What is Progressive Web Apps

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PWA QUESTION AND RESPONSE

1. WHAT IS A PROGRESSIVE WEB APP?

- The concept of the progressive web app (PWA) was approached by Google in late 2015. They are basically web applications (Website) but have look and feel like other native mobile apps. The progressive web app enabled websites can offer functionalities such as working offline, push notifications, and device hardware access.

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2. WHY DO WE NEED A WEB MANIFEST FOR PWA?

A web manifest file lists all the information about the website in a JSON format. Having this file is one of the requirements to make the website installable.

It usually resides in the root folder of a web app. It contains useful information, such as the app's title, paths to different-sized icons that can be used to represent the app on a mobile OS (for example, as the home screen icon), and a background color to use in loading or splash screens. This information is needed for the browser to present the web app properly when installing, and on the home screen.

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3. WHAT ARE SOME BENEFITS OF PWA?

Benefits of the progressive web app:

1- Smaller and Faster: The progressive web apps are much smaller in size than native apps. They don't even need to install. That's they are not wasting disc space and load very fast.
2- Responsive Interface: Progressive web app (PWA) supported web pages are capable to fit in every screen sizes automatically. It could be a smartphone, tablet, desktop or laptop.
3- No Updates Required: Most of the mobile apps need regular weekly updates. Like the normal website, progressive web apps (PWA) are always loaded latest updated version whenever the user interaction happens and no App or Play Store approval required.
4- Cost Effective: Native mobile apps need to be developed for both Android and iOS devices separately and their development cost is very high. On the other hand, progressive web apps are had the same features but the fraction of the prior price.

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3. WHAT ARE SOME BENEFITS OF PWA?

Benefits of the progressive web app:

4- SEO Advantage: Progressive web apps are discoverable by search engines and load super-fast. Just like other websites, their links are sharable too. This, in other words, gives good user experience and result in SEO rank boost.
Offline capabilities: Due to the support of service worker API, PWAs are accessible in
5- offline or low internet connections.
6- Security: PWAs are delivered over HTTPS connection and secure user-data over each interaction.
7- Push Notifications: By the support of push notifications, PWAs can interact easily with the users and provide a really amazing user experience.
8- Bypass the app stores: PWAs don't need the App store or Google play store support. Their updated version can be directly loaded from the web server without the requirement of app store approval. On the other hand, native apps need days of approval if any new update required. There are possibilities of getting rejected or banned.

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4. WHAT MAKES AN APP A PWA?

There are some key principles a web app should try to observe to be identified as a PWA. It should be:

- Discoverable, so the contents can be found through search engines.
- Installable, so it's available on the device's home screen.
- Linkable, so you can share it by simply sending a URL. * Network independent, so it works offline or with a poor network connection.
- Progressive, so it's still usable on a basic level on older browsers, but fully-functional on the latest ones.
- Re-engageable, so it's able to send notifications whenever there's new content available.
- Responsive, so it's usable on any device with a screen and a browser — mobile phones, tablets, laptops, TVs, fridges, etc.
- Safe, so the connection between you and the app is secured against any third parties trying to get access to your sensitive data.

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5. WHAT IS THE DIFFERENCE BETWEEN PROGRESSIVE WEB APP AND NATIVE APP?

There are, of course, some differences between PWA and native applications.

How to access an app

The first one has to do with how the user accesses them. Native apps can be found and installed through an app store such as Google Play or the Apple iOS App Store. App stores are the most popular places to purchase applications that people use on their mobile devices. So if users can find your app using popular keywords or brand name, you gain a big favour and have a better chance of getting interested. It is also related to the entire process of application approval by the app store, as well as the rating and review system that affects the final user's decision to download the app. With PWA, we skip the application approval stage in the store. Instead, PWAs run directly in the browser on a mobile device, and you just need to search for them in a search engine.

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Offline access

PWA works offline, but only to a specific extent. It can make certain parts of an application available to users when their device cannot connect to the network, but it cannot share everything with them. Native applications have a decisive advantage here, which results from their operation directly on the device. PWA is catching up and allowing users to access cached content. However, they are not yet able to connect to a mobile device as much as native apps.

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Safety

Native applications are generally a safer solution for both the application provider and the users. It allows you to enter multi-factor authentication, which is extremely useful if your application has a login feature. It provides a large layer of security for native applications. Native applications can also use security certificate pinning, and they also have to undergo a verification process in app stores, which is impossible when the application has security issues. However, PWAs are still supported by HTTPS, which allows encryption between the browser and the server. If the developers have created a safe environment for PWA, it can be as secure as any website.

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Cost

A native application (granted that it is developed on more than one platform, and usually, it does) requires separate development teams for each version. This approach requires a long development process, and the maintenance of the application is more time-consuming and expensive in the long run. To balance the disadvantages of the native approach, you can consider a cross-platform solution such as React Native or Flutter, which allows sharing the codebase by applications for both Android and iOS. PWA is basically a web application built for all platforms at once.

6. EXAMPLES OF PWA

Example

- Lots of big brands have launched their own PWA. Among the best known are those listed below.

Trivago

This is a famous travel app that finds the best hotel room prices. Initially, it operated as a regular website, but after transforming into PWA, it increased engagement several times and gained new users.

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Pinterest

A well-known platform for DIY fans, inspiration seekers and more. Pinterest decided to build a PWA when it noticed that the website was quite slow, and few people were willing to install the application on Android or iOS. The transition to PWA resulted in increased user engagement and improved efficiency.

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7. DISADVANTAGES OF PWA

- Limited access to device functions – PWAs cannot access as many phone functions as native applications, such as Bluetooth, which is necessary for indoor geolocation;

- Limited web browser support – PWAs are not supported by all web browsers, with the risk of losing a large number of mobile app audiences if you only have PWA;

- Limited functionality – as PWAs are Android-focused, it is possible that the iOS PWA will not support all of its functions.

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8. NATIVE APPLICATION VS PROGRESSIVE WEB APP: WHICH ONE SHOULD YOU CHOOSE?

- Choosing the right solution should always be based on the goals and values you want to achieve for both your business and users. Having an idea for an application and target group, you should focus primarily on what features you want to offer, which will positively affect the user experience, what options must necessarily be available. So, if you assume that the application is to have full access to the device, be extremely efficient and run completely offline, the native approach will be the better choice. Having a solid PWA is also a smart choice in some cases. If you want to reach a large audience with a limited budget that does not allow you to create a separate application for each platform, choose PWA.

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