Progressive Web App

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Special Thanks to:



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Outline



- What is PWA?
- Why PWA?
- Service Worker
- PWA Basics
- First Project in PWA
- References



What is PWA?



- Installable
- Mobile & Desktop
- Reliable
- Fast
- Engaging
- Etc.



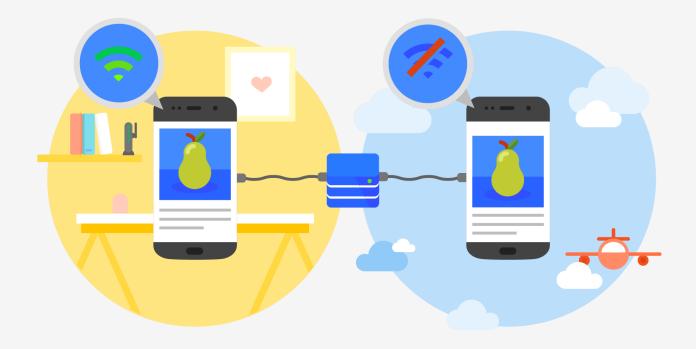
Installable on Mobile & Desktop

Device Type Independent!



Reliable

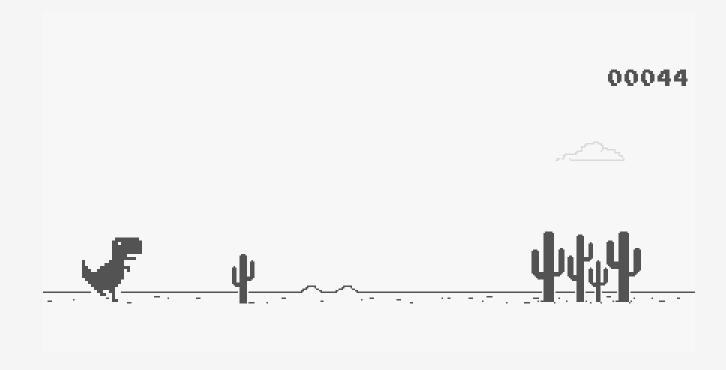
Load instantly regardless of network state



Talk about **service worker** later on.

Reliable

No T-rex game anymore!



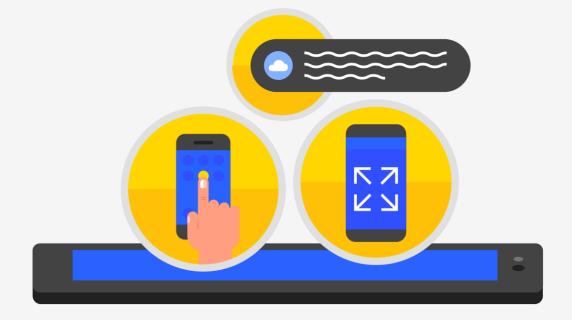
Fast

- 53% abandon a site if it takes longer than 3 seconds to load!
- Once loaded, users expect them to be fast.



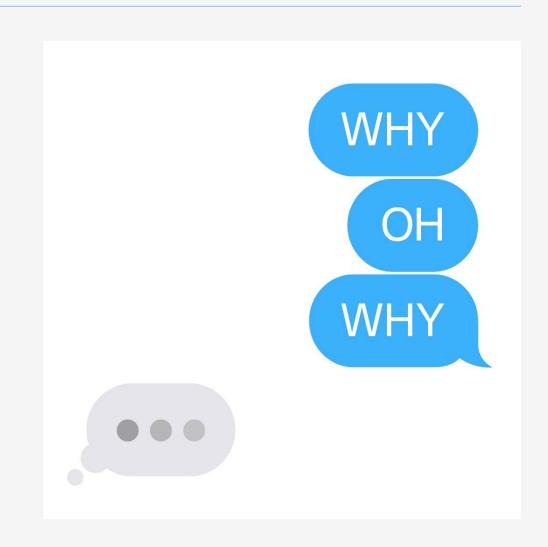
Engaging

- Manifest File
- Push Notification



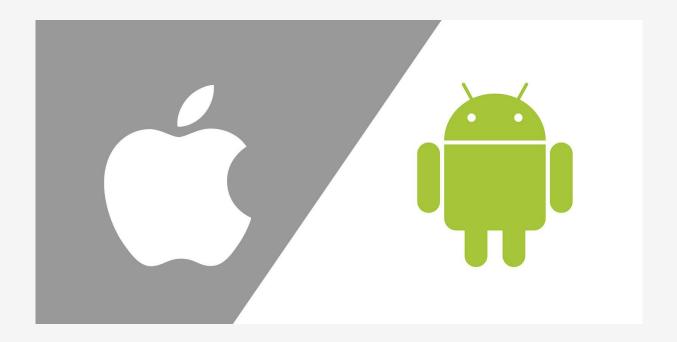
Why PWA?

- Faster Development
- Easy to Maintain
- No need to App store!
- Automated Powerful Tools
- Debugging in Chrome
- Etc.

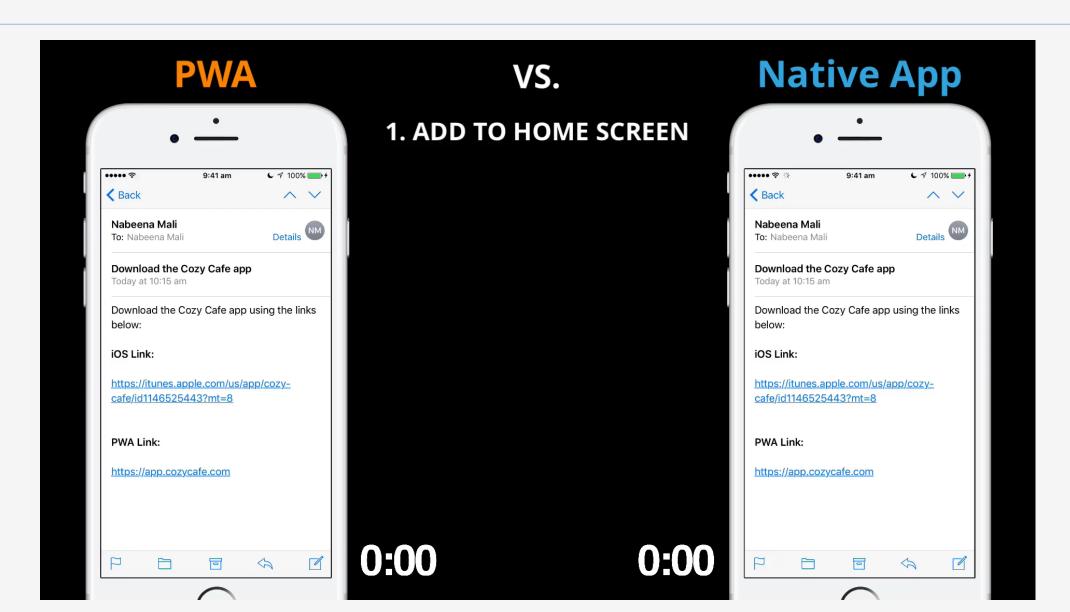


Faster Development

We all familiar with the complexity of developing a simple app in Android/IOS.



PWA vs Native Apps



No need to App store





Bypassing Sanctions:))



Automated and Powerful Tools

- Lighthouse
- Workbox

- Etc.

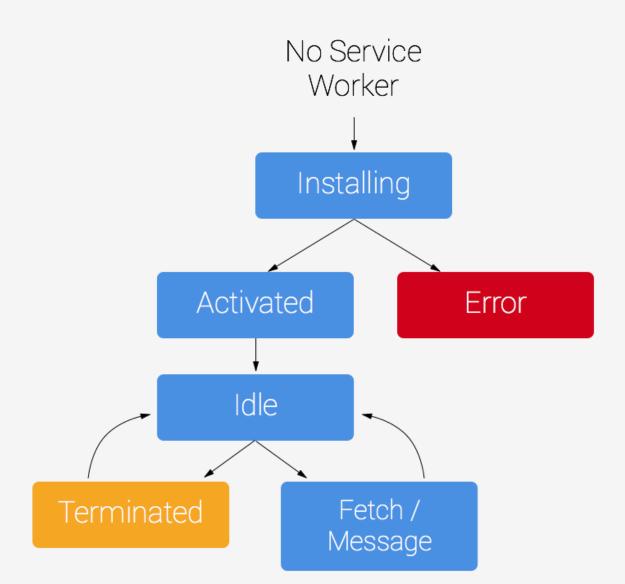




What is Service Worker?

- A script that your browser runs in the background
- Provides functionality that would normally require a native application, like:
- Push Notification
- Rich Offline Experience
- Periodic Background Sync

Service Worker Life Cycle



PWA Basics

Manifest.json defines:

- Application Name
- Theme & Background Color
- Display Mode
- Orientation
- Start URL
- Etc.

```
{...} manifest.json
File Editor
                                        1
> Open Tabs
                                               "name": "Dark Mode Demo",
                                               "short_name": "DarkMode",

→ Files

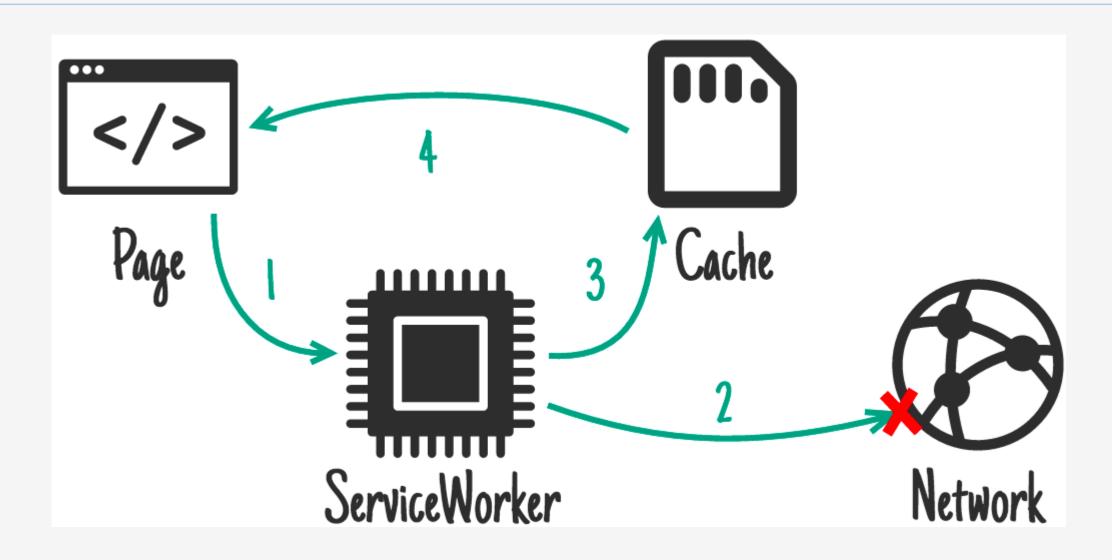
                                               "icons": [
public
                                                    "src": "codesandbox-10
                                        6
  img
                                                    "type": "image/png",
  index.html
                                                    "sizes": "16x16"
                                        8
                                        9
                                                  },
  {..} manifest.json
                                       10
src src
                                       11
                                                    "src": "codesandbox-32
  Js App.js
                                       12
                                                    "type": "image/png",
                                                    "sizes": "32x32"
                                       13
  Js Content.js
```

PWA Basics

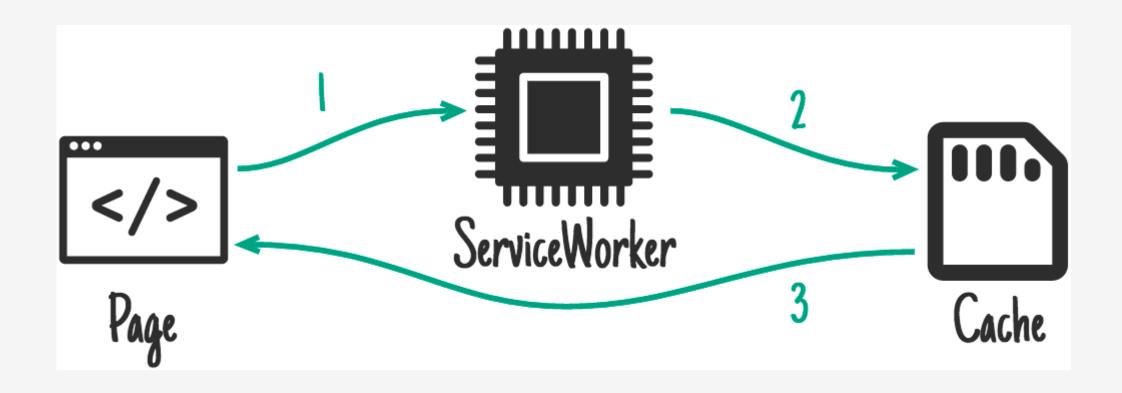
Caching:

- 1. Register Service Worker
- 2. Choose a cache strategy
 - Caching static resources
 - Basic Offline Approach
 - Full Offline Approach (for Static Files)
 - Caching the App Data

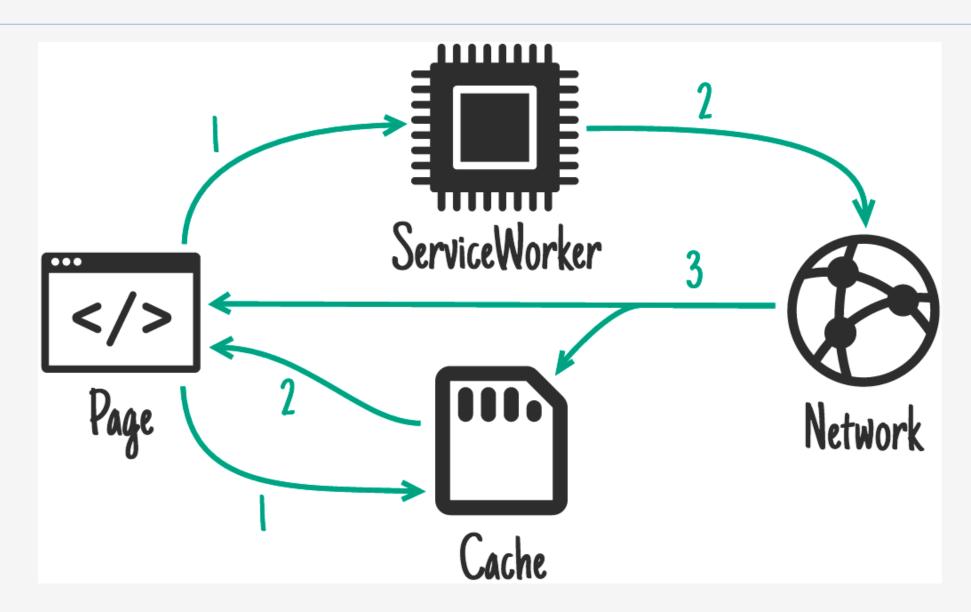
Basic Offline Approach



Full Offline Approach



Full Offline Approach



First Project in PWA

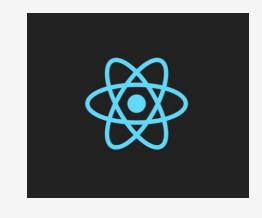
Prerequisites:

- VS (Visual Studio) Code
- Node.JS
- Pnpm Package
- Create-react-app module
- Lighthouse











First Project in PWA

Let's dive into the first project.

```
41---
 etitle dtitle
     mame viewport content="width=device-width, initial-scale-1.0 more managed to the content of the 
        * Tel shortcut icon" href="/favicon.ico" type="image/x-icon"
           * type="image/x-icon" href="/favicon.ico" type="image/x-icon">
                * type "text/css" rel="stylesheet" href="css/materialize.min css" mellow account proceedings
                  ** rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/funt-unescame@k.k.kieseffont-unescame@k.k.kieseffont-unescame@k.k.kieseffont-unescame@k.k.kieseffont-unescame@k.k.kieseffont-unescame@k.k.kieseffont-unescame@k.k.kieseffont-unescame@k.k.kieseffont-unescame@k.k.kieseffont-unescame@k.k.kieseffont-unescame@k.k.kieseffont-unescame@k.k.kieseffont-unescame@k.k.kieseffont-unescame@k.k.kieseffont-unescame@k.k.kieseffont-unescame@k.k.kieseffont-unescame@k.k.kieseffont-unescame@k.k.kieseffont-unescame@k.k.kieseffont-unescame@k.k.kieseffont-unescame@k.k.kieseffont-unescame@k.k.kieseffont-unescame@k.k.kieseffont-unescame@k.k.kieseffont-unescame@k.k.kieseffont-unescame@k.k.kieseffont-unescame@k.k.kieseffont-unescame@k.k.kieseffont-unescame@k.k.kieseffont-unescame@k.k.kieseffont-unescame@k.k.kieseffont-unescame@k.k.kieseffont-unescame@k.k.kieseffont-unescame@k.k.kieseffont-unescame@k.k.kieseffont-unescame@k.k.kieseffont-unescame@k.k.kieseffont-unescame@k.k.kieseffont-unescame@k.k.kieseffont-unescame@k.k.kieseffont-unescame@k.k.kieseffont-unescame@k.kieseffont-unescame@k.kieseffont-unescame@k.kieseffont-unescame@k.kieseffont-unescame@k.kieseffont-unescame@k.kieseffont-unescame@k.kieseffont-unescame@k.kieseffont-unescame@k.kieseffont-unescame@k.kieseffont-unescame@k.kieseffont-unescame@k.kieseffont-unescame@k.kieseffont-unescame@k.kieseffont-unescame@k.kieseffont-unescame@k.kieseffont-unescame@k.kieseffont-unescame@k.kieseffont-unescame@k.kieseffont-unescame@k.kieseffont-unescame@k.kieseffont-unescame@k.kieseffont-unescame@k.kieseffont-unescame@k.kieseffont-unescame@k.kieseffont-unescame@k.kieseffont-unescame@k.kieseffont-unescame@k.kieseffont-unescame@k.kieseffont-unescame@k.kieseffont-unescame@k.kieseffont-unescame@k.kieseffont-unescame@k.kieseffont-unescame@k.kieseffont-unescame@k.kieseffont-unescame@k.kieseffont-unescame@k.kieseffont-unescame@k.kieseffont-unescame@k.kieseffont-unescame@k.kieseffont-unescame@k.kieseffont-unescame@k.kieseffont-unescame@k.kieseffont-unescame@k.kieseffont-unescame@k.kieseffont-unescame@
                       **lank rel="stylesheet" href="/css/animate.css">
                           * rel * stylesheet href * css/theme.css">
                                                                                                                 braf "" class "brand-logo hide-on-med-and-w" * class "brand-logo
                                         wi-- banner-->
                                          «div class» banner'>
                                                               enav class "nav">

«dlv class="nav-wrapper">
                                                                                                  «div class» container">
```