

MPL Experiment - 8

Aim: To Code and register a service worker, and complete the install and activation process for a New Service Worker for the ~~E-commerce~~ PWA.

Theory: A Service Worker is a script that runs in the background of a web browser, independent of the main webpage, and acts as a proxy between the network and the user's browser. It enables features such as caching, push notifications, background sync, and offline access, making Progressive Web Applications (PWAs) more efficient and reliable.

Characteristics of Service Workers:

- Service workers intercept network requests and can modify or respond to them directly from cache, enhancing offline functionality.
- They run separately from the main JavaScript thread, meaning they don't directly interact with the Document Object Model (DOM).
- Information persistence is managed using IndexedDB instead of global variables.
- Service workers operate only on secure HTTPS connections to prevent security threats.

Key Features of Service Workers:

- Caching: Stores files for offline use.
- Network Request Interception: Controls how requests are handled.

- Push Notifications: Sends updates even when the app is closed.
- Background Sync: Synchronize data when connectivity is restored.

Service Worker Lifecycle:

1. Registration: The browser is informed about the service worker.
2. Installation: Required assets are cached.
3. Activation: The service worker takes control, replacing old versions.

It enhances PWA by improving speed, reducing network dependency, and enabling offline functionality.

Conclusion:

In this experiment, we successfully registered and implemented a service worker, allowing the PWA to function efficiently with caching and offline capabilities. The installation and activation steps ensured that essential assets were stored and outdated versions were replaced. This enhances performance, reliability, and user experience by enabling access even in poor network conditions.