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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:

A Service Worker is a background script that runs independently of the web page and plays a key role in making a website function like a Progressive Web App (PWA). It allows the app to cache files, serve content offline, and load faster even in low or no internet connection.

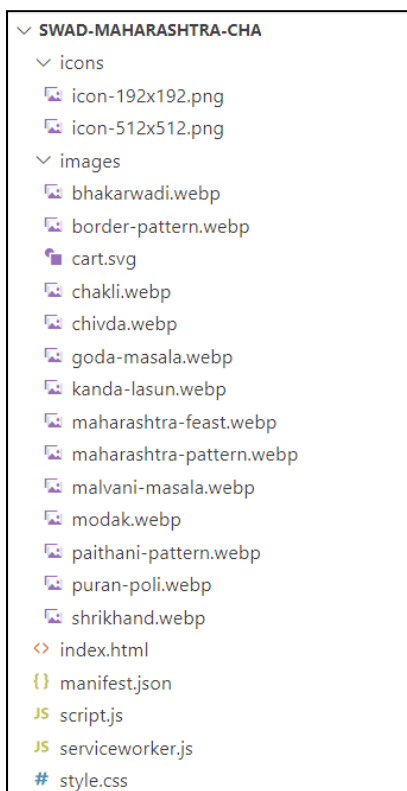
In this experiment, we learned how to register, install, and activate a service worker. The service worker listens for events like "install" and "activate" to manage caching of important files such as HTML, CSS, JavaScript, images, icons, and the manifest. Once installed, it stores these files in a cache so that the app can work offline and load faster on future visits.

What We Implemented

For our project "Swad Maharashtra Cha", we created a `serviceworker.js` file that caches all the necessary files of the website including product images, stylesheets, scripts, and icons. In the `install` event, the files are added to the cache. During the `activate` event, old caches are cleared to avoid unnecessary storage. In our `index.html`, we registered the service worker to ensure it runs when the site loads.

With this setup, our PWA can now work offline using cached data, which improves user experience and performance.

Folder Structure



Code:**index.html**

```

<!DOCTYPE html>
<html lang="en">
  <head>
    <meta charset="UTF-8" />
    <meta name="viewport" content="width=device-width, initial-scale=1.0" />

    <!-- PWA Theme Color -->
    <meta name="theme-color" content="#b22222" />

    <!-- SEO Meta Tags -->
    <meta
      name="description"
      content="Authentic Maharashtrian Spices & Food – Buy famous spices, masalas, and traditional items
like Puran Poli, Bhakarwadi, Modaks, and Chitale Bandhu snacks online."
    />
    <meta
      name="keywords"
      content="Maharashtrian food, Goda masala, Bhakarwadi, Modaks, Puran Poli, Chitale Bandhu
snacks, Malvani masala, online spice store"
    />
    <meta name="author" content="Swad Maharashtra Cha" />

    <title>Swad Maharashtra Cha - Authentic Maharashtrian Food</title>

    <!-- Manifest File for PWA -->
    <link rel="manifest" href="manifest.json" />

    <!-- Stylesheet -->
    <link rel="stylesheet" href="style.css" />

    <!-- Google Fonts -->
    <link
      href="https://fonts.googleapis.com/css2?family=Playfair+Display:wght@400;700&family=Poppins:wght
@300;400;500;600&display=swap"
      rel="stylesheet"
    />
  </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>

<script src="script.js"></script>
</body>
</html>

```

serviceworker.js

```

const CACHE_NAME = "swad-maha-cache-v1";
const FILES_TO_CACHE = [
  "index.html",
  "style.css",
  "script.js",
  "serviceworker.js",
  "manifest.json",
  "images/maharashtra-feast.webp",
  "images/cart.svg",
  "images/goda-masala.webp",
  "images/malvani-masala.webp",
  "images/kanda-lasun.webp",
  "images/puran-poli.webp",
  "images/modak.webp",
  "images/shrikhand.webp",
  "images/bhakarwadi.webp",
  "images/chivda.webp",
  "images/chakli.webp",
  "images/border-pattern.webp",
  "images/maharashtra-pattern.webp",
  "images/paithani-pattern.webp",
  "icons/icon-192x192.png",
  "icons/icon-512x512.png",
];

// Install Event
self.addEventListener("install", (event) => {
  event.waitUntil(
    caches.open(CACHE_NAME).then((cache) => {
      return cache.addAll(FILES_TO_CACHE);
    })
  );
});

```

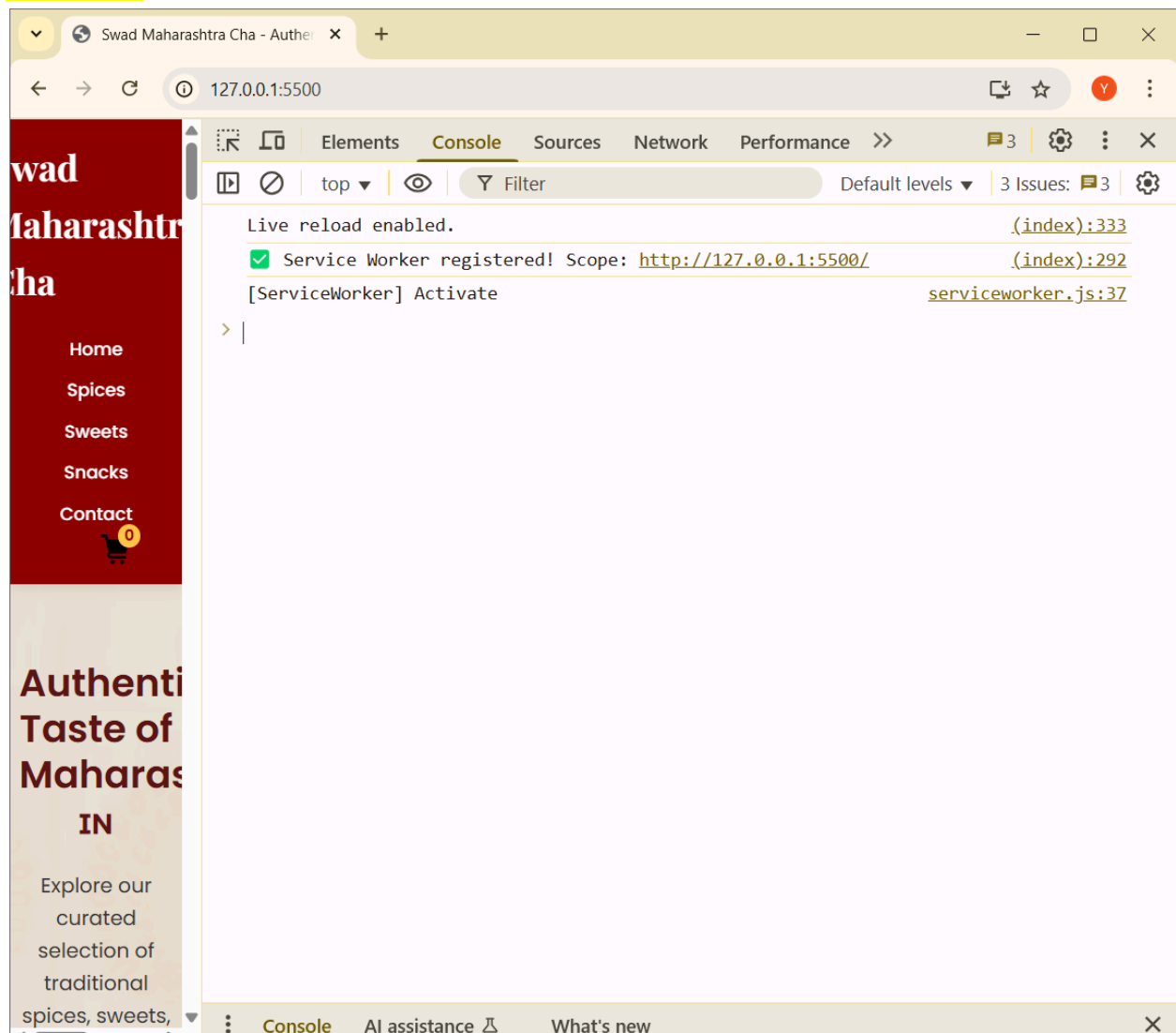
```

});

// 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:



Swad Maharashtra Cha - Auth...

127.0.0.1:5500

Application

- Manifest
- Service workers
- Storage

Storage

- Local storage
- Session storage
- Extension stor...
- IndexedDB
- Cookies
- Private state t...
- Interest groups
- Shared storage
- Cache storage
- Storage buckets

Background services

- Back/forward ...
- Background fe...
- Background sy...
- Bounce trackin...

Service workers

☐ Offline ☐ Update on reload ☐ Bypass for network

http://127.0.0.1:5500/ Network requests Update Unregister

Source [serviceworker.js](#)

Received 4/13/2025, 8:02:34 PM

Status ● #216 activated and is running Stop

Clients [http://127.0.0.1:5500/](#)

Push Push

Sync Sync

Periodic sync Periodic sync

Update Cycle

Version	Update Activity	Timeline
#216	Install	<div style="width: 100%;"></div>
#216	Wait	<div style="width: 0%;"></div>
#216	Activate	<div style="width: 0%;"></div>

Swad Maharashtra Cha - Auth...

127.0.0.1:5500

Application

- Manifest
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Storage

- Local storage
- Session storage
- Extension storage
- IndexedDB
- Cookies
- Private state tokens
- Interest groups
- Shared storage
- Cache storage
- Storage buckets

Background services

- Back/forward cache
- Background fetch

Cache storage

http://127.0.0.1:5500

Origin [http://127.0.0.1:5500](#)

Bucket name default

Is persistent No

Durability relaxed

Quota 0 B

Expiration None

#	Name	Res...	Con...	Con...	Tim...	Vary...
0	/icons/icon-192x192.png	basic	ima...	75,9...	4/1...	Origin
1	/icons/icon-512x512.png	basic	ima...	455,...	4/1...	Origin
2	/images/bhakarwadi.webp	basic	ima...	78,3...	4/1...	Origin
3	/images/border-pattern.we...	basic	ima...	1,450	4/1...	Origin
4	/images/cart.svg	basic	ima...	12,8...	4/1...	Origin
5	/images/chakli.webp	basic	ima...	80,6...	4/1...	Origin
6	/images/chivda.webp	basic	ima...	71,9...	4/1...	Origin

Conclusion:

In this experiment, we successfully registered and activated a service worker to cache essential files and enable offline access for our Swad Maharashtra Cha PWA. Initially, we faced an issue where some images weren't loading offline due to incorrect file paths, which we fixed by double-checking and updating the cache list in the service worker.