

1. What is PWA?

Progressive Web Applications (PWAs) are apps built with web technologies that we probably all know and love, like HTML, CSS, and JavaScript. But they have the feel and functionality of an actual native app.

A Native App is a software application built in a specific programming language for a specific device platform, either IOS or Android.

PWAs are built with the capabilities like push notifications and the ability to work offline. They are also built on and enhanced with modern APIs which makes it easy to deliver improved capabilities along with reliability and the ability to install them on any device.

PWAs takes advantage of the huge web ecosystem that is inclusive of the plugins, and community and the relative ease of deploying and keeping a website contrary to a native application which is pretty difficult to develop. This means you can build a PWA quickly and easily.

2. Importance of PWA.

- A. They are responsive and work with many different screen sizes.
- B. They function just like normal Native Apps.
- C. The updates are independent, you don't need to visit the play store for an update.
- D. They're built with common web technologies.
- E. They're fast and lightweight.
- F. They work offline unlike other sites.
- G. They are discoverable via search engines.
- H. They are easily installable.
- I. Low maintenance cost.

3. Technical components of PWA: Web App Manifest, Service Worker, Service worker lifecycle.

Manifest file

This is a JSON file that is created with a generator. This file contains the information that tells how your PWA should appear and function. It allows you to determine the name, description, icon, colors and other features of your PWA.

Service workers

This is one of the key technologies behind PWAs. They help support your app work offline, and they perform advanced caching and run background tasks.

Service workers can complete tasks even when your PWA is not running.

Some other functions associated with Service Worker include:

- Sending push notification
- Badging icons
- Running background fetch tasks etc.

4. Framework tools: Webpack :- webpack-pwa-framework, Lighthouse :- lighthouse pwa-framework.

webpack-pwa-framework

As I mentioned before, webpack-pwa-framework is not a single thing, but a term that can refer to different things related to webpack and PWAs.

- Webpack is a tool for building PWAs that are web apps that work offline and have native-like features¹.
- Webpack-pwa is an example of a super simple PWA with webpack that uses no framework and only simple JavaScript and DOM².
- Webpack-pwa-manifest is a plugin for webpack that generates a manifest file for PWAs with icons, splash screens and more³.

You can also use other frameworks and tools to build PWAs, such as Ionic, Angular or React³.

Lighthouse-pwa-framework

Lighthouse is not a PWA framework, but a tool for improving the quality of web pages and PWAs. It is an open-source and automated tool designed by Google that audits web pages and PWAs for performance, accessibility, SEO and other factors¹²³. You can run Lighthouse in Chrome DevTools, from the command line or as a Node module³.