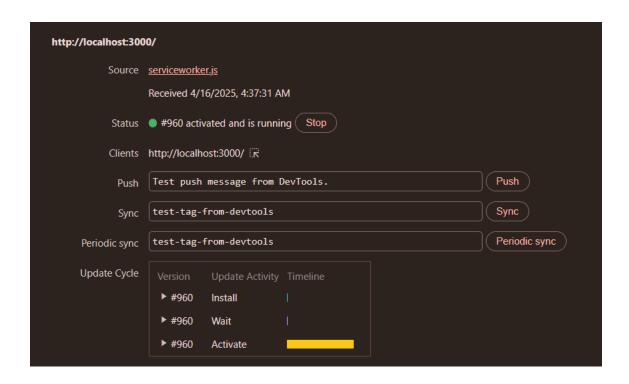- Aim : To code and register a service worker, and complete the install and activation process for a new service worker for the E-commerce PWA.
- Theory : A service worker is a script that runs in the background of the web browser, independent of the web page. It acts as a network proxy, allowing the app to manage caching, intercept network requests, and enable offline functionality. Service workers are essential for PWAs to function offline and to provide fast loading times.
- The process of implementing a service worker for an E-commerce PWA includes:
  - Coding the Service Worker: The service worker script typically handles tasks like caching static assets, intercepting network requests, and managing updates.
  - Registering the Service Worker: To enable the service worker, it must be registered in the main JavaScript file of the application.
  - Install Event: The install event occurs when the service worker is first installed. During this event, caching of essential assets like HTML, CSS, JS, and images happens.
  - Activate Event: After installation, the service worker goes through the activation phase. During activation, the previous service workers (if any) are deleted, and the new worker becomes active.
  - Update Process: The service worker can be updated if the script changes. When an update is available, the old service worker is terminated, and the new one is activated.
- Code:

```
self.addEventListener('install', function(event) {
event.waitUntil(
caches.open('v1').then(function(cache) {
return cache.addAll([
'/',
'/static/manifest.json',
'/static/js/script.js',
'/static/images/icon-128x128.png',
'/static/images/icon-512x512.png',
]);
})
);
});
self.addEventListener('fetch', function(event) {
event.respondWith(
caches.match(event.request).then(function(response) {
return response | fetch(event.request);
})
);
});
```

- Output :

- Conclusion : Implementing and registering a service worker for the E-commerce PWA is crucial for enabling offline capabilities, improving performance, and managing caching. Through the install and activation process, the PWA can provide a seamless experience for users even without a network connection.