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MPL Practical 08

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:

In Progressive Web Applications (PWAs), a service worker is a script that runs in the background, separate from the web page. It plays a key role in enabling features like offline support, background sync, and push notifications.

This experiment focuses on understanding and implementing the service worker lifecycle, which includes:

- Installation: Caching essential files like HTML, CSS, JS, images, icons, and offline fallback pages.
- Activation: Cleaning up any old caches to ensure the updated service worker is active.
- Fetch Handling: Intercepting network requests to serve cached content when offline or on poor networks.

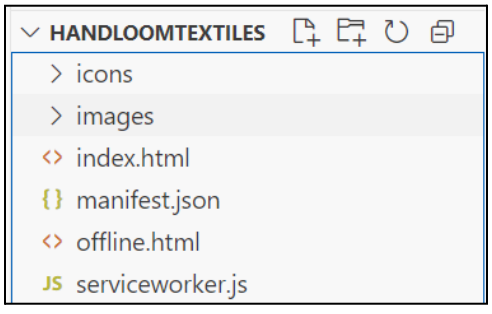
What We Implemented

In our E-commerce PWA:

- We registered a service worker (serviceworker.js) in our main JavaScript file.
- During the install event, we cached important files such as index.html, styles.css, app.js, images, and offline.html to allow offline usage.
- In the activate event, we removed older cache versions to keep the cache clean and updated.
- The fetch event handled all network requests. If the request failed (e.g., no internet), it served the cached version or showed the offline.html fallback page.

This implementation ensures the PWA loads faster and remains functional even without internet connectivity.

Folder Structure



index.html

```
<!DOCTYPE html>
<html lang="en">
```

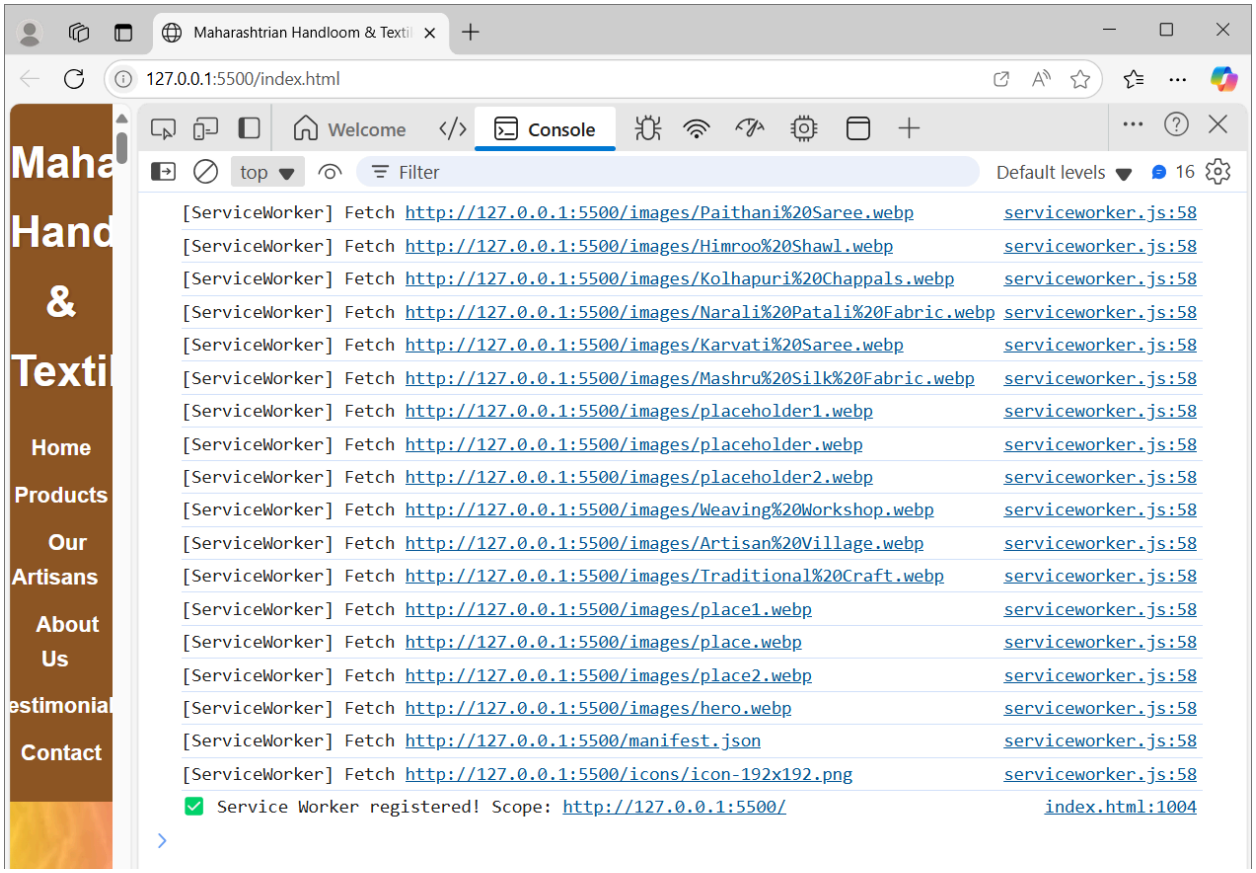
```
<head>
  <meta charset="UTF-8" />
  <meta name="viewport" content="width=device-width, initial-scale=1.0" />
  <!-- Theme Color -->
  <meta name="theme-color" content="#9e5c39" />
  <title>Maharashtrian Handloom & Textiles</title>
  <style>

  </style>
  <!-- Web Manifest -->
  <link rel="manifest" href="manifest.json" />
</head>
<body>

  <script>
    if ("serviceWorker" in navigator) {
      window.addEventListener("load", () => {
        navigator.serviceWorker
          .register("/serviceworker.js")
          .then((registration) => {
            console.log(
              "✅ Service Worker registered! Scope:",
              registration.scope
            );
          })
          .catch((error) => {
            console.log("❌ Service Worker registration failed:", error);
          });
      });
    }
  </script>
</body>
</html>
```

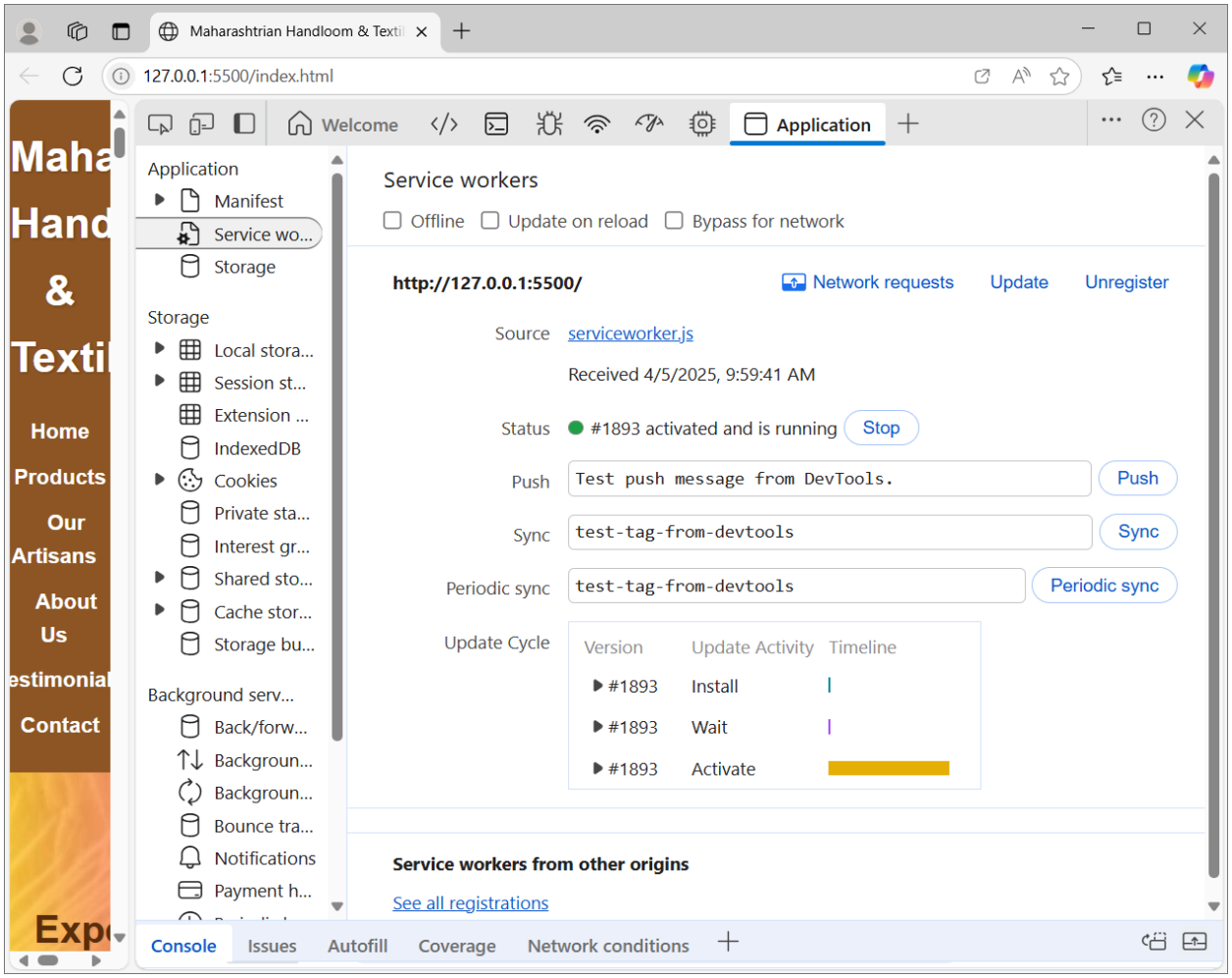
serviceworker.js

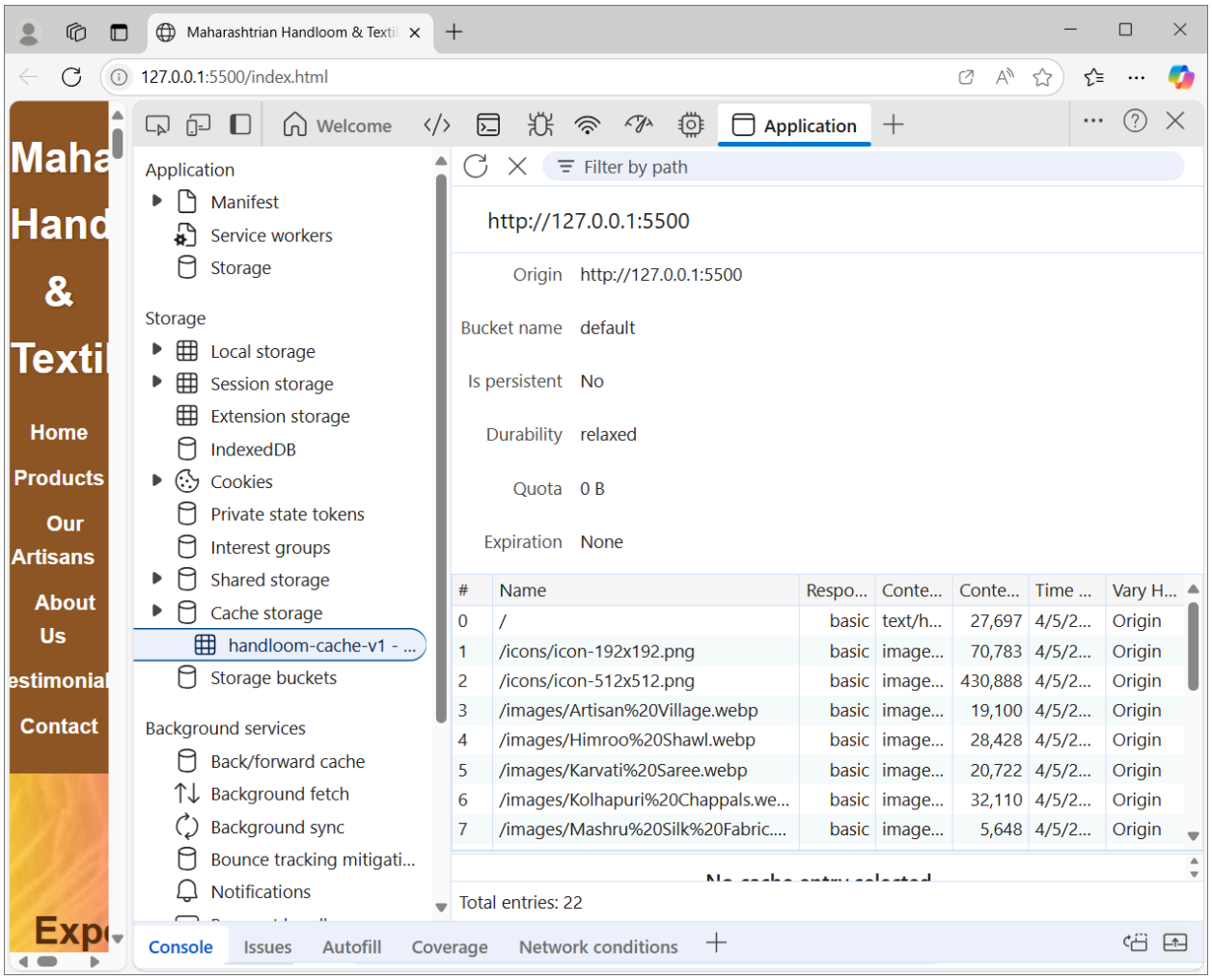
```
const CACHE_NAME = "handloom-cache-v1";
const FILES_TO_CACHE = [
  "/",
  "index.html",
  "manifest.json",
  "icons/icon-192x192.png",
  "icons/icon-512x512.png",
  "images/Artisan Village.webp",
  "images/hero.webp",
  "images/Himroo Shawl.webp",
  "images/Karvati Saree.webp",
  "images/Kolhapuri Chappals.webp",
  "images/Mashru Silk Fabric.webp",
```

```
  "images/Narali Patali Fabric.webp",
  "images/Paithani Saree.webp",
  "images/place.webp",
  "images/place1.webp",
  "images/place2.webp",
  "images/placeholder.webp",
  "images/placeholder1.webp",
  "images/placeholder2.webp",
  "images/Traditional Craft.webp",
  "images/Weaving Workshop.webp",
  "offline.html"
];

// Install Event
self.addEventListener("install", (event) => {
  console.log("[ServiceWorker] Install");
  event.waitUntil(
    caches.open(CACHE_NAME).then((cache) => {
      console.log("[ServiceWorker] Caching files");
      return cache.addAll(FILES_TO_CACHE);
    })
  );
});

// Activate Event
self.addEventListener("activate", (event) => {
  console.log("[ServiceWorker] Activate");
  event.waitUntil(
    caches.keys().then((keyList) =>
      Promise.all(
        keyList.map((key) => {
          if (key !== CACHE_NAME) {
            console.log("[ServiceWorker] Removing old cache", key);
            return caches.delete(key);
          }
        })
      )
    )
  );
  return self.clients.claim();
});
```

Screenshot


Maharashtrian Handloom & Textil
127.0.0.1:5500/index.html
Welcome
Console
top
Filter
Default levels
16
[ServiceWorker] Fetch http://127.0.0.1:5500/images/Paithani%20Saree.webp serviceworker.js:58
[ServiceWorker] Fetch http://127.0.0.1:5500/images/Himroo%20Shawl.webp serviceworker.js:58
[ServiceWorker] Fetch http://127.0.0.1:5500/images/Kolhapuri%20Chappals.webp serviceworker.js:58
[ServiceWorker] Fetch http://127.0.0.1:5500/images/Narali%20Patali%20Fabric.webp serviceworker.js:58
[ServiceWorker] Fetch http://127.0.0.1:5500/images/Karvati%20Saree.webp serviceworker.js:58
[ServiceWorker] Fetch http://127.0.0.1:5500/images/Mashru%20Silk%20Fabric.webp serviceworker.js:58
[ServiceWorker] Fetch http://127.0.0.1:5500/images/placeholder1.webp serviceworker.js:58
[ServiceWorker] Fetch http://127.0.0.1:5500/images/placeholder.webp serviceworker.js:58
[ServiceWorker] Fetch http://127.0.0.1:5500/images/placeholder2.webp serviceworker.js:58
[ServiceWorker] Fetch http://127.0.0.1:5500/images/Weaving%20Workshop.webp serviceworker.js:58
[ServiceWorker] Fetch http://127.0.0.1:5500/images/Artisan%20Village.webp serviceworker.js:58
[ServiceWorker] Fetch http://127.0.0.1:5500/images/Traditional%20Craft.webp serviceworker.js:58
[ServiceWorker] Fetch http://127.0.0.1:5500/images/place1.webp serviceworker.js:58
[ServiceWorker] Fetch http://127.0.0.1:5500/images/place.webp serviceworker.js:58
[ServiceWorker] Fetch http://127.0.0.1:5500/images/place2.webp serviceworker.js:58
[ServiceWorker] Fetch http://127.0.0.1:5500/images/hero.webp serviceworker.js:58
[ServiceWorker] Fetch http://127.0.0.1:5500/manifest.json serviceworker.js:58
[ServiceWorker] Fetch http://127.0.0.1:5500/icons/icon-192x192.png serviceworker.js:58
Service Worker registered! Scope: http://127.0.0.1:5500/ index.html:1004
Maha
Hand
&
Texti
Home
Products
Our Artisans
About Us
estimonial
Contact


Maharashtrian Handloom & Textil
127.0.0.1:5500/index.html
Welcome
Application
Application
Manifest
Service wo...
Storage
Storage
Local stora...
Session st...
Extension ...
IndexedDB
Cookies
Private sta...
Interest gr...
Shared sto...
Cache stor...
Storage bu...
Background serv...
Back/forw...
Backgroun...
Backgroun...
Bounce tra...
Notifications
Payment h...
Service workers
Offline
Update on reload
Bypass for network
http://127.0.0.1:5500/
Network requests
Update
Unregister
Source serviceworker.js
Received 4/5/2025, 9:59:41 AM
Status #1893 activated and is running Stop
Push Test push message from DevTools. Push
Sync test-tag-from-devtools Sync
Periodic sync test-tag-from-devtools Periodic sync
Update Cycle
Version Update Activity Timeline
#1893 Install
#1893 Wait
#1893 Activate
Service workers from other origins
See all registrations
Console
Issues
Autofill
Coverage
Network conditions
Maha
Hand
&
Texti
Home
Products
Our Artisans
About Us
estimonial
Contact
Expe



Conclusion

In this experiment, we successfully implemented a service worker to enable offline access for the Maharashtrian Handloom & Textiles website by caching essential files and handling fetch events. Initially, we faced issues like 404 errors due to incorrect file paths and missing files, but we resolved them by verifying the paths and ensuring all referenced assets were present in the project directory.