Write once, Run anywhere

A concise overview of Progressive Web Apps.

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Who am I?

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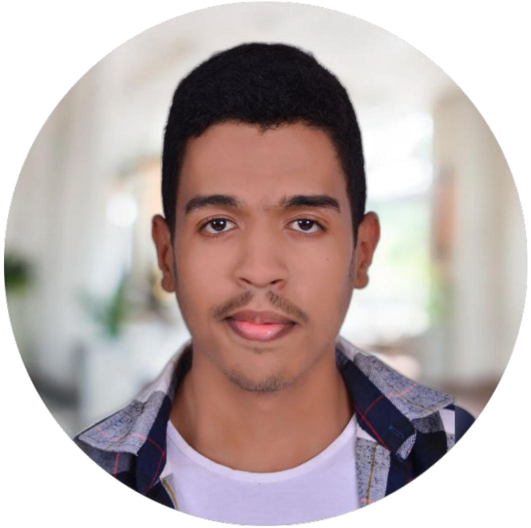


Before we dive into PWAs, let's first talk about the pros and cons of traditional web applications and native applications.

- **Native Apps:** Platform-specific, Require installing, can run offline, require separate codebases to be written and maintained for each platform they are available on.

- **Traditional Web Apps:** Platform-independent, Accessed through a web browser and run on a web server. but require an active internet connection to function.

Wouldn’t be great to have the best of both worlds?

Say Hi to PWAs 👋

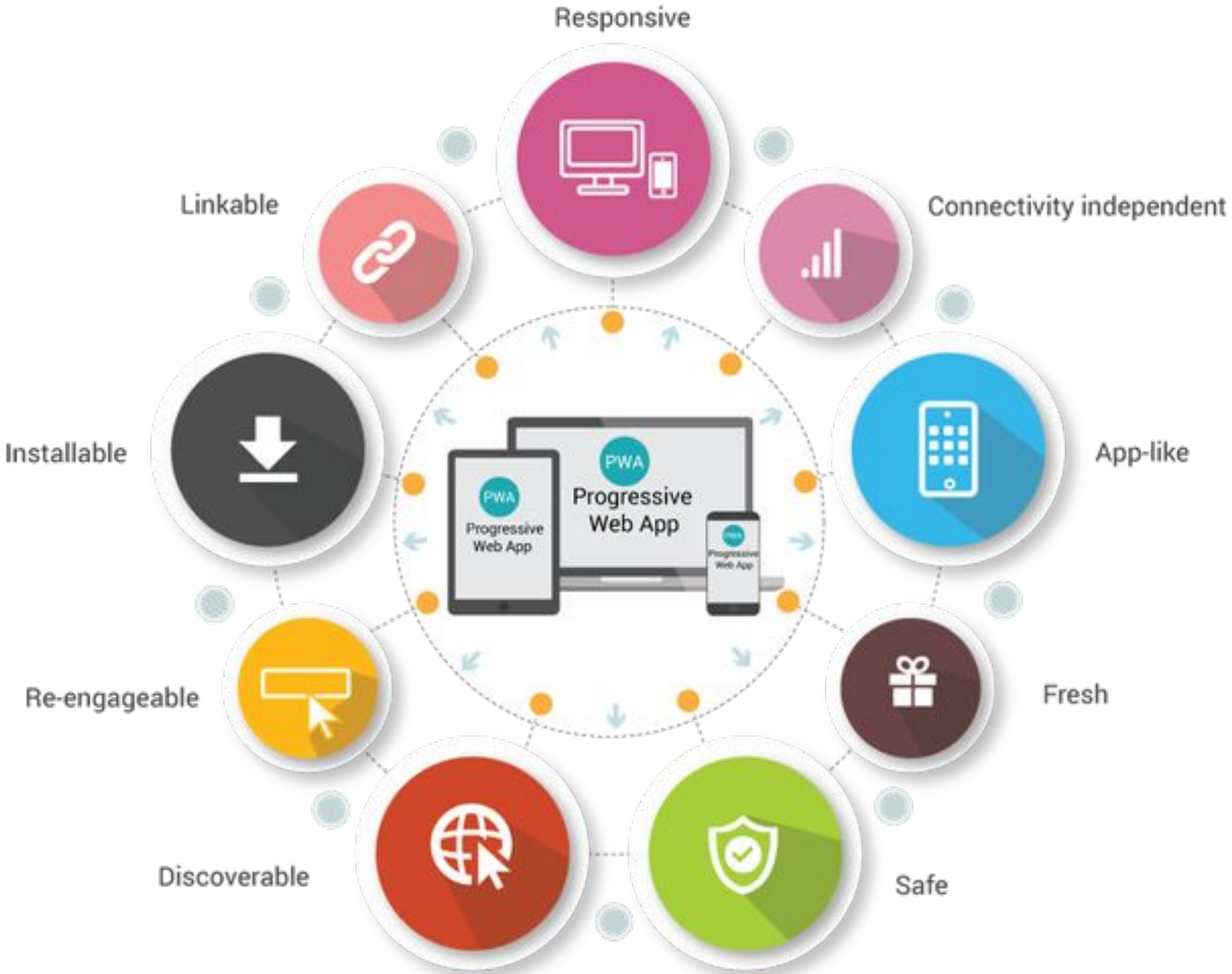
PWAs, or Progressive Web Apps, are web applications that are designed to provide a native app-like experience for users. They are built from a single code-base using modern web technologies providing a great DX.

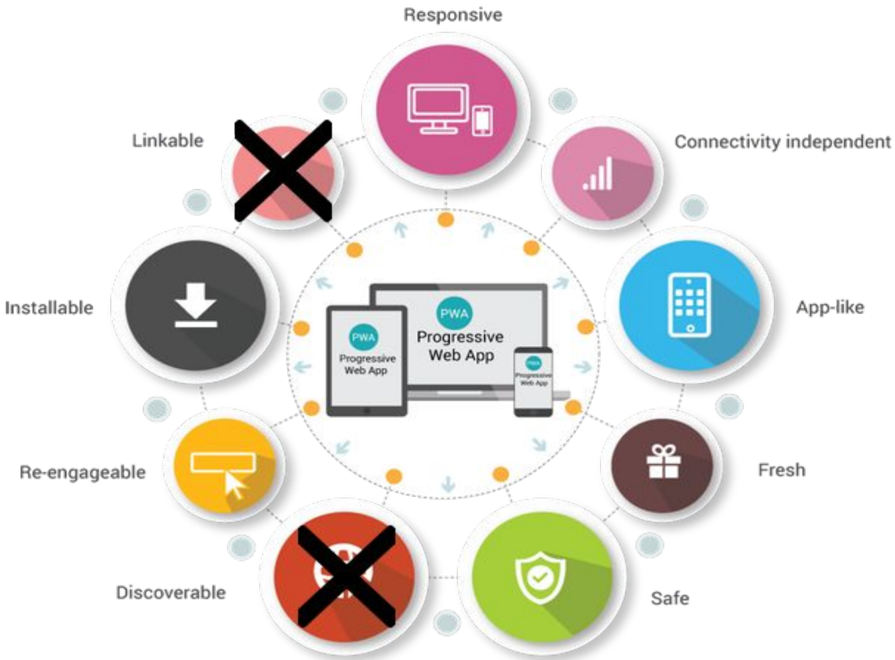
They combine the best features of web and native apps, providing users with a seamless and engaging experience on both desktop and mobile devices and can be installed on a device's home screen without going through an app store.

They are also fast, reliable, and can take advantage of native device features such as push notifications and offline support.

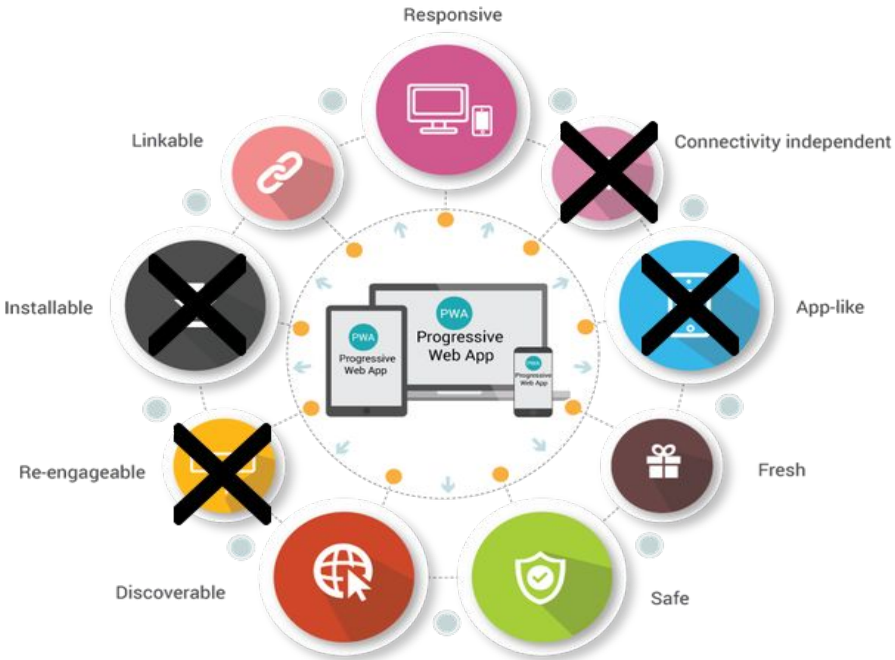
The benefits of PWAs

- Improved user experience
- Higher user engagement and conversion rates
- Reduced development and maintenance costs
- Cross-platform compatibility
- Improved search engine optimization
- Support offline usage, push notifications, GPS access,...


Responsive
Linkable
Connectivity independent
Installable
PWA
Progressive Web App
PWA
Progressive Web App
PWA
Progressive Web App
App-like
Re-engageable
Fresh
Discoverable
Safe



Compared to Native Apps

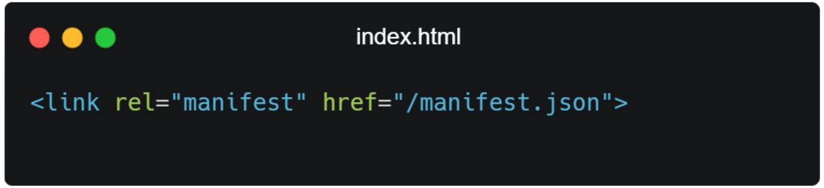


Compared to Traditional Web Apps

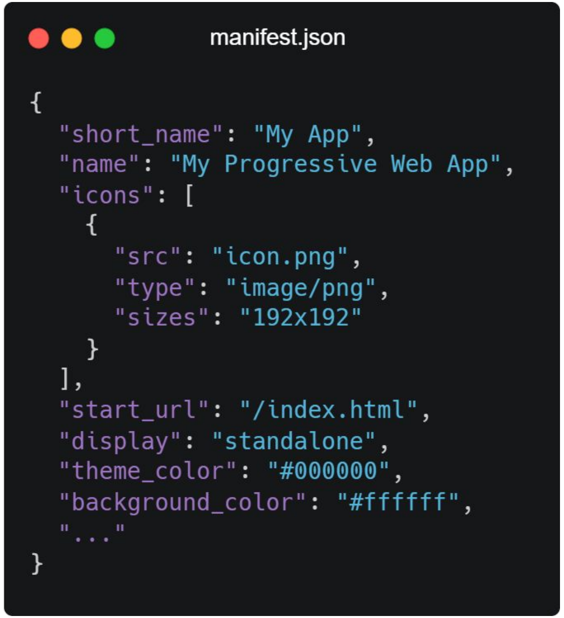
Building a Progressive Web App

To make a Progressive web app from your existing website:

- Create a Web App Manifest file that specifies the name, theme color, and other details of your app. The manifest should also include icons in various sizes that will be used as the app's launcher icons on different devices.

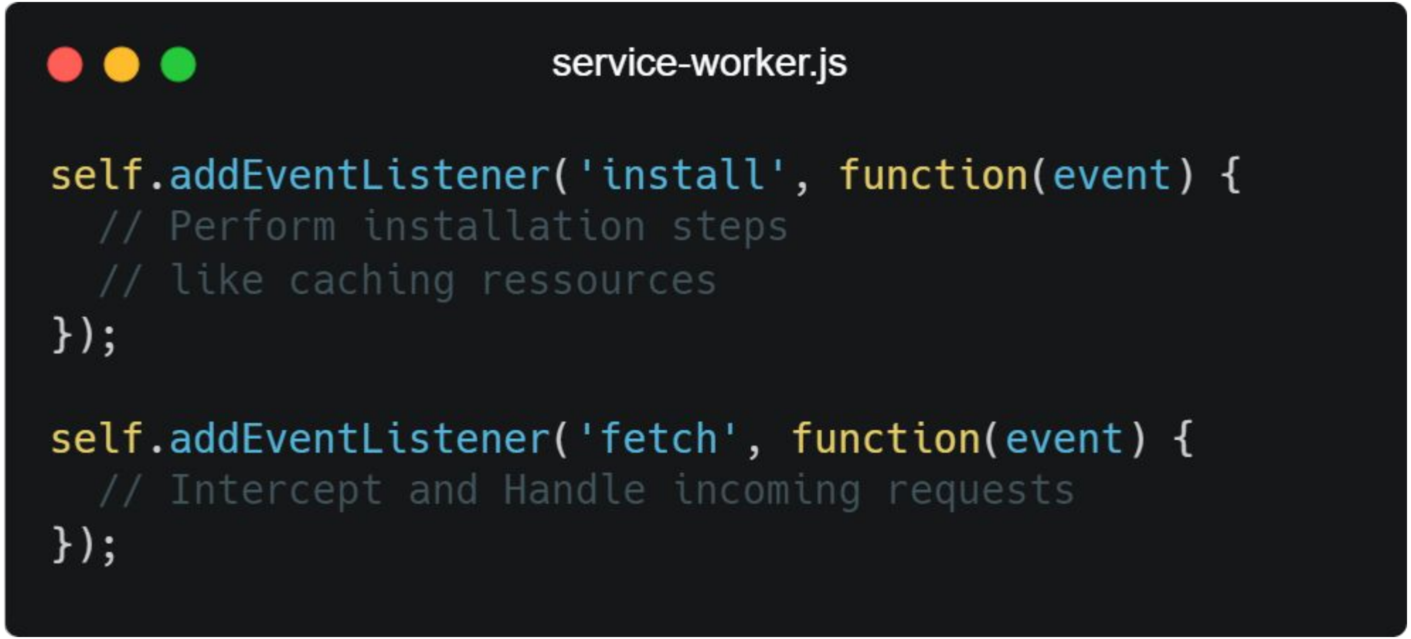


```html
<link rel="manifest" href="/manifest.json">
```



```json
{
  "short_name": "My App",
  "name": "My Progressive Web App",
  "icons": [
    {
      "src": "icon.png",
      "type": "image/png",
      "sizes": "192x192"
    }
  ],
  "start_url": "/index.html",
  "display": "standalone",
  "theme_color": "#000000",
  "background_color": "#ffffff",
  "..."
}
```

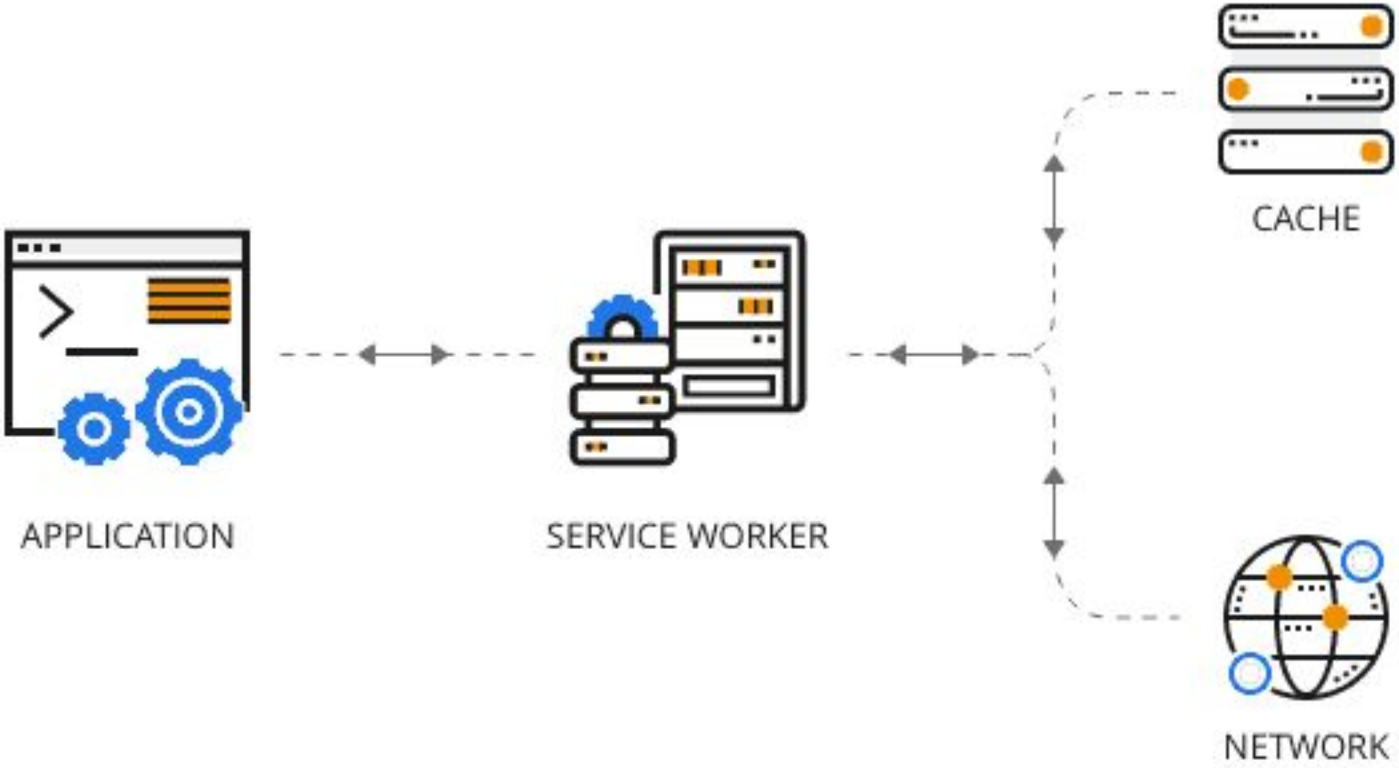
- Implement a service worker, which is a JavaScript file that runs in the background and enables offline functionality and other advanced features for your app like sending notifications…



service-worker.js

```
self.addEventListener('install', function(event) {
  // Perform installation steps
  // like caching ressources
});

self.addEventListener('fetch', function(event) {
  // Intercept and Handle incoming requests
});
```


CACHE
APPLICATION
SERVICE WORKER
NETWORK

Tools & Resources

Your browser Devtools & Specially lighthouse.

PWA Builder: https://www.pwabuilder.com/

Workbox: https://github.com/GoogleChrome/workbox

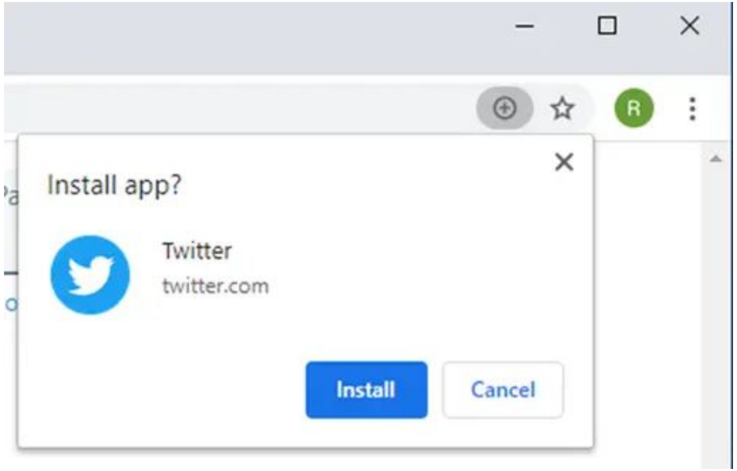
Angular, Vue, React, and most majors frontend frameworks also have libraries available for building PWAs.

Some useful links to checkout:

- https://developers.google.com/web/fundamentals/web-app-manifest/
- https://developers.google.com/web/fundamentals/primers/service-workers/
- https://www.youtube.com/watch?v=ppwagkhrZJs

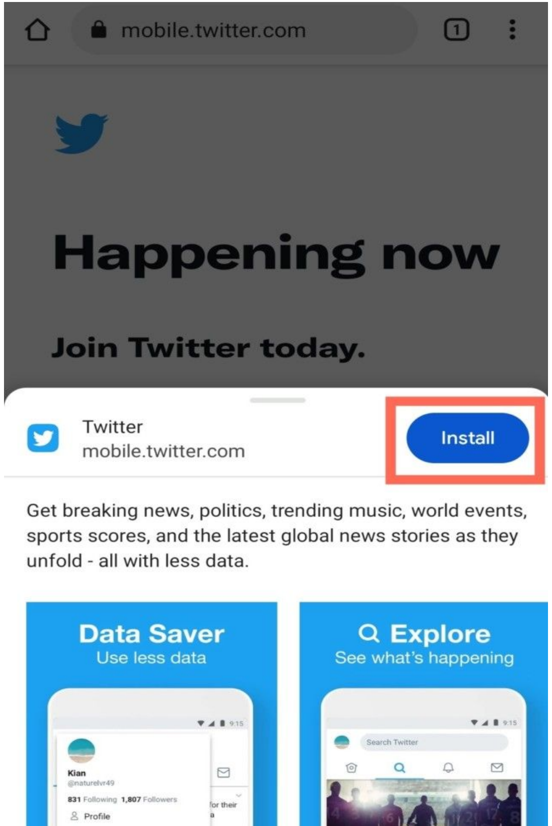
PWAs in Action

Twitter Lite: saw a 65% increase in pages per session, 75% in Tweets, and a 20% decrease in bounce rate. It also loads in less than 3 seconds for repeat visits even on slow networks



Install app?

Twitter
twitter.com



mobile.twitter.com

Happening now

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Twitter
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Get breaking news, politics, trending music, world events, sports scores, and the latest global news stories as they unfold - all with less data.

Pinterest: rebuilt their mobile site as a PWA and core engagements increase by 60%. They also saw a 44% increase in user-generated ad revenue and time spent on the site has increased by 40%

Spotify

Starbucks

Tinder

Telegram