

## Experiment - 8

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| Name: <b>Shivpratik Hande</b> | Div-Roll no: <b>D15C-14</b> |
| DOP:                          | DOS:                        |
| Sign:                         | Grade:                      |

### 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 the browser runs in the background, separate from a web page, enabling features like **offline access**, **background sync**, and **push notifications**. It is essential for building Progressive Web Apps (PWAs) that work reliably regardless of network conditions. **1.**

#### What is a Service Worker?

A service worker acts as a network proxy between the web app and the internet. It intercepts network requests, allowing developers to control caching strategies and serve content from cache when offline. **2. Service Worker Lifecycle**

The service worker follows three main phases:

- **Registration:** Linking the service worker file with the browser.
- **Installation:** Caching required static assets.
- **Activation:** Taking control of all pages and clearing old caches if needed.

### 3. Registration Process

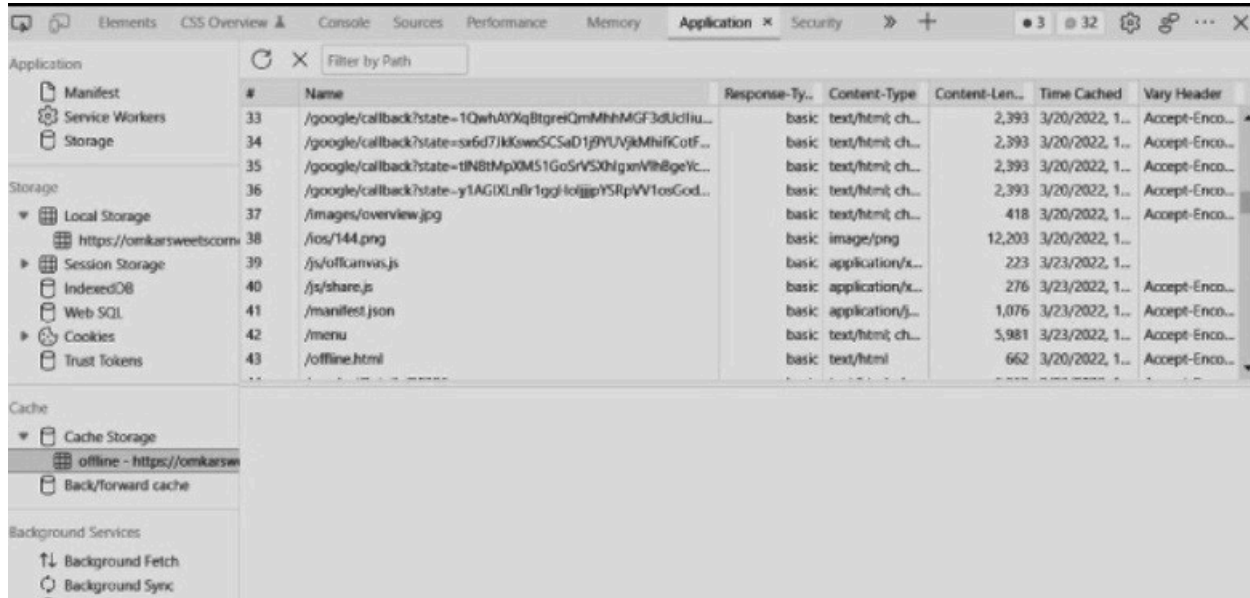
The service worker is registered in the main JavaScript file. Once registered, the browser handles the lifecycle events automatically and activates the worker if all steps succeed.

### 4. Importance for E-commerce PWAs

- Ensures smooth browsing even during connectivity issues.
- Speeds up loading by serving cached content.
- Increases reliability and user engagement.

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- Enables "Add to Homescreen" and background features.



The screenshot shows the Chrome DevTools Application tab. The left sidebar lists categories: Application, Storage, Cache, and Background Services. The main panel displays a table of application data. The table has columns: #, Name, Response-Type, Content-Type, Content-Length, Time Cached, and Vary Header. The data is organized into sections: Application (Manifest, Service Workers, Storage), Storage (Local Storage, Session Storage, IndexedDB, Web SQL, Cookies, Trust Tokens), Cache (Cache Storage, Back/forward cache), and Background Services (Background Fetch, Background Sync).

| #  | Name   | Response-Type | Content-Type      | Content-Length | Time Cached     | Vary Header    |
|----|--|---------------|-------------------|----------------|-----------------|----------------|
| 33 | /google/callback?state=1QwhAYXqBtgreiQmMhMGF3dUcliu...     | basic         | text/html; ch...  | 2,393          | 3/20/2022, 1... | Accept-Enco... |
| 34 | /google/callback?state=sx6d7jKkOweSCSaD1f9YUVjkMhifCotF... | basic         | text/html; ch...  | 2,393          | 3/20/2022, 1... | Accept-Enco... |
| 35 | /google/callback?state=tIN8tMpXMS1GoSrV5XhganVih8geYc...   | basic         | text/html; ch...  | 2,393          | 3/20/2022, 1... | Accept-Enco... |
| 36 | /google/callback?state=y1AGDLnB1ggf1oIggpYSRpVVTosGod...   | basic         | text/html; ch...  | 2,393          | 3/20/2022, 1... | Accept-Enco... |
| 37 | /images/overview.jpg                                       | basic         | text/html; ch...  | 418            | 3/20/2022, 1... | Accept-Enco... |
| 38 | /os/144.png  | basic         | image/png         | 12,203         | 3/20/2022, 1... |                |
| 39 | /js/officanvas.js  | basic         | application/x...  | 223            | 3/23/2022, 1... |                |
| 40 | /js/share.js   | basic         | application/x...  | 276            | 3/23/2022, 1... | Accept-Enco... |
| 41 | /manifest.json   | basic         | application/js... | 1,076          | 3/23/2022, 1... | Accept-Enco... |
| 42 | /menu  | basic         | text/html; ch...  | 5,981          | 3/23/2022, 1... | Accept-Enco... |
| 43 | /offline.html  | basic         | text/html         | 662            | 3/20/2022, 1... | Accept-Enco... |

**Conclusion:** Coding and registering a service worker is crucial in transforming a traditional web app into a fully functional PWA. It enhances user experience by providing offline capabilities, faster performance, and better engagement for E-commerce applications.