Name: Shantanu Saraf Class: D15B Roll No: 59

Experiment No. 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 :

Service Worker is a JavaScript file that runs separately from the main browser thread, allowing it to perform tasks without affecting the user interface's responsiveness. It is event-driven, meaning it responds to events like fetch requests, push notifications, and updates. Here are some additional features and benefits of Service Workers:

Background Sync: Service Workers can enable background sync, allowing your web app to synchronize data in the background, even when the app is not actively being used. This feature is useful for applications that need to update data periodically or when the user is online.
Push Notifications: Service Workers can receive push notifications from a server and display them to the user, even when the web app is not open. This capability enables real-time communication with users and can be used to deliver important updates or messages.
Performance Optimization: By caching assets and responses, Service Workers can significantly improve the performance of your web app. Cached content can be served quickly, reducing load times and providing a smoother user experience, especially on mobile devices or in low-connectivity situations.

Dynamic Content Updates: Service Workers can dynamically update content in the background, allowing you to push updates to users without requiring them to refresh the page. This feature is particularly useful for news websites, social media platforms, or any app that regularly updates its content.

Resource Management: Service Workers give you greater control over how resources are managed and loaded in your web app. You can implement strategies like lazy loading to defer the loading of non-essential resources, improving overall performance and reducing bandwidth usage.

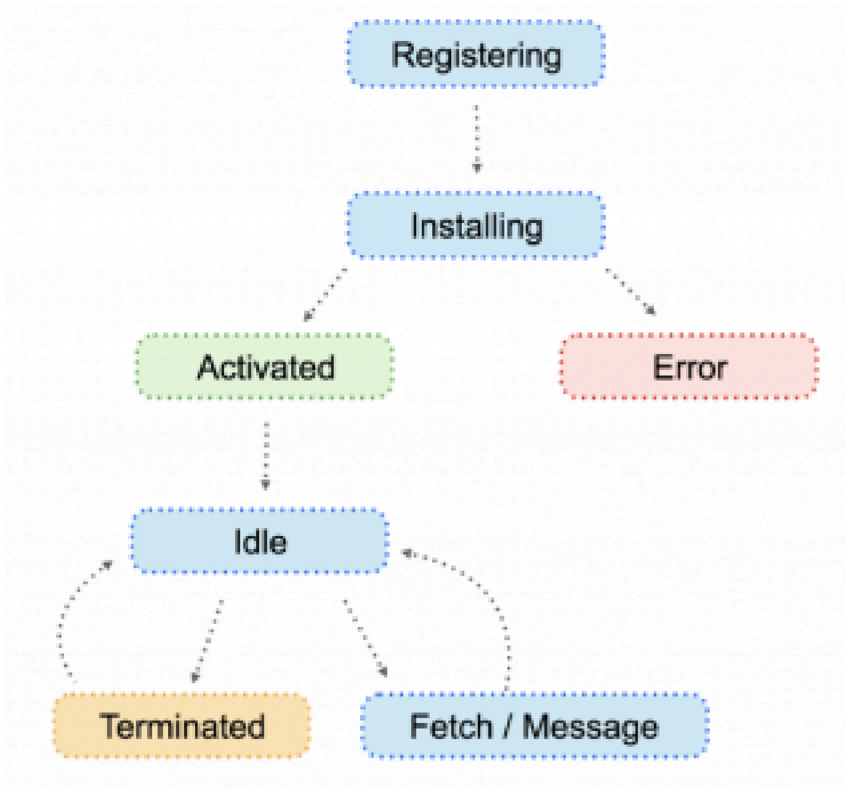
Cross-Origin Requests: Service Workers can handle cross-origin requests, allowing you to make requests to servers that are not the same origin as your web app. This capability enables you to fetch resources from third-party servers or APIs, enhancing the functionality and versatility of your app.

Overall, Service Workers are a powerful tool for developing modern web applications that offer a fast, reliable, and engaging user experience, both online and offline. They enable features like background synchronization, push notifications, and efficient resource management, making them essential for building progressive web apps and other advanced web applications.

What can we do with Service Workers?

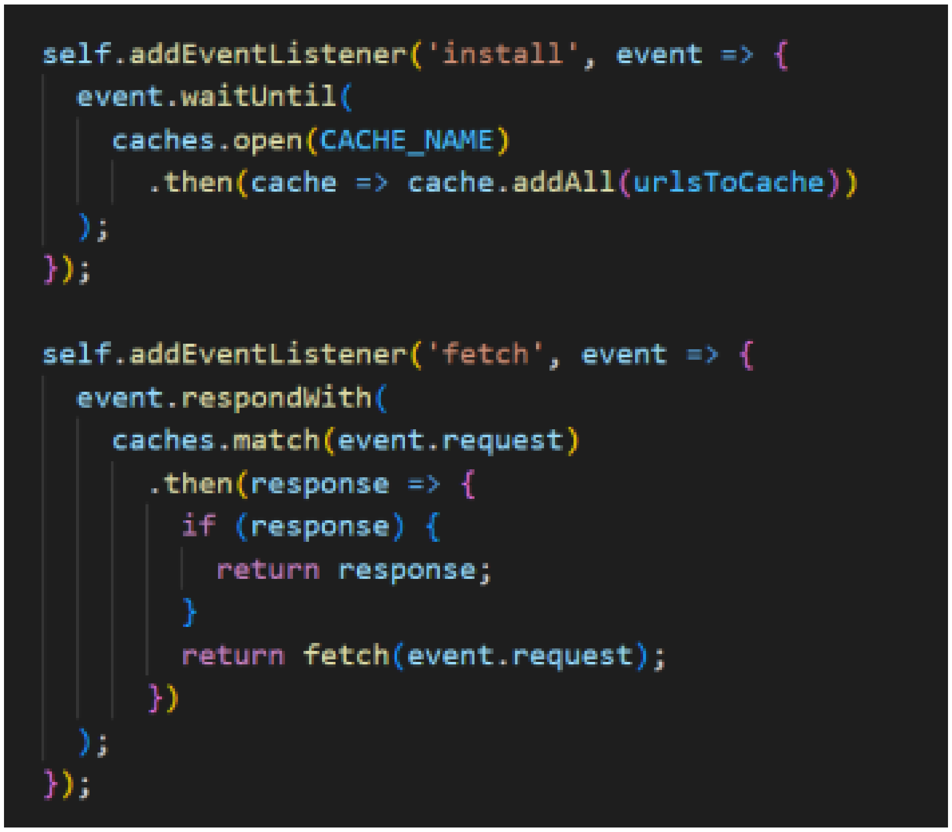
- **Network Traffic Control:** Manage all network traffic of the page and manipulate requests and responses. For example, you can respond to a CSS file request with plain text or an HTML file request with a PNG file. You can also respond with the requested content.
- **Caching:** Cache any request/response pair with Service Worker and Cache API, allowing you to access offline content anytime. ● **Push Notifications:** Manage push notifications with Service Worker, enabling you to show informational messages to the user.
- **Background Processes:** Even when the internet connection is broken, you can start any process with the Background Sync feature of Service Worker.

Service Worker Lifecycle



Steps for coding and registering a service worker for your E-commerce PWA completing the install and activation process:

1. Create the Service Worker File (serviceworker.js):

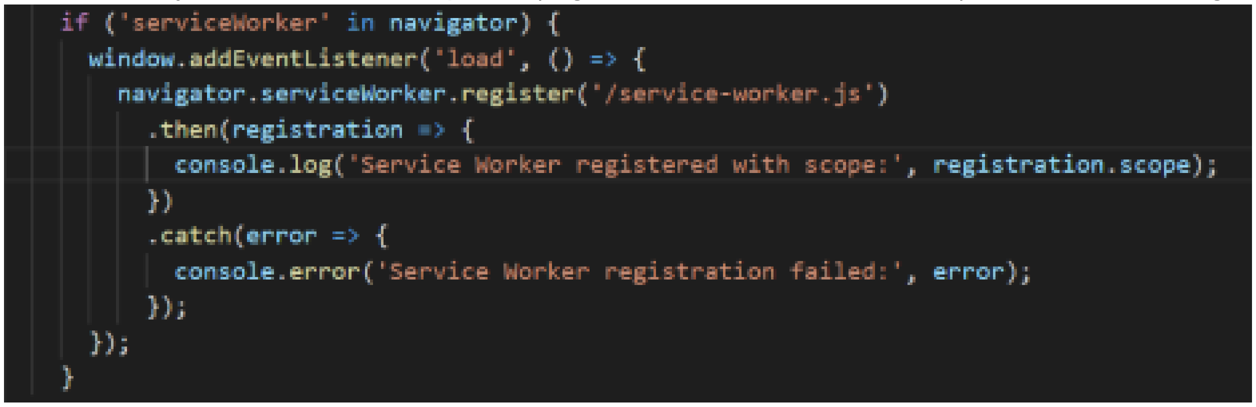


```javascript
self.addEventListener('install', event => {
  event.waitUntil(
    caches.open(CACHE_NAME)
      .then(cache => cache.addAll(urlsToCache))
  );
});

self.addEventListener('fetch', event => {
  event.respondWith(
    caches.match(event.request)
      .then(response => {
        if (response) {
          return response;
        }
        return fetch(event.request);
      })
  );
});
```

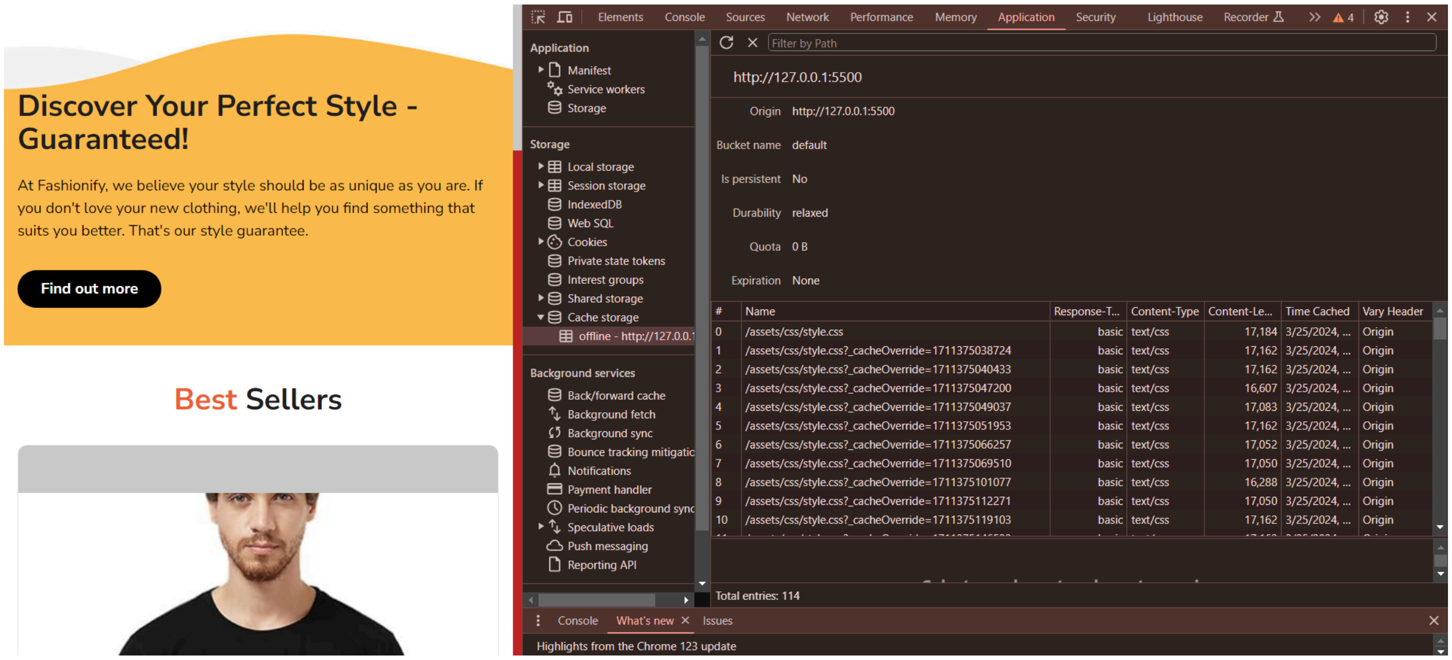
2. Register the Service Worker:

In your main JavaScript file (e.g., `script.js` or `app.js`), add the following code:



```javascript
if ('serviceWorker' in navigator) {
  window.addEventListener('load', () => {
    navigator.serviceWorker.register('/service-worker.js')
      .then(registration => {
        console.log('Service Worker registered with scope:', registration.scope);
      })
      .catch(error => {
        console.error('Service Worker registration failed:', error);
      });
  });
}
```

Name: Shantanu Saraf Class: D15B Roll No: 59



Discover Your Perfect Style - Guaranteed!

At Fashionify, we believe your style should be as unique as you are. If you don't love your new clothing, we'll help you find something that suits you better. That's our style guarantee.

Best Sellers

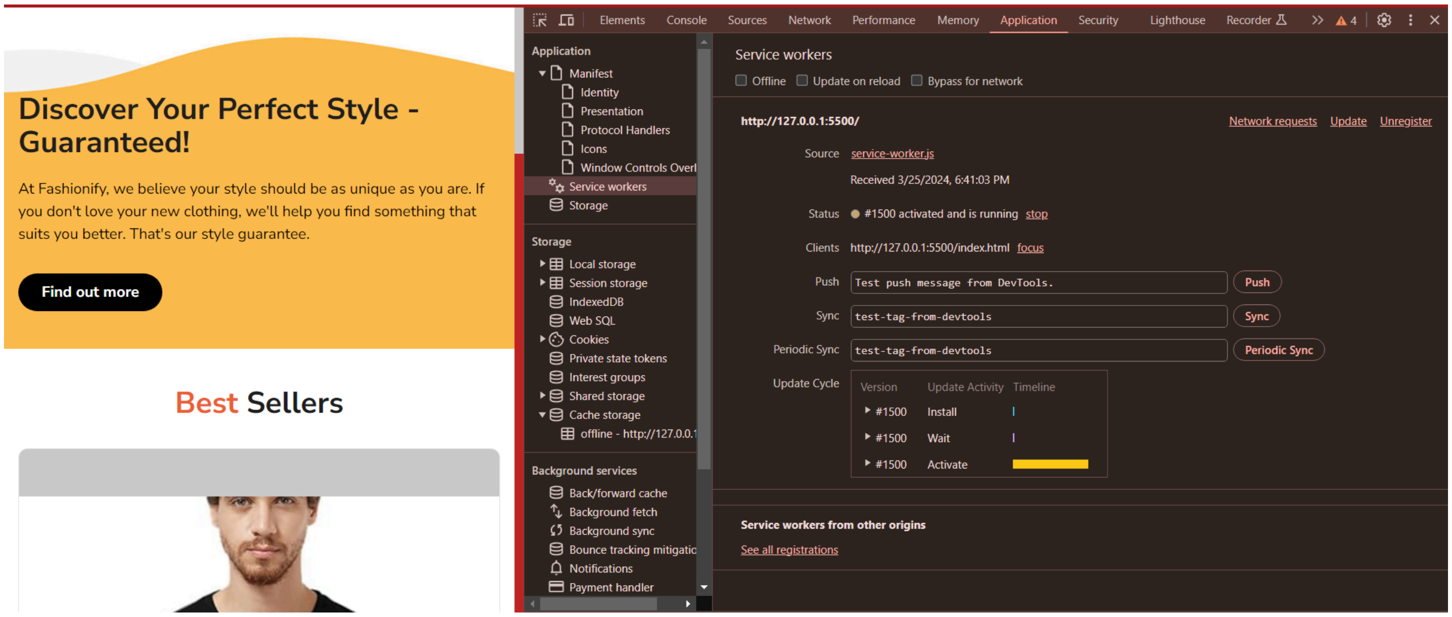
http://127.0.0.1:5500

Origin	http://127.0.0.1:5500
Bucket name	default
Is persistent	No
Durability	relaxed
Quota	0 B
Expiration	None

#	Name	Response-T...	Content-Type	Content-Le...	Time Cached	Vary Header
0	/assets/css/style.css	basic	text/css	17,184	3/25/2024, ...	Origin
1	/assets/css/style.css?_cacheOverride=1711375038724	basic	text/css	17,162	3/25/2024, ...	Origin
2	/assets/css/style.css?_cacheOverride=1711375040433	basic	text/css	17,162	3/25/2024, ...	Origin
3	/assets/css/style.css?_cacheOverride=1711375047200	basic	text/css	16,607	3/25/2024, ...	Origin
4	/assets/css/style.css?_cacheOverride=1711375049037	basic	text/css	17,083	3/25/2024, ...	Origin
5	/assets/css/style.css?_cacheOverride=1711375051953	basic	text/css	17,162	3/25/2024, ...	Origin
6	/assets/css/style.css?_cacheOverride=1711375066257	basic	text/css	17,052	3/25/2024, ...	Origin
7	/assets/css/style.css?_cacheOverride=1711375069510	basic	text/css	17,050	3/25/2024, ...	Origin
8	/assets/css/style.css?_cacheOverride=1711375101077	basic	text/css	16,288	3/25/2024, ...	Origin
9	/assets/css/style.css?_cacheOverride=1711375112271	basic	text/css	17,050	3/25/2024, ...	Origin
10	/assets/css/style.css?_cacheOverride=1711375119103	basic	text/css	17,162	3/25/2024, ...	Origin

Total entries: 114

Highlights from the Chrome 123 update



Discover Your Perfect Style - Guaranteed!

At Fashionify, we believe your style should be as unique as you are. If you don't love your new clothing, we'll help you find something that suits you better. That's our style guarantee.

Best Sellers

Service workers

http://127.0.0.1:5500/

Source	service-worker.js
	Received 3/25/2024, 6:41:03 PM
Status	#1500 activated and is running stop
Clients	http://127.0.0.1:5500/index.html focus
Push	Test push message from DevTools.
Sync	test-tag-from-devtools
Periodic Sync	test-tag-from-devtools

Update Cycle

Version	Update Activity	Timeline
#1500	Install	
#1500	Wait	
#1500	Activate	

Service workers from other origins

See all registrations

Conclusion : I have understood and successfully registered a service worker, and completed the install and activation process for a new service worker for the E-commerce PWA.