

## Experiment – 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

Service Worker is a script that works on browser background without user interaction independently. Also, it resembles a proxy that works on the user side. With this script, you can track network traffic of the page, manage push notifications and develop “offline first” web applications with Cache API.

Things to note about Service Worker:

- A service worker is a programmable network proxy that lets you control how network requests from your page are handled.
- Service workers only run over HTTPS. Because service workers can intercept network requests and modify responses, "man-in-the-middle" attacks could be very bad.
- The service worker becomes idle when not in use and restarts when it's next needed. You cannot rely on a global state persisting between events. If there is information that you need to persist and reuse across restarts, you can use IndexedDB databases.

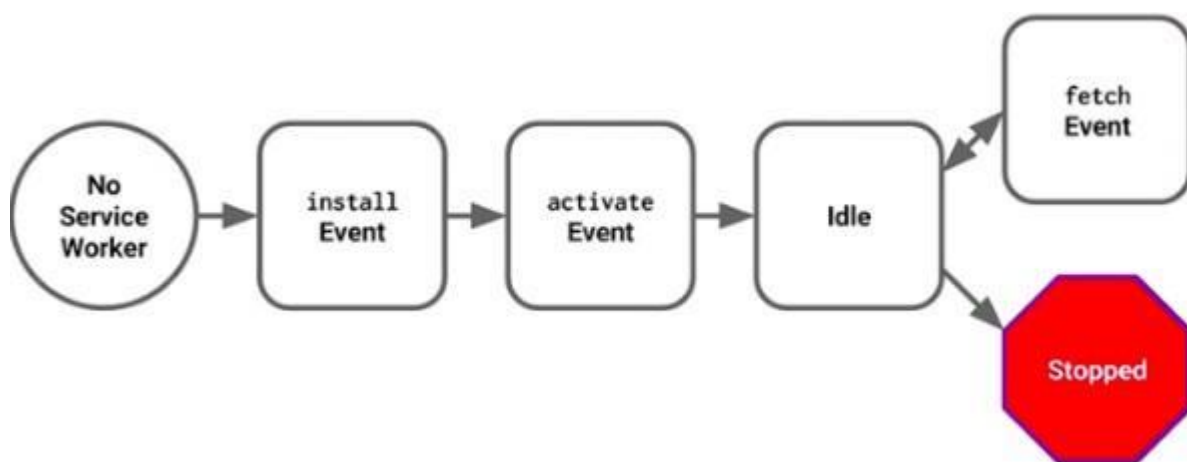
### What can we do with Service Workers?

- You can dominate **Network Traffic**  
You can manage all network traffic of the page and do any manipulations. For example, when the page requests a CSS file, you can send plain text as a response or when the page requests an HTML file, you can send a png file as a response. You can also send a true response too.
- You can **Cache**  
You can cache any request/response pair with Service Worker and Cache API and you can access these offline content anytime.
- You can manage **Push Notifications**  
You can manage push notifications with Service Worker and show any information message to the user.
- You can **Continue**  
Although Internet connection is broken, you can start any process with Background Sync of Service Worker.

## What can't we do with Service Workers?

- You can't access the **Window**  
You can't access the window, therefore, You can't manipulate DOM elements. But, you can communicate to the window through post Message and manage processes that you want.
- You can't work it on **80 Port**  
Service Worker just can work on HTTPS protocol. But you can work on localhost during development.

## Service Worker Cycle



A service worker goes through three steps in its life cycle:

- Registration
- Installation
- Activation

## Code:

### serviceworker.js

```
self.addEventListener("install", function (event) {
  event.waitUntil(preLoad());
});

var filesToCache = ['/',
  '/index.html',
];

var preLoad = function () {
  return caches.open("offline").then(function (cache) {
    // caching index and important routes
```

```
        return cache.addAll(filesToCache);
    });
};

self.addEventListener("fetch", function (event) {
    event.respondWith(checkResponse(event.request).catch(function () {
        return returnFromCache(event.request);
    }));
    event.waitUntil(addToCache(event.request));
});

var checkResponse = function (request) {
    return new Promise(function (fulfill, reject) {
        fetch(request).then(function (response) {
            if (response.status !== 404) {
                fulfill(response);

                } else {
                    reject();
                }
        }, reject);
    });
};

var addToCache = function (request) {
    return caches.open("offline").then(function (cache) {
        return fetch(request).then(function (response) {
            return cache.put(request, response);
        });
    });
};

var returnFromCache = function (request) {
    return caches.open("offline").then(function (cache) {
        return cache.match(request).then(function (matching) {
            if (!matching || matching.status == 404) {
                return cache.match("offline.html");
            } else {
                return matching;
            }
        });
    });
};
```

### manifest.json

```
{
  "name": "Abujaid App",
```

```
"short_name":"PWA",
"start_url":"index.html",
"display":"standalone",
"background_color":"#5900b3",
"theme_color":"black",
"scope": ".",
"description":"This is a PWA experiment 7.",
"icons":[
  {
    "src":"newimages/icon-192x192.png",
    "sizes":"192x192",
    "type":"image/png"
  },
  {
    "src":"newimages/icon-512x512.png",
    "sizes":"512x512",
    "type":"image/png"
  }
]
}
```

## index.html

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

```
<head>
```

```
  <meta charset="UTF-8">
```

```
  <meta http-equiv="X-UA-Compatible" content="IE=edge">
```

```
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
```

```
  <title>RedStore | Ecommerce Website Design Project</title>
```

```
  <link rel="stylesheet" href="style.css">
```

```
  <link rel="preconnect" href="https://fonts.googleapis.com">
```

```
  <link rel="preconnect" href="https://fonts.gstatic.com" crossorigin>
```

```
  <link
```

```
    href="https://fonts.googleapis.com/css2?family=Poppins:wght@200;400;500;600;700&display=swap"
```

```
    rel="stylesheet">
```

```
  <link rel="stylesheet" href="https://cdnjs.cloudflare.com/ajax/libs/font-awesome/5.15.4/css/all.min.css"
```

```
    integrity="sha512-
```

```
1ycn6lcaQQ40/MKBW2W4Rhis/DbILU74C1vSrLJxCq57o941Ym01SwNsOMqvEBFlcgUa6xLiPY/NS5R+E6ztJQ=="
```

```
    crossorigin="anonymous" referrerpolicy="no-referrer" />
```

```
  <link rel="manifest" href="manifest.json">
```

```
</head>
```

```
<script>
```

```
  <!-- window.addEventListener('load', () => {
```

```
    registerSW();
```

```
  });
```

```
// Register the Service Worker
async function registerSW() {
  if ('serviceWorker' in navigator) {
    try {
      await navigator
        .serviceWorker
        .register('serviceworker.js');
    }
    catch (e) {
      console.log('SW registration failed');
    }
  }
} -->
if ('serviceWorker' in navigator) {
  navigator.serviceWorker.register('/serviceworker.js')
    .then(function (registration) {
      console.log('Registration successful, scope is:', registration.scope);
    })
    .catch(function (error) {
      console.log('Service worker registration failed, error:', error);
    });
}

</script>

<body>
  <div class="header">
    <div class="container">
      <div class="navbar">

        <div class="logo">
          
        </div>

        <nav>
          <ul id="MenuItems">
            <li><a href="">Home</a></li>
            <li><a href="">Products</a></li>
            <li><a href="">About</a></li>
            <li><a href="">Contact</a></li>
            <li><a href="">Account</a></li>
          </ul>
        </nav>

        
        
      </div>

      <div class="row">
```

```
<div class="col-2">
  <h1>Give Your Workout <br> A New Style </h1>
  <p>Success isn't always about greatness. It's about consistency.
    Consistent<br>hard work gains success. Greatness will come</p>
  <a href="" class="btn">Explore Now &#10147;</a>
</div>
<div class="col-2">
  
</div>
</div>
</div>
</div>

<!------- featured categories ----->
<div class="categories">
  <div class="small-container">
    <div class="row">
      <div class="col-3">
        
      </div>
      <div class="col-3">
        
      </div>
      <div class="col-3">
        
      </div>
    </div>
  </div>
</div>

<!------- featured products ----->

<div class="small-container">
  <h2 class="title">Featured Products</h2>
  <div class="row">
    <div class="col-4">
      
      <h4>Red Printed T-shirt</h4>
      <div class="rating">
        <i class="fa fa-star"></i>
        <i class="fa fa-star"></i>
        <i class="fa fa-star"></i>
        <i class="fa fa-star"></i>
        <i class="far fa-star"></i>
      </div>
      <p><strong>$60.00</strong></p>
    </div>
    <div class="col-4">
      
      <h4>Sport Shoes</h4>
    </div>
  </div>
</div>
```

```
<div class="rating">
  <i class="fa fa-star"></i>
  <i class="fa fa-star"></i>
  <i class="fa fa-star"></i>
  <i class="far fa-star"></i>
  <i class="far fa-star"></i>
</div>
<p><strong>$65.00</strong></p>
</div>
<div class="col-4">
  
  <h4>Jeans For Men</h4>
  <div class="rating">
    <i class="fa fa-star"></i>
    <i class="fa fa-star"></i>
    <i class="fa fa-star"></i>
    <i class="fa fa-star"></i>
    <i class="fas fa-star-half-alt"></i>
  </div>
  <p><strong>$50.00</strong></p>
</div>
<div class="col-4">
  
  <h4>Blue T-shirt</h4>
  <div class="rating">
    <i class="fa fa-star"></i>
    <i class="fa fa-star"></i>
    <i class="fa fa-star"></i>
    <i class="fas fa-star-half-alt"></i>
    <i class="far fa-star"></i>
  </div>
  <p><strong>$52.00</strong></p>
</div>
</div>

<h2 class="title">Recently Added Products</h2>
<div class="row">
  <div class="col-4">
    
    <h4>Sport Shoes</h4>
    <div class="rating">
      <i class="fa fa-star"></i>
      <i class="fa fa-star"></i>
      <i class="fa fa-star"></i>
      <i class="fa fa-star"></i>
      <i class="far fa-star"></i>
    </div>
    <p><strong>$60.00</strong></p>
  </div>
  <div class="col-4">
```

```

<h4>Black Printed T-Shirt</h4>
<div class="rating">
  <i class="fa fa-star"></i>
  <i class="fa fa-star"></i>
  <i class="fa fa-star"></i>
  <i class="far fa-star"></i>
  <i class="far fa-star"></i>
</div>
<p><strong>$65.00</strong></p>
</div>
<div class="col-4">
  
  <h4>Sport Socks</h4>
  <div class="rating">
    <i class="fa fa-star"></i>
    <i class="fa fa-star"></i>
    <i class="fa fa-star"></i>
    <i class="fa fa-star"></i>
    <i class="fas fa-star-half-alt"></i>
  </div>
  <p><strong>$50.00</strong></p>
</div>
<div class="col-4">
  
  <h4>Black Watch</h4>
  <div class="rating">
    <i class="fa fa-star"></i>
    <i class="fa fa-star"></i>
    <i class="fa fa-star"></i>
    <i class="fas fa-star-half-alt"></i>
    <i class="far fa-star"></i>
  </div>
  <p><strong>$52.00</strong></p>
</div>
</div>
<div class="row">
  <div class="col-4">
    
    <h4>Watch</h4>
    <div class="rating">
      <i class="fa fa-star"></i>
      <i class="fa fa-star"></i>
      <i class="fa fa-star"></i>
      <i class="fa fa-star"></i>
      <i class="far fa-star"></i>
    </div>
    <p><strong>$60.00</strong></p>
  </div>
</div>
```



```
<div class="col-4">
  
  <h4>Sport Shoes</h4>
  <div class="rating">
    <i class="fa fa-star"></i>
    <i class="fa fa-star"></i>
    <i class="fa fa-star"></i>
    <i class="far fa-star"></i>
    <i class="far fa-star"></i>
  </div>
  <p><strong>$65.00</strong></p>
</div>
<div class="col-4">
  
  <h4>Sport Shoes</h4>
  <div class="rating">
    <i class="fa fa-star"></i>
    <i class="fa fa-star"></i>
    <i class="fa fa-star"></i>
    <i class="fa fa-star"></i>
    <i class="fas fa-star-half-alt"></i>
  </div>
  <p><strong>$50.00</strong></p>
</div>
<div class="col-4">
  
  <h4>Track Pant</h4>
  <div class="rating">
    <i class="fa fa-star"></i>
    <i class="fa fa-star"></i>
    <i class="fa fa-star"></i>
    <i class="fas fa-star-half-alt"></i>
    <i class="far fa-star"></i>
  </div>
  <p><strong>$52.00</strong></p>
</div>
</div>
<!------- offer ----->

<div class="offer">
  <div class="small-container">
    <div class="row">
      <div class="col-2">
        
      </div>
      <div class="col-2">
        <p>Exclusively Available On RedStore</p>
        <h1>Smart Band 4</h1>
        <small>The Mi Smart Band 4 Features a 39.9% larger
```

```

        (Than Mi Band 3) AMOLED color full-touch display
        with adjustable brightness, so everything is clear
        as can be.
    </small><br>
    <a href="" class="btn">Buy Now &#10141;</a>
</div>
</div>
</div>
</div>
<!-- -----testimonial -->
<div class="testimonial">
    <div class="small-container">
        <div class="row">
            <div class="col-3">
                <i class="fas fa-quote-left"></i>
                <p style="font-size: 12px;
                margin: 12px 0;
                color: #777;">Lorem ipsum dolor sit amet consectetur adipisicing elit.
Exercitationem eveniet
                deleniti voluptatum perferendis natus reiciendis voluptates labore.
Aliquid veritatis provident
                maiores iste mollitia, sunt omnis doloribus hic vitae accusantium
aperiam!</p>

```

```

        
        <h3>Sean Paul</h3>
        <div class="rating">
            <i class="fa fa-star"></i>
            <i class="fa fa-star"></i>
            <i class="fa fa-star"></i>
            <i class="fa fa-star"></i>
            <i class="far fa-star"></i>
        </div>
    </div>
    <div class="col-3">
        <i class="fas fa-quote-left"></i>
        <p style="font-size: 12px;
        margin: 12px 0;
        color: #777;">Lorem ipsum dolor sit amet consectetur adipisicing elit.
Exercitationem eveniet
        deleniti voluptatum perferendis natus reiciendis voluptates labore.
Aliquid veritatis provident
        maiores iste mollitia, sunt omnis doloribus hic vitae accusantium
aperiam!</p>

```

```

        
        <h3>Louis Partridge</h3>
        <div class="rating">
            <i class="fa fa-star"></i>
            <i class="fa fa-star"></i>

```

```

        <i class="fa fa-star"></i>
        <i class="fa fa-star"></i>
        <i class="far fa-star"></i>
    </div>
</div>
<div class="col-3">
    <i class="fas fa-quote-left"></i>
    <p style="font-size: 12px;
margin: 12px 0;
color: #777;">Lorem ipsum dolor sit amet consectetur adipisicing elit.
Exercitationem eveniet
        deleniti voluptatum perferendis natus reiciendis voluptates labore.
Aliquid veritatis provident
        maiores iste mollitia, sunt omnis doloribus hic vitae accusantium
aperiam!</p>

```

```

    
    <h3>Lois Lane</h3>
    <div class="rating">
        <i class="fa fa-star"></i>
        <i class="fa fa-star"></i>
        <i class="fa fa-star"></i>
        <i class="fa fa-star"></i>
        <i class="far fa-star"></i>
    </div>
</div>
</div>
</div>
</div>

<!-- -----brands----- -->
<div class="brands">
    <div class="small-container">
        <div class="row">
            <div class="col-5">
                
            </div>
            <div class="col-5">
                
            </div>
            <div class="col-5">
                
            </div>
            <div class="col-5">
                
            </div>
            <div class="col-5">
                
            </div>
        </div>
    </div>
</div>

```

```

    </div>
</div>

<!-------footer----->

<div class="footer">
  <div class="container">
    <div class="row">
      <div class="footer-col-1">
        <h3>Download Our App</h3>
        <p>Download App for Android and ios mobile phone.</p>
        <div class="app-logo">
          
          
        </div>
      </div>
      <div class="footer-col-2">
        
        <p>Our Purpose is to sustainably make the pleasure and benefits
          of sports accessible to the many.
        </p>
      </div>
      <div class="footer-col-3">
        <h3>Useful Links</h3>
        <ul>
          <li>Coupons</li>
          <li>Return Policy</li>
        </ul>
      </div>
      <div class="footer-col-4">
        <h3>Follow Us</h3>
        <ul class="links">
          <li><a href="https://www.linkedin.com/in/pranav-kumar-gupta-
231803182/"
                target="_blank">LinkedIn</a></li>
          <li><a href="https://github.com/pranav301999"
target="_blank">Github</a></li>
        </ul>
      </div>
    </div>
  </div>
  <hr>
  <p class="copyright">copyright@pranav301999</p>
</div>
</div>

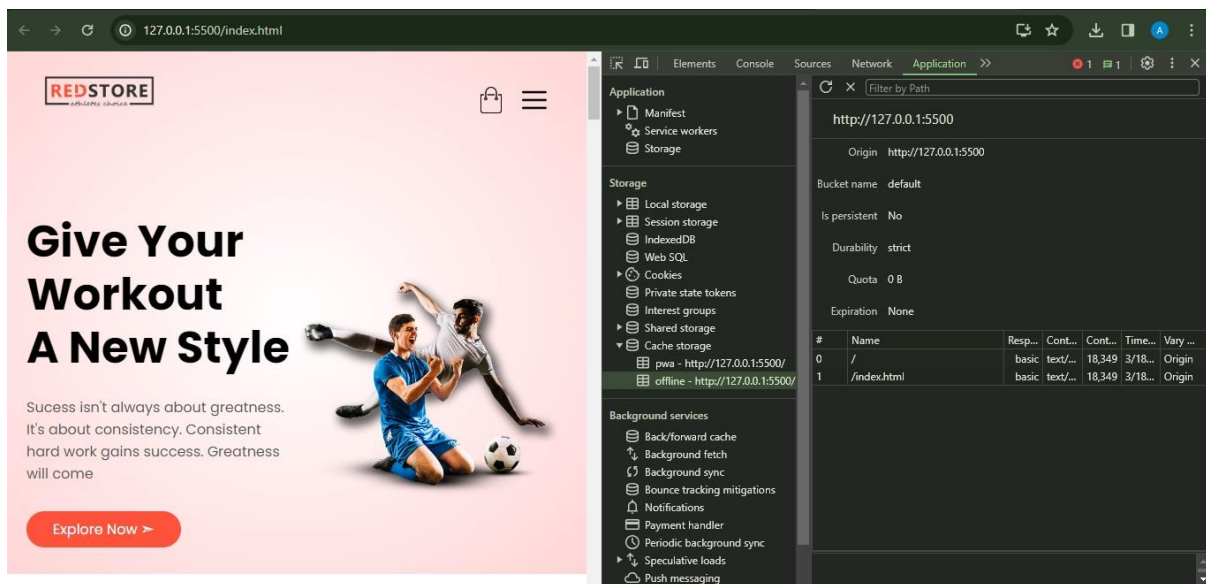
<!-- -----Javascript For Menu Toggle----- -->
<script>
  var MenuItems = document.getElementById("MenuItems");

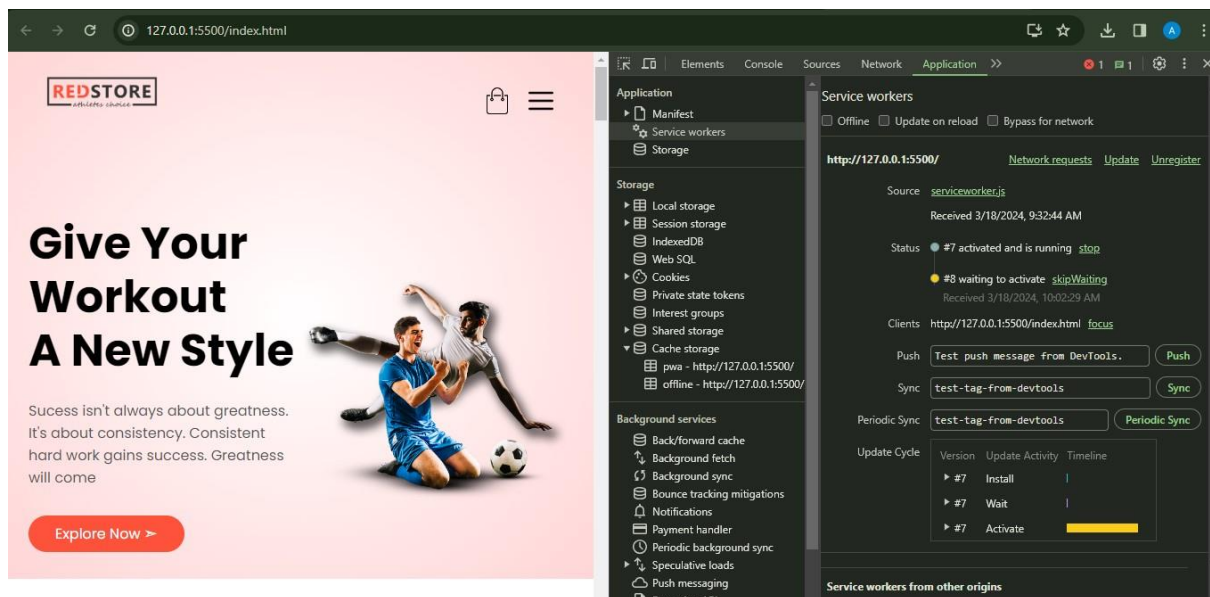
  MenuItems.style.maxHeight = "0px";

```

```
function menutoggle() {  
  if (MenuItems.style.maxHeight == "0px") {  
    MenuItems.style.maxHeight = "200px"  
  }  
  else {  
    MenuItems.style.maxHeight = "0px"  
  }  
}  
</script>  
</body>  
  
</html>
```

## Output:





## Conclusion:

Hence, we have understood the life cycle of a service worker and implemented various stages of the service worker lifecycle on our web page. We registered the service worker and activated it in the offline cache storage.