MPL Lab 8
Mayur Jaiswal
D15B
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Aim: To create, register, and activate a service worker that provides offline support, cache management, and background capabilities for a Progressive Web App (PWA).

Theory: A service worker is a JavaScript file that acts as a proxy between the web app and the network. It intercepts network requests and can serve cached files when offline, greatly improving load performance and reliability. It runs independently of the main web app thread and is capable of managing push notifications, background sync, and cache strategies.

Service workers follow a lifecycle: install, activate, and then fetch. Properly caching assets during install and cleaning up old caches during activation is crucial for version control.

Steps to Perform:

Create service-worker.js: In your project root or public folder:

javascript

```javascript
const CACHE_NAME = 'v1';
const urlsToCache = ['/', '/index.html', '/styles.css', '/script.js'];

self.addEventListener('install', event => {
  event.waitUntil(
    caches.open(CACHE_NAME).then(cache => {
      return cache.addAll(urlsToCache);
    })
  );
});
```

   1.

Add Activation Event: Remove old caches when a new service worker is activated.

javascript

```javascript
self.addEventListener('activate', event => {
  event.waitUntil(
    caches.keys().then(cacheNames => {
      return Promise.all(
        cacheNames.map(name => {
          if (name !== CACHE_NAME) return caches.delete(name);
        })
      );
    })
  );
});
```

   2.

Register the Service Worker in Your App: In your main JS or HTML:

javascript

```javascript
if ('serviceWorker' in navigator) {
  navigator.serviceWorker.register('/service-worker.js')
    .then(() => console.log('Service Worker Registered'))
```

```
      .catch(err => console.error('Registration failed:', err));
}
```

3. **Verify Registration: Use Chrome DevTools > Application tab > Service Workers to check status.**

Key Features:

-   **Offline First: Loads app even with no internet.**

-   **Improved Speed: Loads from cache for instant access.**

-   **Custom Cache Strategy: You decide which files to cache and when to update.**

-   **Persistent Background Control: Works independently from the page.**

Millets

Sign in or create an account

Username

Password

Sign In

New user? Register here

---

localhost:3000

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All Fetch/XHR Doc CSS JS Font Img Media Manifest WS Wasm Other

Name	Status	Type	Initiator	Size	Time
main.c4060b96.css	304	stylesheet	Other	113 B	3 ms
log?format=json&hasfast=true&a...	200	fetch	m=el_main:96	151 B	394 ms

2 requests | 264 B transferred | 3.1 kB resources

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Millets

Sign in or create an account

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Application
- Manifest
- Service workers
- Storage

Storage
- Local storage
- Session storage
- Extension storage
- IndexedDB
- Cookies
- Private state tokens
- Interest groups
- Shared storage
  - http://localhost:3000
  - https://securepubads....
  - https://www.googlea...
  - https://ep3.adtrafficq...
- Cache storage
- Storage buckets

Background services
- Back/forward cache
- Background fetch
- Background sync
- Bounce tracking mi...
- Notifications
- Payment handler
- Periodic backgroun...
- Speculative loads
- Push messaging

Shared storage

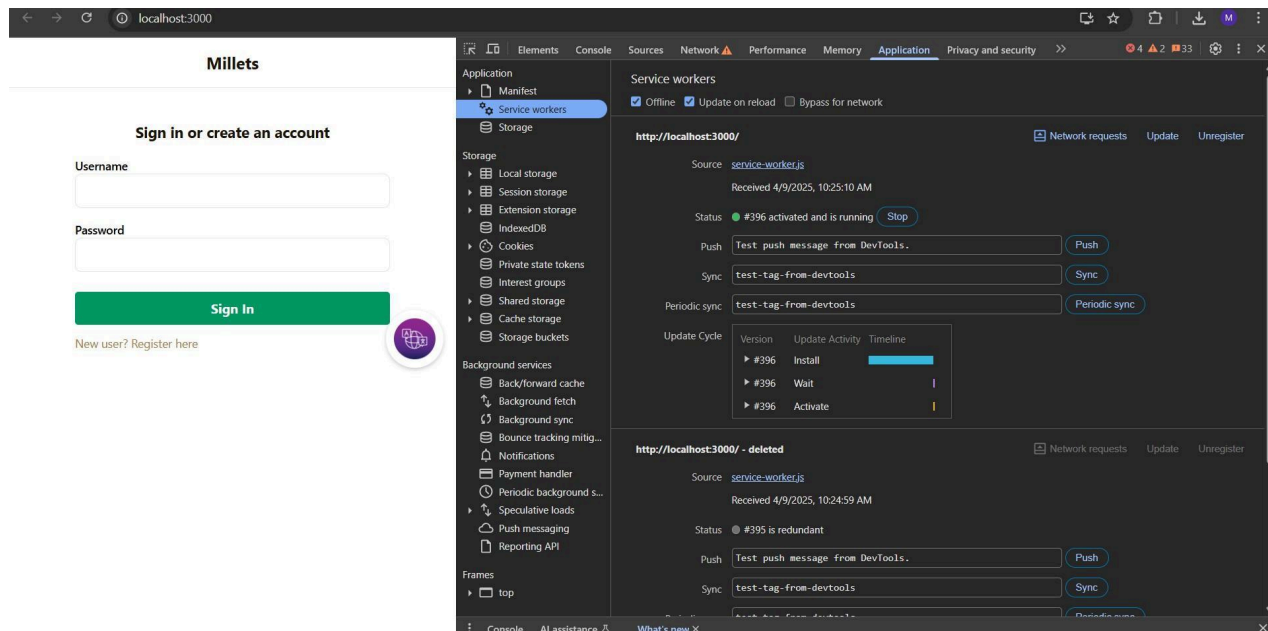|	
Origin	http://localhost:3000
Creation Time	Not yet created
Number of Entries	0
Number of Bytes Used	0

Entropy Budget for Fenced Frames 0

Key	Value

No value selected
Select a value to preview

Console AI assistance What's new

ServiceWorker

☐ Open DevTools window and pause JavaScript execution on Service Worker startup for debugging.

Registrations in: C:\Users\Hp\AppData\Local\Google\Chrome\User Data\Profile 2 (17)

Scope: chrome-extension://camppjleccjaphfdbohjdohecfnoikec/
Storage key:
  Origin: chrome-extension://camppjleccjaphfdbohjdohecfnoikec
  Top level site: chrome-extension://camppjleccjaphfdbohjdohecfnoikec
  Ancestor chain bit: SameSite
Registration ID: 79
Navigation preload enabled: false
Navigation preload header length: 4
Active worker:
  Installation Status: ACTIVATED
  Running Status: STOPPED
  Fetch handler existence: DOES_NOT_EXIST
  Fetch handler type: NO_HANDLER
  Script: chrome-extension://camppjleccjaphfdbohjdohecfnoikec/service-worker-loader.js
  Version ID: 362
  Renderer process ID: 0
  Renderer thread ID: -1
  DevTools agent route ID: -2
  Log:

Unregister   Start