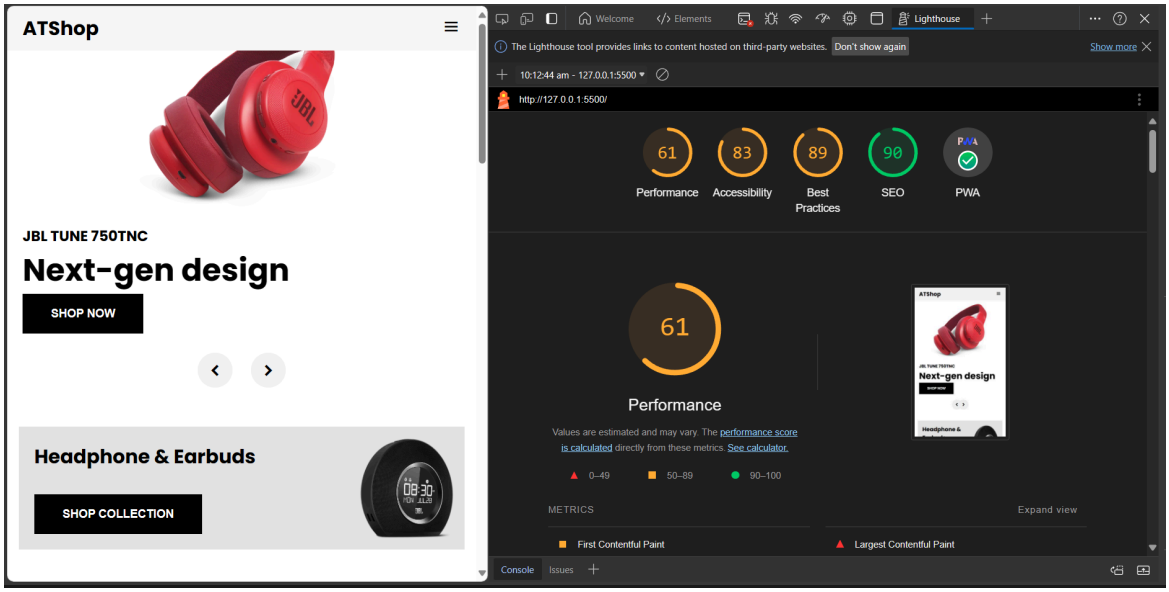
- PWA Checklist: Checks if the web page meets the criteria to be considered a Progressive Web App, such as having a service worker and a web app manifest.

Changes in code:

```
{
  "name": "Ecom",
  "short_name": "PWA",
  "start_url": "index.html",
  "display": "standalone",
  "background_color": "#5900b3",
  "theme_color": "black",
  "scope": ".",
  "description": "This is a PWA tutorial.",
  "icons": [
    {
      "src": "images\\tuat.jpg",
      "sizes": "192x192",
      "type": "image/png",
      "purpose": "any"
    },
    {
      "src": "images\\a.jpg",
      "sizes": "512x512",
      "type": "image/png",
      "purpose": "maskable"
    }
  ]
}
```

Output:

Three dots on right corner ->more tools -> developer tools -> Lighthouse -> device (mobile) -> Analyze page load



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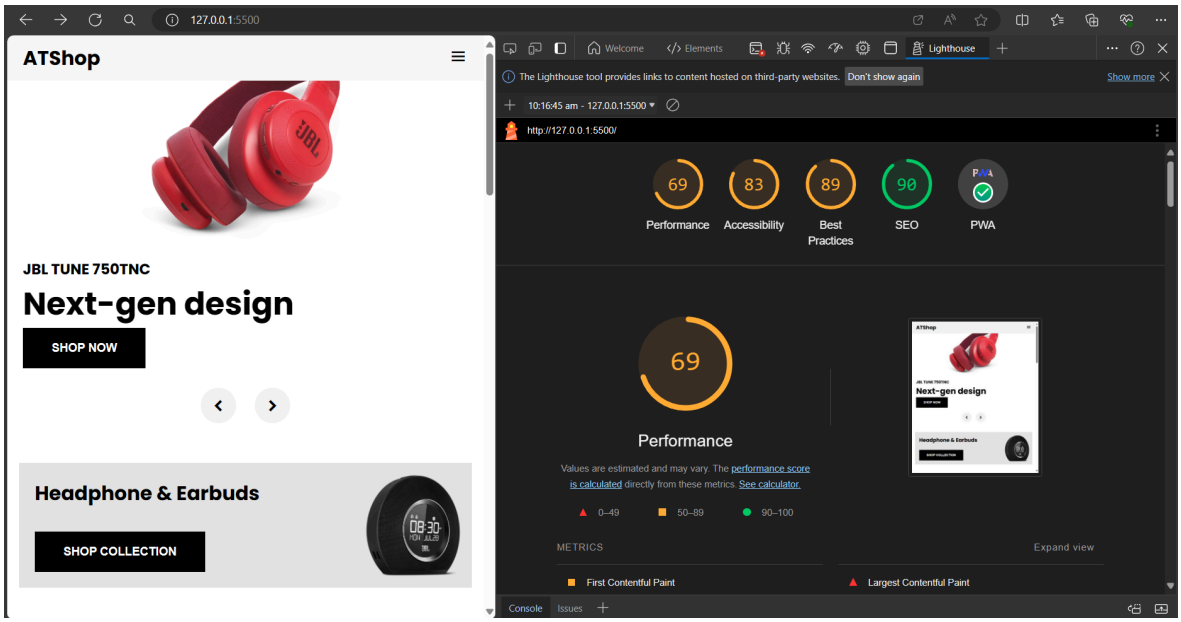

Conclusion:

Successfully implemented a code and register a service worker, and completed the installation and activation process for a new service worker for the E-commerce PWA.