

PWA

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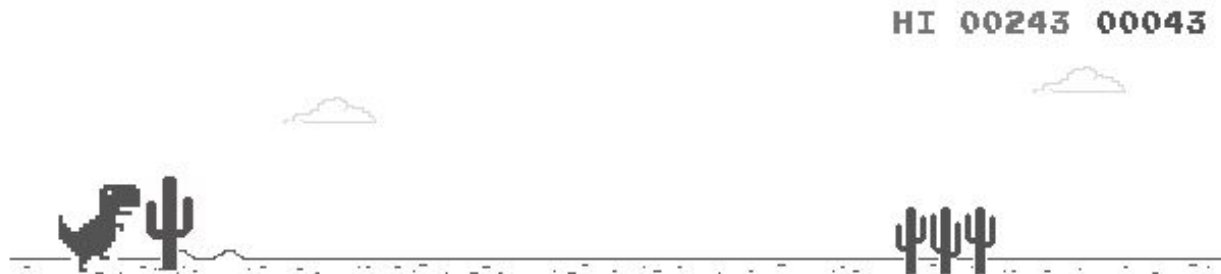


WHY PROGRESSIVE APPS FOR WORDPRESS?

Imran Sayed

 @imranhsayed

 Camp



No internet

Try:

- Checking the network cables, modem, and router
- Reconnecting to Wi-Fi

ERR_INTERNET_DISCONNECTED

DINOSAUR GAME

PWA

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Hardest problem
with the software is
the distribution.

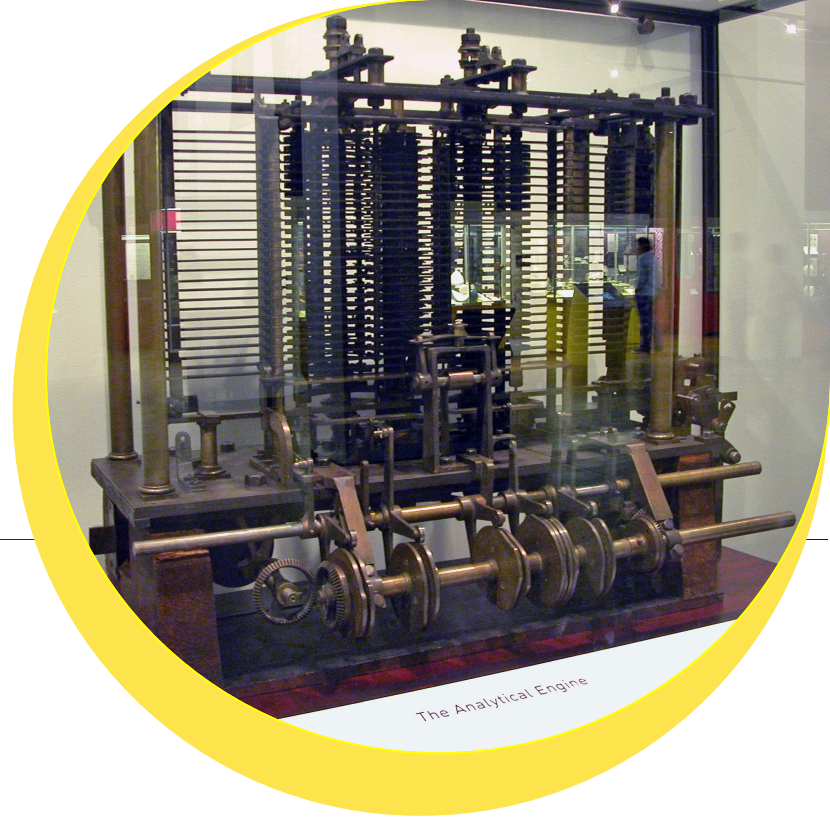
PWA

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History of Software distribution

19th Century :

The first known computer algorithm was written by Charles Babbage



Difference Engine

1980s :

Spread of cartridges and cassette tapes for distribution of commercial software.



CARTRIDGES & CASSETTES

When the programmes started to become large , floppy discs, cds and dvds were used



FLOPPY DISCS, CDS & DVDS

PWA

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Web application model has completely revolutionized software distribution.

PWA

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PWA

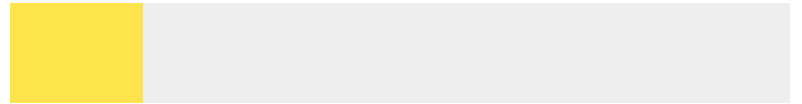
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USAGE TREND ON MOBILE WEB VS. MOBILE APP

Why users spend more time on native Apps?

- Easy access on home screen
- Work offline
- Push notifications bring user back
- Access to mobile features and sensors

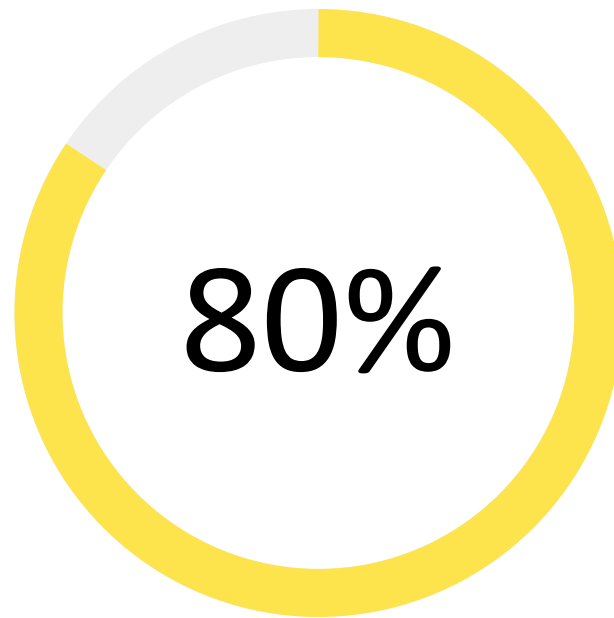
13% on Mobile Web



87% on Mobile Apps

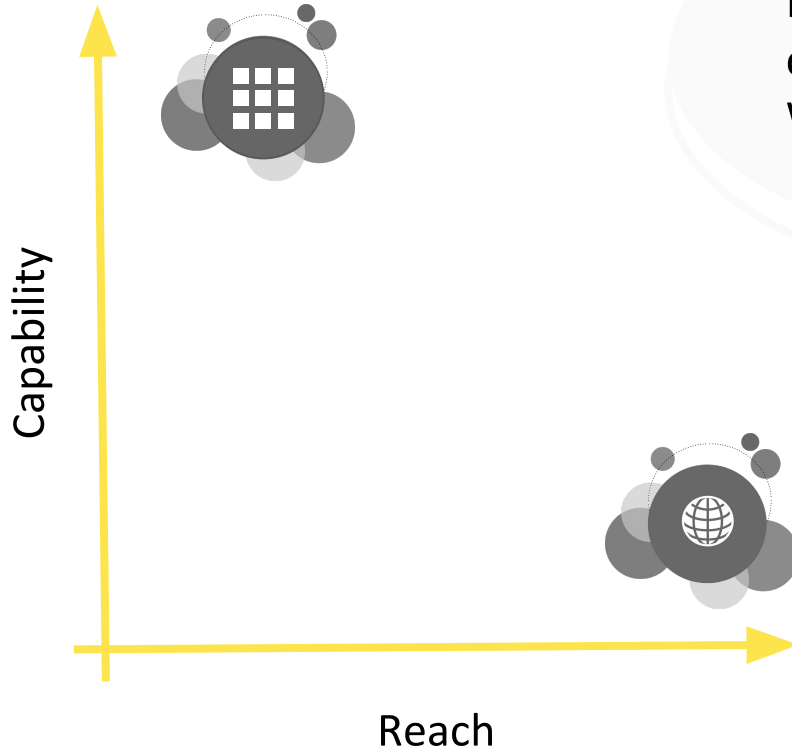


According to commScore Mobile Metrix



Of the time is spent
on user's top 3 apps.

According to commScore Mobile Metrix



Mobile Apps have better capability, while Mobile Web has better reach.

Approx. 100 visits/ month for an avg user.

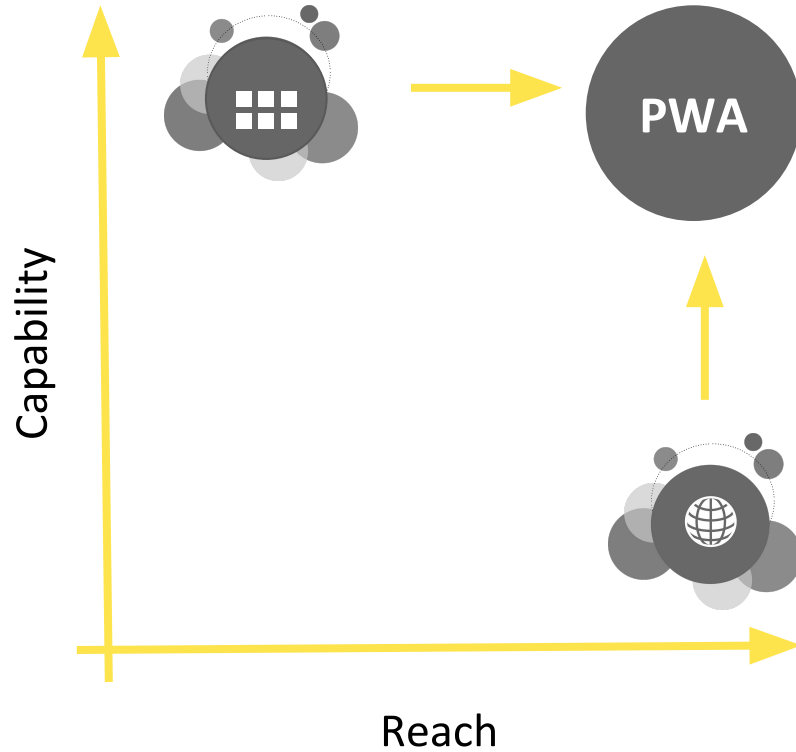
PWA

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HOW CAN WE GET BOTH?

PWA

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Combine the best of both world:
Mobile App + Mobile Web = PWA

- Progressively enhance Web Applications look and feel like native apps
- PWAs are web applications, looks and behaves as if it is a mobile app.

WHAT ARE PROGRESSIVE WEB APPS?

Flipkart Lite





Reliable

Engaging

Fast

- We use app by clicking on the App icon on home screen.
- If our web can earn a place in user's home screen, we can increase the users engagement.



How do you use your App?

PWA

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A decorative graphic consisting of a horizontal line that passes through the center of two large, bright yellow circles. The circles are positioned on either side of the line, with the left circle partially cut off by the edge of the frame.

Need for PWA?

PWA

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NATIVE APPS VS. PWA

Native Apps

- Develop and maintain 3 separate codebase
- High friction of distribution
- Less discoverable
- Only the app download link can be shared

PWA

- Only one codebase
- Accessible on android, IOS and web. Variety of browsers.
- Content is discoverable and indexed by search engines.
- Direct link of any page/screen can be shared.

Native Apps

- Not bookmarkable
- Update the app through playstore
- High data usage.
- Many features require user's permission.
E.g. contacts, calendar, alarms etc.

PWA


- Bookmarkable
- Always fresh
- Large data savings.

PWA


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Progressive



Responsive



Works Offline



Works Offline



Fresh




Safe



Discoverable



Re-engageable



Durable



Linkable

FEATURES OF PWA

PWA

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BUILDING A PWA

PWA

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STEP 1: Create a Web App Manifest

- A JSON file that contains metadata.
- Tells the browser about your web application and how it should behave when 'installed' on the user's mobile device or desktop.

WHAT IS A WEB APP MANIFEST?

Valid Manifest

- Chrome - manifest.json
- Opera - manifest.json
- Mozilla - manifest.webmanifest
- Microsoft - manifest.webmanifest

WHAT IS A WEB APP MANIFEST?

```
{  
  "short_name": "Codeytek",  
  "name": "Codeytek Academy",  
  "icons": [  
    {  
      "src": "/android-chrome-192x192.png",  
      "type": "image/png",  
      "sizes": "192x192"  
    },  
    {  
      "src": "/images/icons-512.png",  
      "type": "image/png",  
      "sizes": "512x512"  
    }  
  ]  
}
```

Home screen, launcher etc

App install prompt

Icons used for:
Home screen,
App launcher,
Task Switcher,
Splash Screen

....

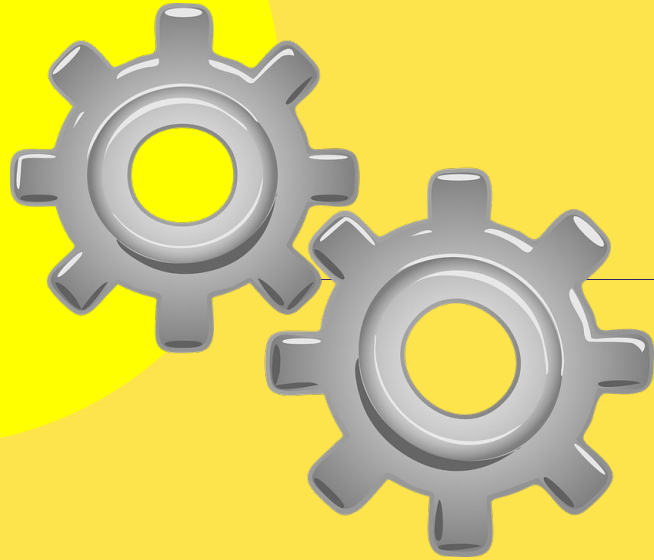
```
"start_url": "/index.html",  
"theme_color": "#ffc40d",  
"background_color": "#3367d6",  
"display": "standalone",  
"scope": "/maps/",  
}
```

Tell the browser about your manifest

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


PWA

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Service Workers

A service worker is a script that your browser runs in the background, separate from a web page.

WHAT ARE SERVICE WORKERS?

Middleware
Intercepts http request



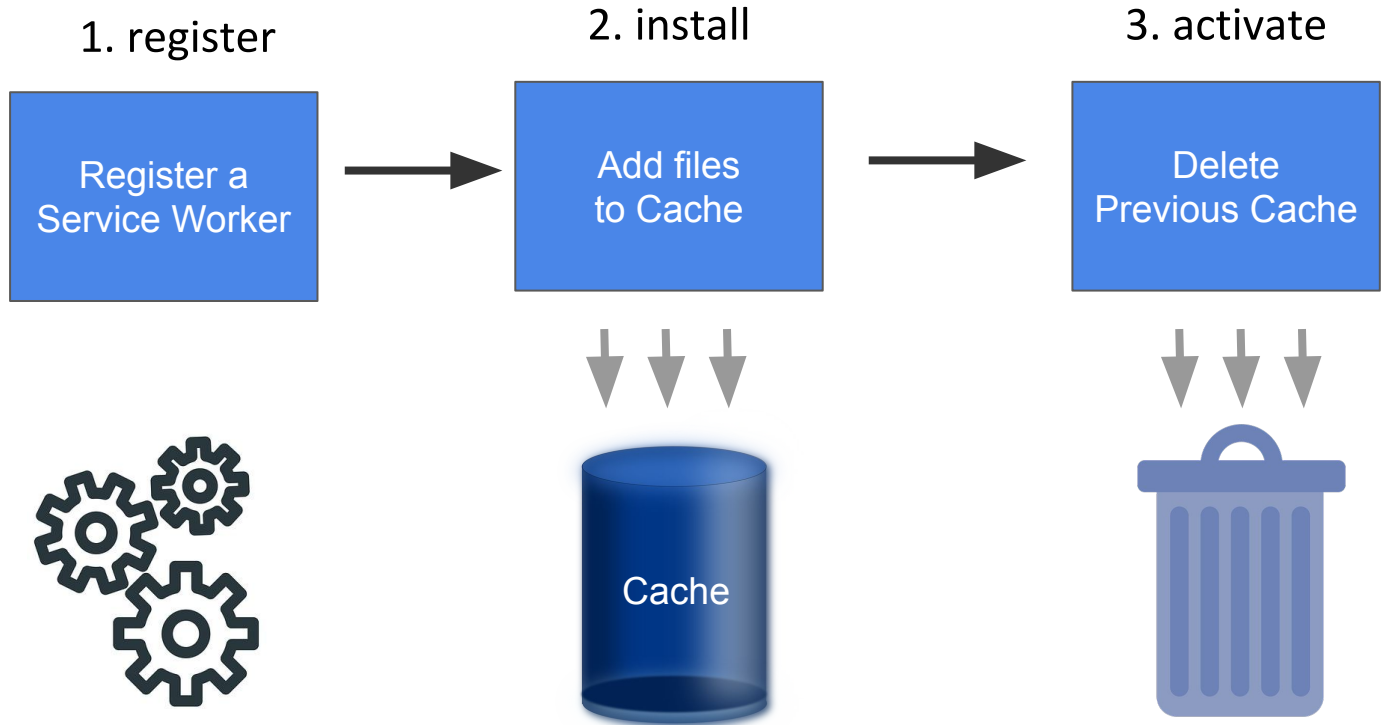
SERVICE WORKERS

PWA

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Service Worker Lifecycle

3 phases of Service Worker Lifecycle



**STEP 2:
REGISTER A SERVICE
WORKER(register)**

Step 1: Registering Service Worker

```
if( 'serviceWorker' in navigator ) {  
  navigator.serviceWorker  
    .register( scriptURL: './sw.js' )  
  
    .then( registration => {  
      console.log( 'Registration successful, scope is:', registration.scope )  
    } ) Promise<ServiceWorkerRegistration>  
  
    .catch( err => {  
      console.log( 'Service worker registration failed, error:', err )  
    } );  
  
}
```

**STEP 3:
ADD FILES TO CACHE
(install)**

Create cache version and path for files to be cached (sw.js)

```
const CACHE_NAME = 'cache-v1'

const cachedFiles = [
  '/',
  '/index.html',
  '/manifest.json',
  '/js/main.js',
  '/css/main.css',
  '/img/logo.png',
  '/img/banner-art.png',
  '/favicon-32x32.png',
  '/favicon-16x16.png',
  '/android-chrome-192x192.png',
];
```

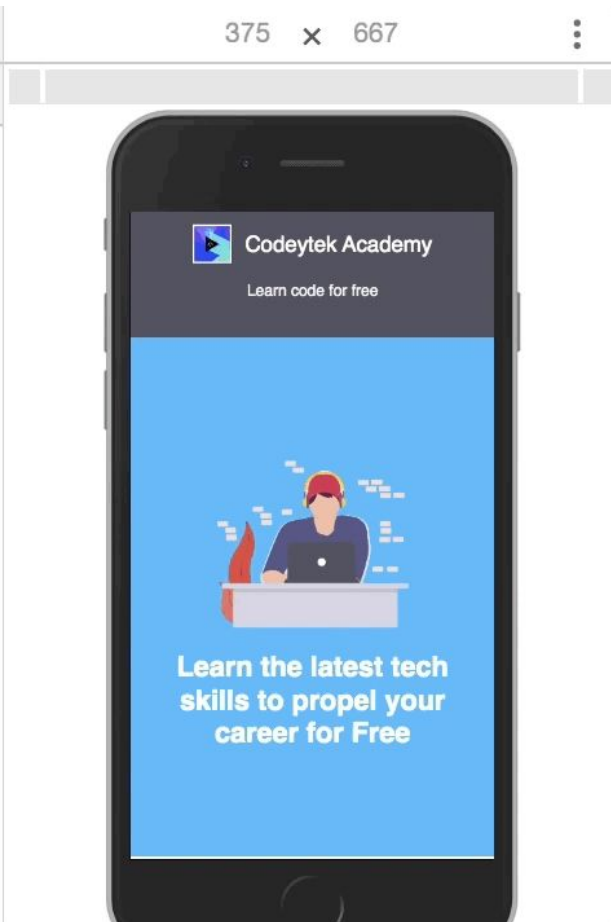
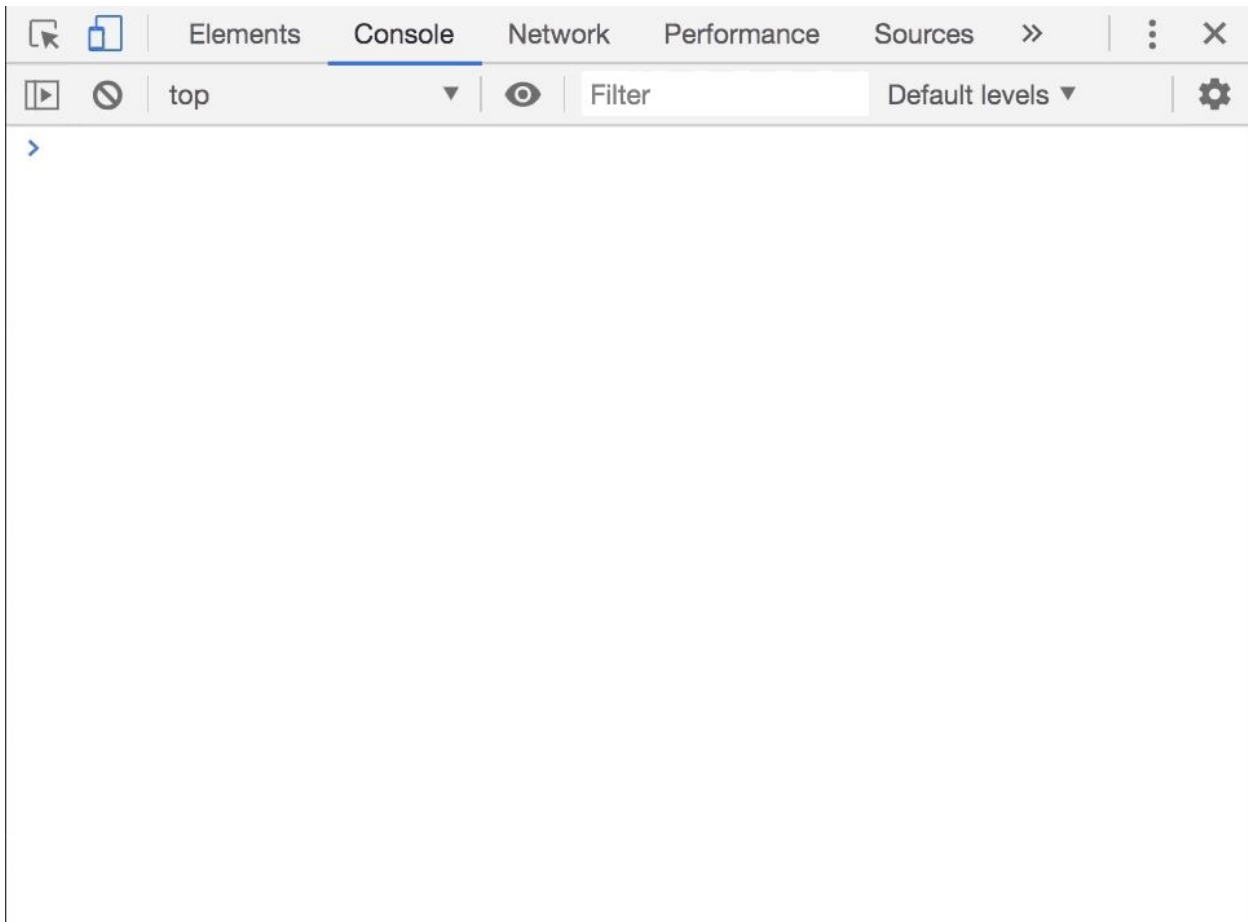
```
self.addEventListener( type: 'install', listener: ( event ) => {  
  // Once service worked is installed.  
  event.waitUntil(  
    // 1. Open cache  
    caches.open( CACHE_NAME )  
      .then( cache => {  
        // 2. Cache our files.  
        return cache.addAll( cachedFiles );  
      } )  
      .then( () => {  
        // 3. Ensures any new version of the service worker  
        // will take over the page and become active.  
        return self.skipWaiting();  
      } )  
      .catch( err => console.warn( err ) )  
  );  
});
```

```
});
```

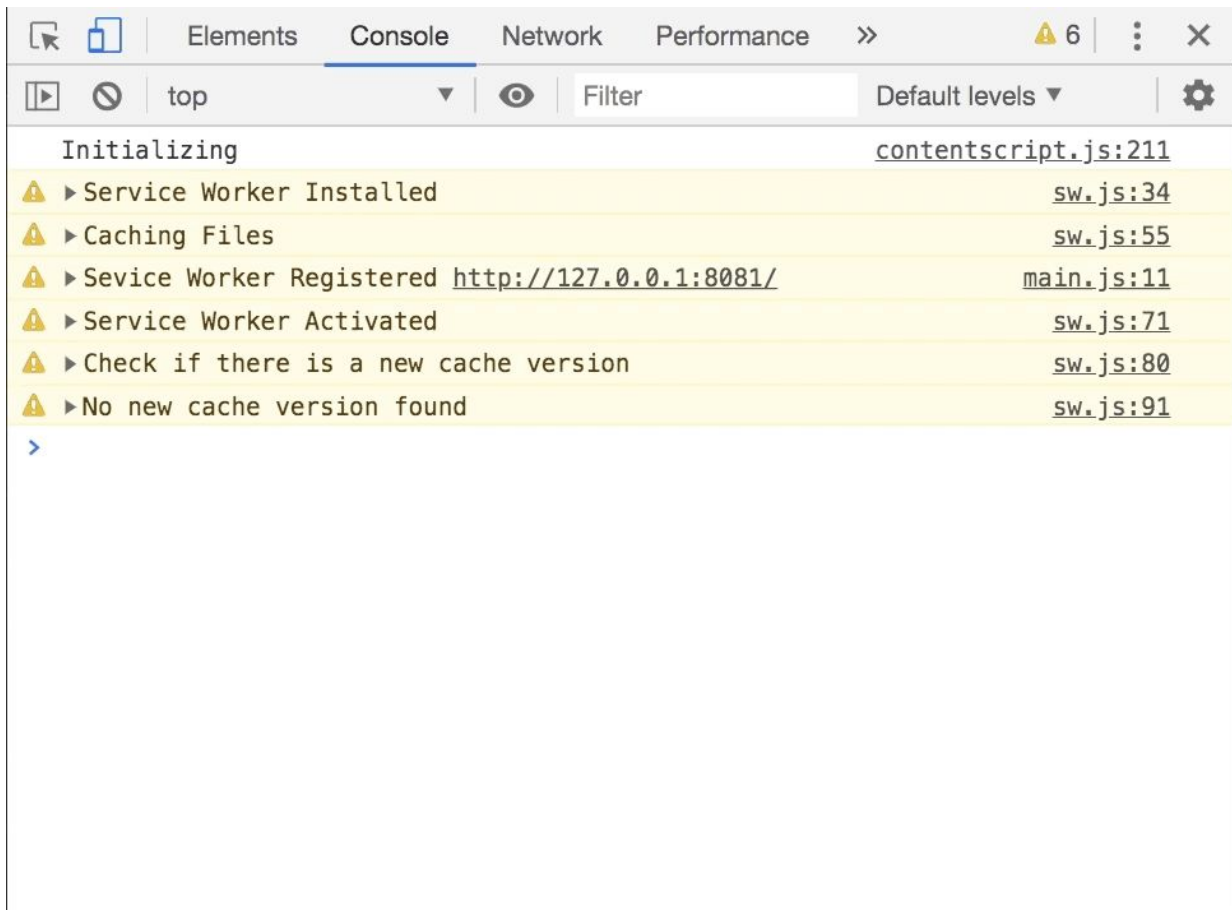
STEP 4:
**Delete previous
cache (activate)**

```
self.addEventListener( type: 'activate', listener: ( event ) => {  
  
    event.waitUntil(  
        caches.keys()  
            .then( keyList => {  
  
                // Check if there is any new cache version  
                return Promise.all( keyList.map( key => {  
                    if ( key !== cacheName ) {  
  
                        // Delete old Cached File with Key  
                        return caches.delete( key );  
                    }  
                } ) )  
            } ) )  
    } )  
);
```

Service Worker Lifecycle



Service Worker, Manifest and Cache



The screenshot shows a browser's developer console with the 'Console' tab selected. The console displays a series of log messages related to a Service Worker's initialization. The messages are as follows:

- Initializing `contentscript.js:211`
- ▶ Service Worker Installed `sw.js:34`
- ▶ Caching Files `sw.js:55`
- ▶ Service Worker Registered `http://127.0.0.1:8081/` `main.js:11`
- ▶ Service Worker Activated `sw.js:71`
- ▶ Check if there is a new cache version `sw.js:80`
- ▶ No new cache version found `sw.js:91`

The console interface includes navigation icons, a search bar, and a 'Filter' dropdown. The top of the browser window shows 'Elements', 'Console', 'Network', and 'Performance' tabs, along with a warning icon and the number '6'.



**Once the *SW* is *active*, it
Has full control over pages.**

It can now handle events such as:

- 1. Fetch**
- 2. Push**
- 3. Sync**



Web
Browser

/
Makes
http request



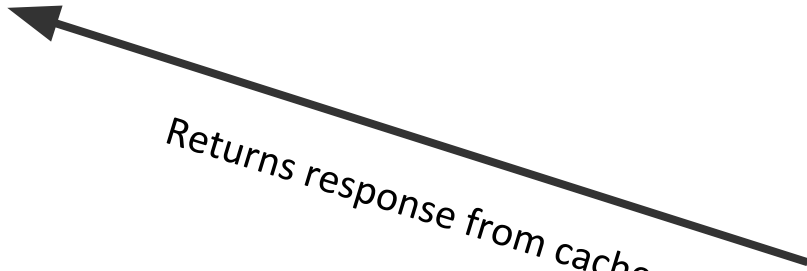
Service Workers
Intercepts http request



Is Request URL
In Cache?

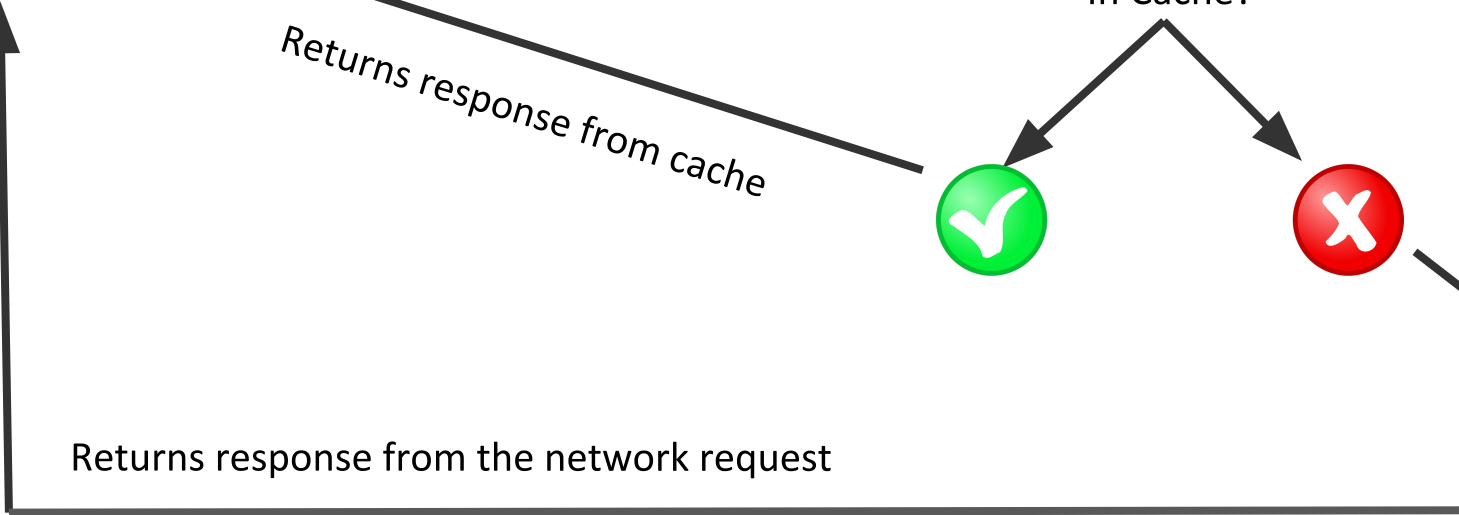


Returns response from cache



Server

Returns response from the network request



**STEP 5:
FETCH DATA FROM
CACHE (fetch)**

```
// When any request is made on PWA.
self.addEventListener( type: 'fetch', listener: ( event ) => {

// respondWith() takes a promise
event.respondWith(

// This will look for the requested url ( event.request ) into cache first
caches.match( event.request )
    .then( response => {

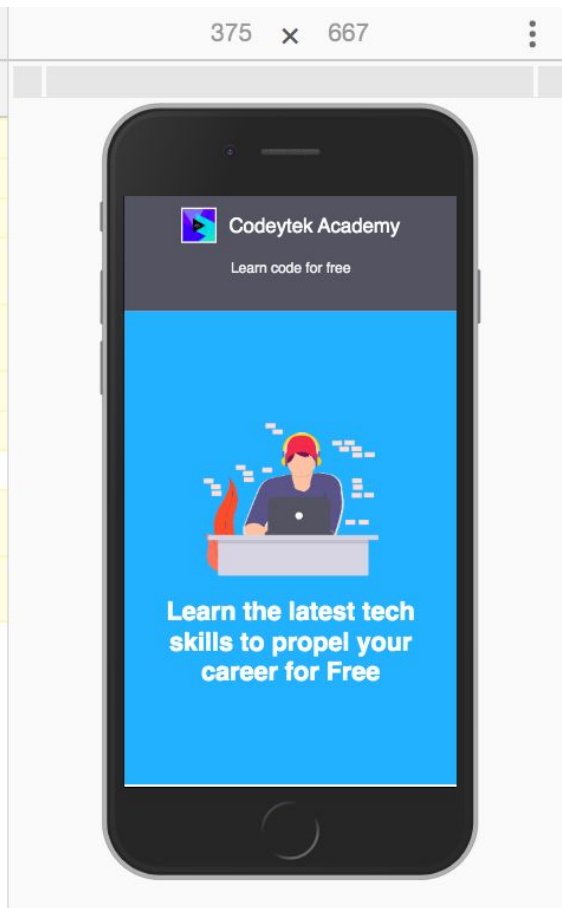
        return response || fetch( event.request )

    } )
);
} );
```

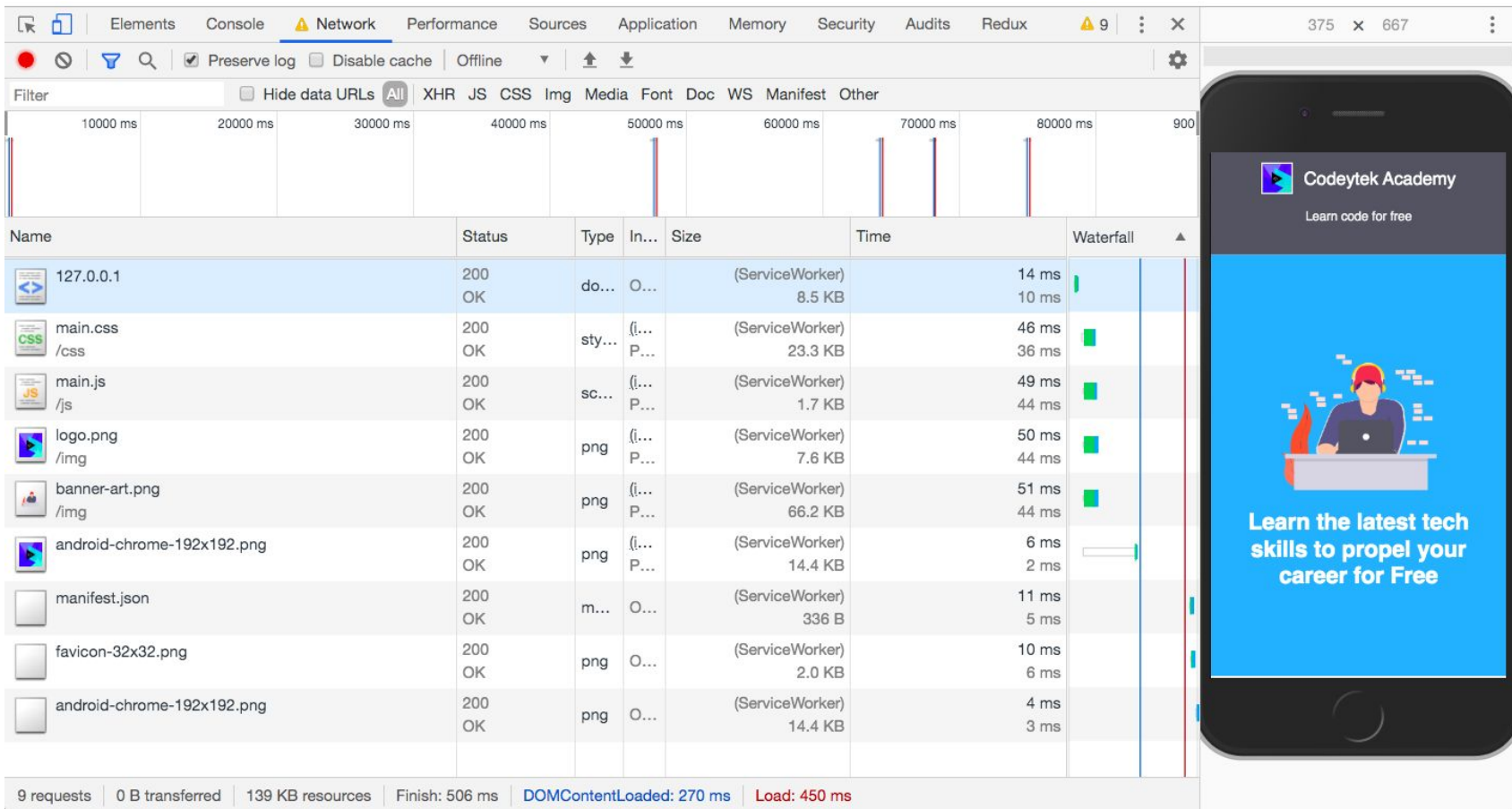
Fetch event

The screenshot shows the developer console with the following log entries:

- Fetch event occurred on url: <http://127.0.0.1:8081/css/main.css> sw.js:109
- Fetch event occurred on url: <http://127.0.0.1:8081/js/main.js> sw.js:109
- Fetch event occurred on url: <http://127.0.0.1:8081/img/logo.png> sw.js:109
- Fetch event occurred on url: <http://127.0.0.1:8081/img/banner-art.png> sw.js:109
- Fetch event occurred on url: <http://127.0.0.1:8081/android-chrome-192x192.png> sw.js:109
- Service Worker Registered <http://127.0.0.1:8081/> main.js:11
- Fetch event occurred on url: <http://127.0.0.1:8081/manifest.json> sw.js:109
Initializing contentscript.js:211
- Fetch event occurred on url: <http://127.0.0.1:8081/android-chrome-192x192.png> sw.js:109
- Fetch event occurred on url: <http://127.0.0.1:8081/favicon-32x32.png> sw.js:109



Fetch event



The screenshot displays the Chrome DevTools Network tab for a mobile application. The top navigation bar includes tabs for Elements, Console, Network (active), Performance, Sources, Application, Memory, Security, Audits, and Redux. The Network tab shows a list of 9 requests, all of which are served from a ServiceWorker. The requests include various assets such as CSS, JavaScript, and images. The status for all requests is 200 OK. The total size of the resources is 139 KB, and the total time taken to load them is 506 ms. The DOMContentLoaded event occurred at 270 ms, and the page load completed at 450 ms.

Name	Status	Type	In...	Size	Time	Waterfall
127.0.0.1	200 OK	do...	O...	(ServiceWorker) 8.5 KB	14 ms 10 ms	
main.css	200 OK	sty...	(i...	(ServiceWorker) 23.3 KB	46 ms 36 ms	
main.js	200 OK	sc...	(i...	(ServiceWorker) 1.7 KB	49 ms 44 ms	
logo.png	200 OK	png	(i...	(ServiceWorker) 7.6 KB	50 ms 44 ms	
banner-art.png	200 OK	png	(i...	(ServiceWorker) 66.2 KB	51 ms 44 ms	
android-chrome-192x192.png	200 OK	png	(i...	(ServiceWorker) 14.4 KB	6 ms 2 ms	
manifest.json	200 OK	m...	O...	(ServiceWorker) 336 B	11 ms 5 ms	
favicon-32x32.png	200 OK	png	O...	(ServiceWorker) 2.0 KB	10 ms 6 ms	
android-chrome-192x192.png	200 OK	png	O...	(ServiceWorker) 14.4 KB	4 ms 3 ms	

9 requests | 0 B transferred | 139 KB resources | Finish: 506 ms | DOMContentLoaded: 270 ms | Load: 450 ms

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Learn code for free

Learn the latest tech skills to propel your career for Free

**STEP 6:
ADD A CUSTOM ADD
TO HOME SCREEN**

```
let installEvent;
window.addEventListener( type: 'beforeinstallprompt', listener: ( event ) => {

  console.warn( message: 'Before Install Prompt' );

  // Prevent the Chrome 67 and older versions, to automatically show the default 'Add to Home Screen' prompt
  event.preventDefault();

  // Store the beforeinstallprompt event pointer in installEvent for later use
  installEvent = event;

  // Show the custom 'Add to Home Screen' prompt that we created in index.html.
  document.getElementById( elementId: 'addToHomeScreen' ).style.display = 'block';
} );

const hidePrompt = () => {
  document.getElementById( elementId: 'addToHomeScreen' ).style.display = 'none';
};

const installApp = () => {
  // Once user installs the app, the prompt is no longer needed so we hide it
  hidePrompt();

  // Use the beforeinstallprompt event pointer to call the prompt() and show our custom Add to Home Screen install prompt
  installEvent.prompt();

  // Wait on the prompt promise to resolve.
  installEvent.userChoice.then( ( result ) => {
    ( 'accepted' === result.outcome ) ? console.warn( message: 'App installed' ) : console.warn( message: 'App not installed' );
  });
};

window.addEventListener( type: 'appinstalled', listener: ( event ) => {
  console.warn( message: 'appinstalled event called' );
} );
```

https://codeytek.com

Codeytek Academy ↩

<https://codeytek.com>

Dashboard < Codeytek Blogs – WordPress ↩

<https://codeytek.com/wp-admin/>

Index of /pwa-concepts ↩

<https://codeytek.com/pwa-concepts>

Codex ↩

https://codex.wordpress.org/Developer_Docun

HTTP Status Codes – httpstatus.es.com 00:11

☺ 🗨️ 📧 🎤 ⚙️ ⌵

1 2 3 4 5 **y** 7 8 9 0

q w e r t **y** u i o p

a s d f g h j k l

⬆️ z x c v b n m ⬅️

!#1 , / EN(UK) . .com Go

Lighthouse Score - Performance

The screenshot shows the Chrome DevTools interface with the Lighthouse Performance audit selected. The top navigation bar includes tabs for Elements, Console, Network, Performance, Sources, Application, Memory, and Audits. The Audits tab is active, showing a score of 6 with a warning icon. The right side of the interface displays a simulated iPhone 6/7/8 with a page from Codeyte Academy. The page content includes the Codeyte Academy logo, the text "Learn code for free", an illustration of a person at a computer, and the text "Learn the latest tech skills to propel your career for Free".

Audits

Identify and fix common problems that affect your site's performance, accessibility, and user experience. [Learn more](#)

Device

- Mobile
- Desktop

Audits

- Performance
- Progressive Web App
- Best practices
- Accessibility
- SEO

Throttling

- Simulated Slow 4G, 4x CPU Slowdown
- Applied Slow 4G, 4x CPU Slowdown
- No throttling

ImageResizeLite

Clear storage

Mac OS Dock icons: Finder, Spotlight, Safari, Photoshop, Chrome, Terminal, Keychain, Elephant, Photos, Camera, Star, Wi-Fi, Mail, Calendar, Trash.

Lighthouse Score - Performance



Performance

Metrics



● First Contentful Paint	0.4 s	● First Meaningful Paint	0.4 s
● Speed Index	0.4 s	● First CPU Idle	0.4 s
● Time to Interactive	0.4 s	● Max Potential First Input Delay	50 ms


PWA

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PWA Plugins for WordPress


1. Super PWA
2. WordPress Mobile Pack
3. PWA
4. PWA for WP & AMP
5. Progressive WordPress


Super PWA

Howdy, username 




SuperPWA  0  New


 Dashboard


 Posts


 Media

 Pages

 Comments

 Appearance

 Plugins

 Users

 Tools

 Settings

 SuperPWA

Super Progressive Web Apps 2.0

Application Name Super Progressive Web Apps

Application Short Name SuperPWA

Used when there is insufficient space to display the full name of the application. 12 characters or less.

Description Progressive Web Apps Plugin for WordPress

A brief description of what your app is about.

Application Icon `:/super-progressive-web-apps/public/images/logo.png`

 Choose Icon

This will be the icon of your app when installed on the phone. Must be a PNG image exactly 192x192 in size.

ImageResizeLite

Settings



PWA

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Browser Compatibility

Browser Compatibility

1. Google Chrome for Android
2. Mozilla Firefox for Android
3. Edge for Android
4. Brave for Android
5. Samsung Internet

Browser Compatibility

1. iOS just started supporting PWA from version 11.3
2. Only some features supported upon iOS
3. Background Sync and Web Push Notifications are not supported
4. Manually press the Share icon and then “Add to Home Screen.”

PWA

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Popular PWAs

Popular PWAs

1. Flipkart Lite
2. Twitter Lite
3. Pinterest
4. Tinder
5. OLX
6. Trivago

wp-decoupled

← → ↻ https://wp-decoupled.imranhsayed.now.sh



WP Decoupled



Welcome

Welcome to the WP Decoupled Demo page.

This is a frontend for a WooCommerce Store created with Next.js and WPGraphQL.

Products



References

<https://developers.google.com/web/fundamentals>

<https://github.com/imranhsayed/pwa-concepts>

<https://github.com/rtcamp/wp-decoupled>

Credits



WordCamp Mumbai
Organizers & volunteers

Mahvash Fatima - Ppt
Design



learn.rtcamp.com



rtCamp's WordPress Training Program

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Become a better WordPress Developer by signing up for this free WordPress Development Training Program. Curated by real WordPress enthusiasts and experts, this program covers a wide range of topics involving modern WordPress development.

[Start Now](#)

NOTE: You must sign up for this training program if you wish to apply to work at rtCamp through this LMS program.

The WordPress industry is only growing larger every day and we need more developers who know how to build web applications that scale.

This course is aimed at anyone who wants to learn WordPress development and is aspiring to become a WordPress Developer. This course consists of 12 chapters, and each chapter covers topics on WordPress and the various steps involved in WordPress development.

PWA

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Imran Sayed



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