**What is a Progressive Web App?**

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. Wait a minute! Native Apps, what do we mean by this?

**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 this 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.

With its popularity many companies have shifted into the product, I tend to believe that this is because of its ability to run on an android and iOS without much difference. Some good examples of top companies who have their products as PWAs include: *Twitter, Pintrest, Uber, Tiktok, Spotify, Jumia (a leading e-commerce site in Africa)* etc...

A common feature about this products is that they are all installable on your home screen, able to work offline from where you last left and offer a comparable experience and features to their native apps.

Just like when building a native mobile app there are some expectations that should be met to make a good product for consumer use, the same thing applies to PWAs. Let's discuss what makes a good PWA.

**Characteristics of PWAs**

Below is what should be considered when developing a PWA:

**Responsiveness**

Different companies produce gadgets with different screen sizes, and as a developer it's your responsibility to ensure all the different users enjoy the product regardless the devise they are using. So it's a good idea to make sure your app can be used on any screen size and it's content is available at any view-port size.

**Installable**

Research has shown that users tend to engage more with installed apps compared to visiting the official sites. Having a PWA as your product it gives the users the look, feel and engagement of a normal app.

**Independent Connectivity**

By keeping a user engaged to your app even while they are offline, provides a more consistent experience than dropping them back to a default offline page.  
A good example to illustrate this will that of a music app, your users should be able to access offline playback and listen to saved music even without internet connection. Another good example is twitter app, a user is able to go back a read through tweets which they might have missed.

**Discoverability**

Since most PWAs are converted websites, it fair to make them discoverable on the search engines, this will help generate extra traffic to your app. This also acts as an advantage over native apps which can't be discovered over the search engines.

**Appearance**

The appearance of the app should feel and look like that of a normal app, so be sure to include things like App Icon it will help make it easily recognizable also things like splash screen will add the touch of an app.

**Cross Platform**

PWAs are developed as web app first, which means that they need to work on all browsers/systems and not just a selected few. Users should be able to use them in any browser before they decide to install them.

So folks! there you have it, the general info about PWAs. Along the way you might have notices occasionally a comparison between PWAs and Native App and this might have confused you a bit, Well let's clear the airwaves by checking the comparison between the two to get a clear understanding.

**Differences Between PWAs and Native Apps**

**Development Cost**

*PWAs are cheaper to develop compared to Native Apps*  
When you're developing a native app, you'll have to learn a certain programming language and then build a version of the app for each type of device, Android and iOS. On the other hand you can choose to hire a experienced professional to do the work for you which will even turn out to be more costly.

Down the road, you will also need resources to maintain and update the app, which means lots of money and time is required.

In the case of a PWA, you can have a single codebase for the different platforms. It's also time-saving since you will not need to develop it from scratch you can configure your current web site to fit.

And if you choose to hire developer it will only be one compared to native where you can hire up-to two depending on where you need your app.

**Discoverability**

Native apps cannot be indexed by the search engines, they can just be found through the App/Play store's website. You can make your app more discoverable on the App/Play store by using App Store Optimization(ASO), but that's another story.

Unlike native apps, PWAs work like websites so they can be indexed by search engines. This helps them rank better in search results.

**Safety**

Nowadays in order to run a website, it should be encrypted with a SSL certificate, this adds an extra layer f security. Now, as we already know PWAs are site converted into app which means they are more secure because they run on HTTPS. These are security protocols that allow safe exchange of data between client and server so that is doesn't get tampered with.

To secure your native apps, you need to implement various security measures, like multi-factor authentication and so on.

**Installation and Download**

Native apps need to be downloaded and installed from an app store. This requires some commitment from the user to do it from start to finish. Users have to pass and check multiple permissions before installing an app.

On the other hand, PWAs don't require any of those steps. From the browser you can bookmark it and add the app to your home screen with just a few taps.

**Benefits of PWAs**

A lot of organizations both private and public are switching to PWAs not only because they are cheap to develop but also because they offer greater engagement.

Now let's look at a quick summary of the benefits of a PWA:

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

**Requirements to Get Started with PWA Development**

It does not take much to get started building a PWA. You just need a few things and you are good to go.

**Tools**

The best known technology to develop PWAs is AngularJS. Others include ReactJS and Polymer.

**HTTPS**

You will need a server with a HTTPS connection. This makes sure your user's data is secure. It adds an extra layer of security to you site.

**Application Shell**

It provides a good first impression when your app loads. In simpler words this is what the user sees when they interact with your app for the first time.

**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...

**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.  
Here's an example of a manifest file:

{

"short\_name": "DevBlogger",

"name": "DevBlogger",

"description": "All dev stories under one roof",

"theme\_color": "#eb5252",

"background\_color": "#000000",

"display": "fullscreen",

"Scope": "/", "orientation": "portrait",

"icons": [

{

"src": "images/android/android-launchericon-48-48.png",

"type": "image/png",

"sizes": "48x48"

},

{

"src": "images/android/android-launchericon-96-96.png",

"type": "image/png",

"sizes": "96x96"

},

{

"src": "images/android/android-launchericon-192-192.png",

"type": "image/png",

"sizes": "192x192"

}

],

"start\_url": "index.html?utm\_source=homescreen"

}