

# Progressive Web App

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# Special Thanks to:



Amir Hosein Bahrami



Seyed Mehrdad Karrabi



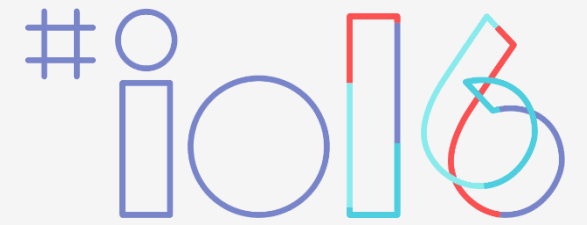
# Outline

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

PWA

# What is PWA?

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



# Installable on Mobile & Desktop

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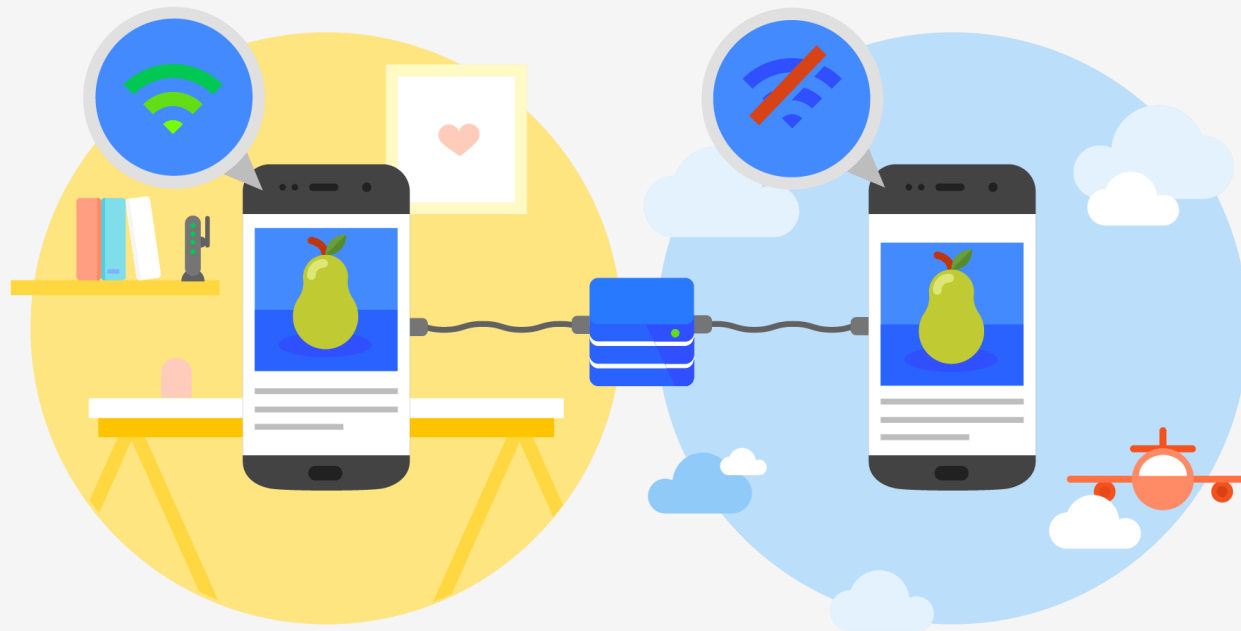
Device Type Independent!



# Reliable

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Load instantly regardless of network state

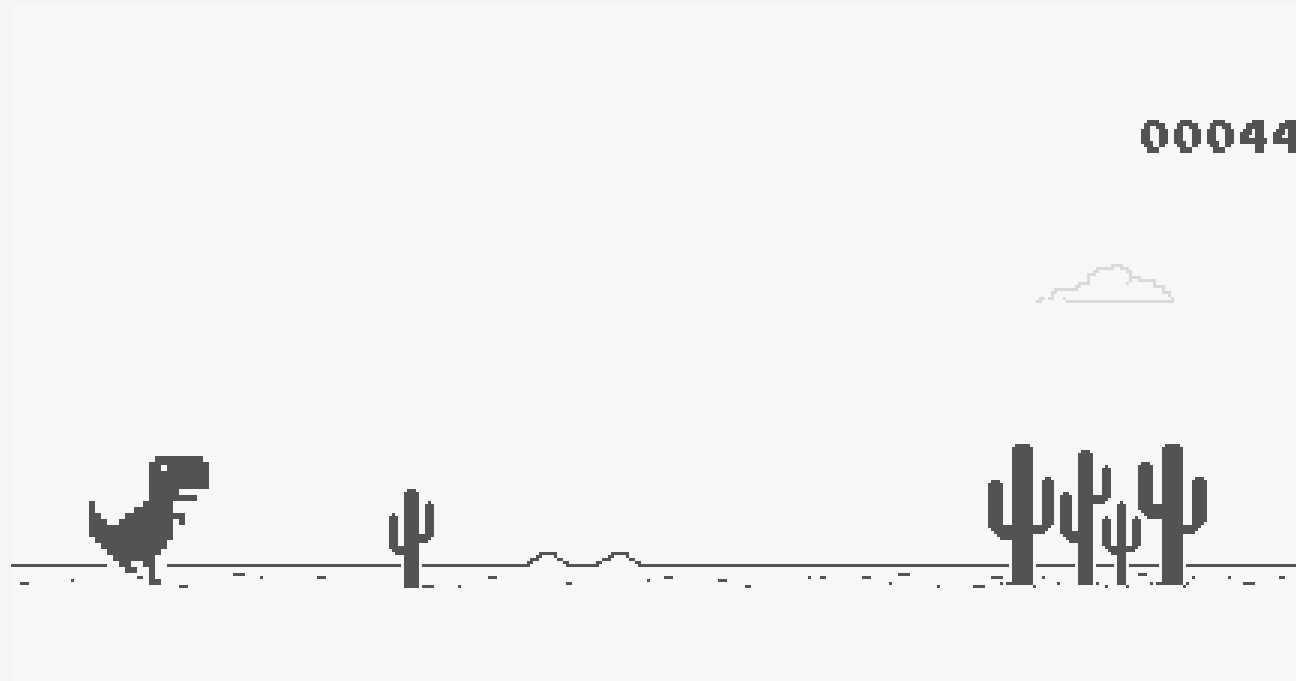


Talk about **service worker** later on.

# Reliable

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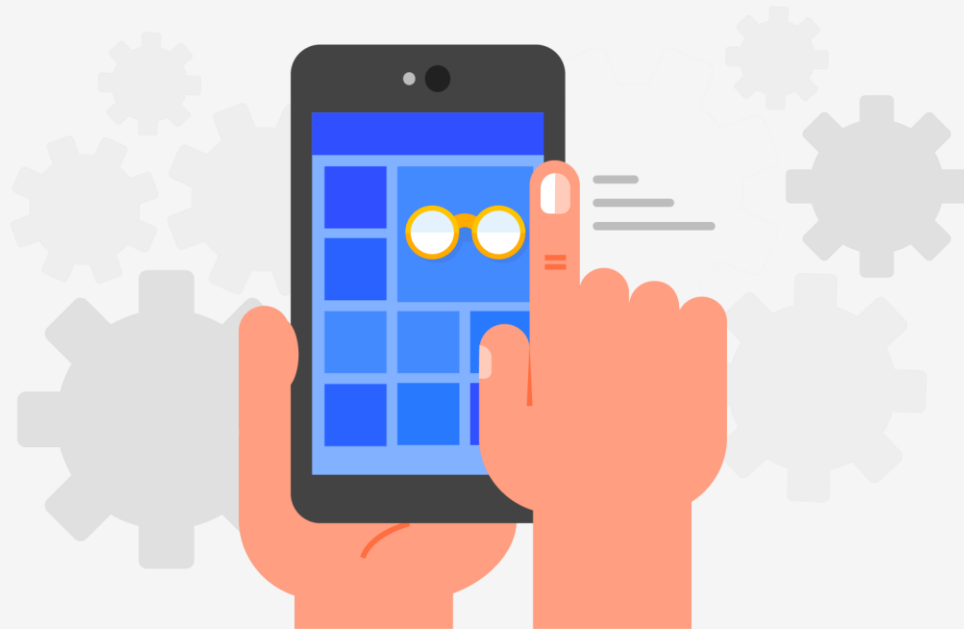
No T-rex game anymore!



# Fast

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

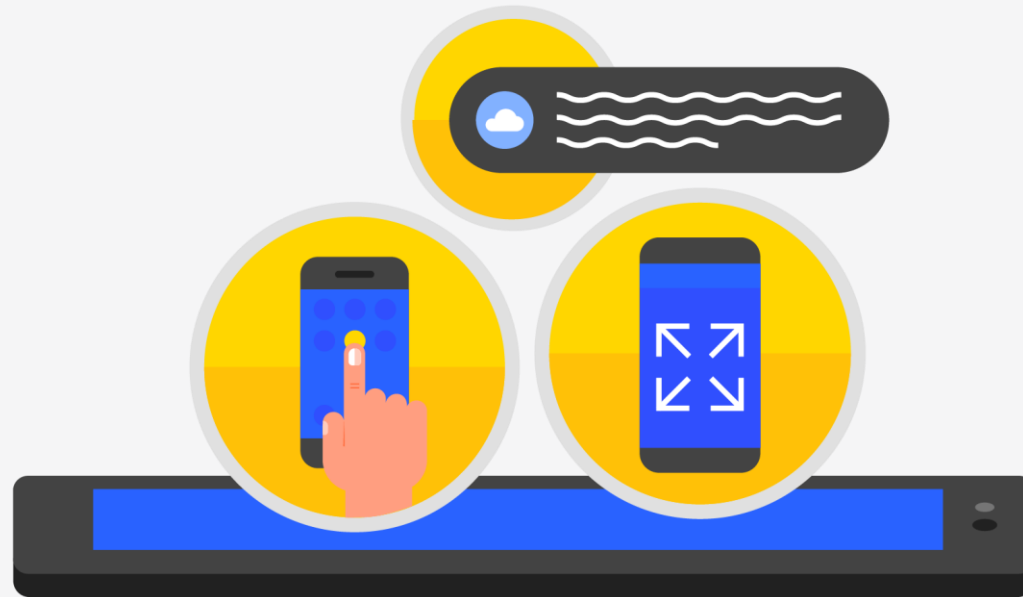




# Engaging

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- Manifest File
- Push Notification



# Why PWA?

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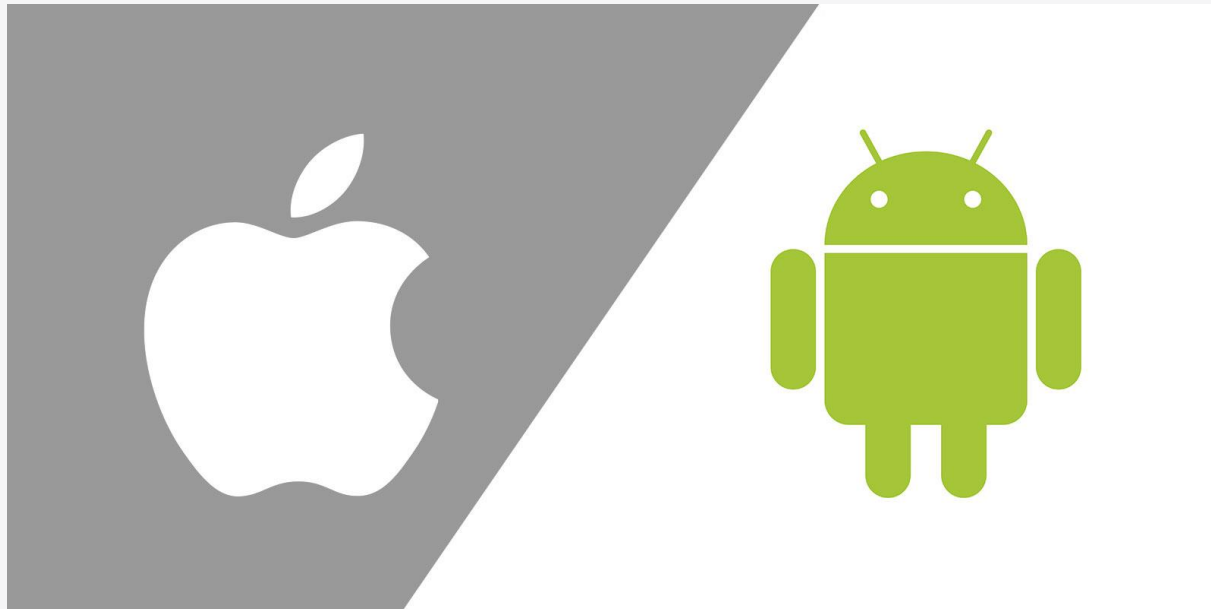
- Faster Development
- Easy to Maintain
- No need to App store!
- Automated Powerful Tools
- Debugging in Chrome
- Etc.



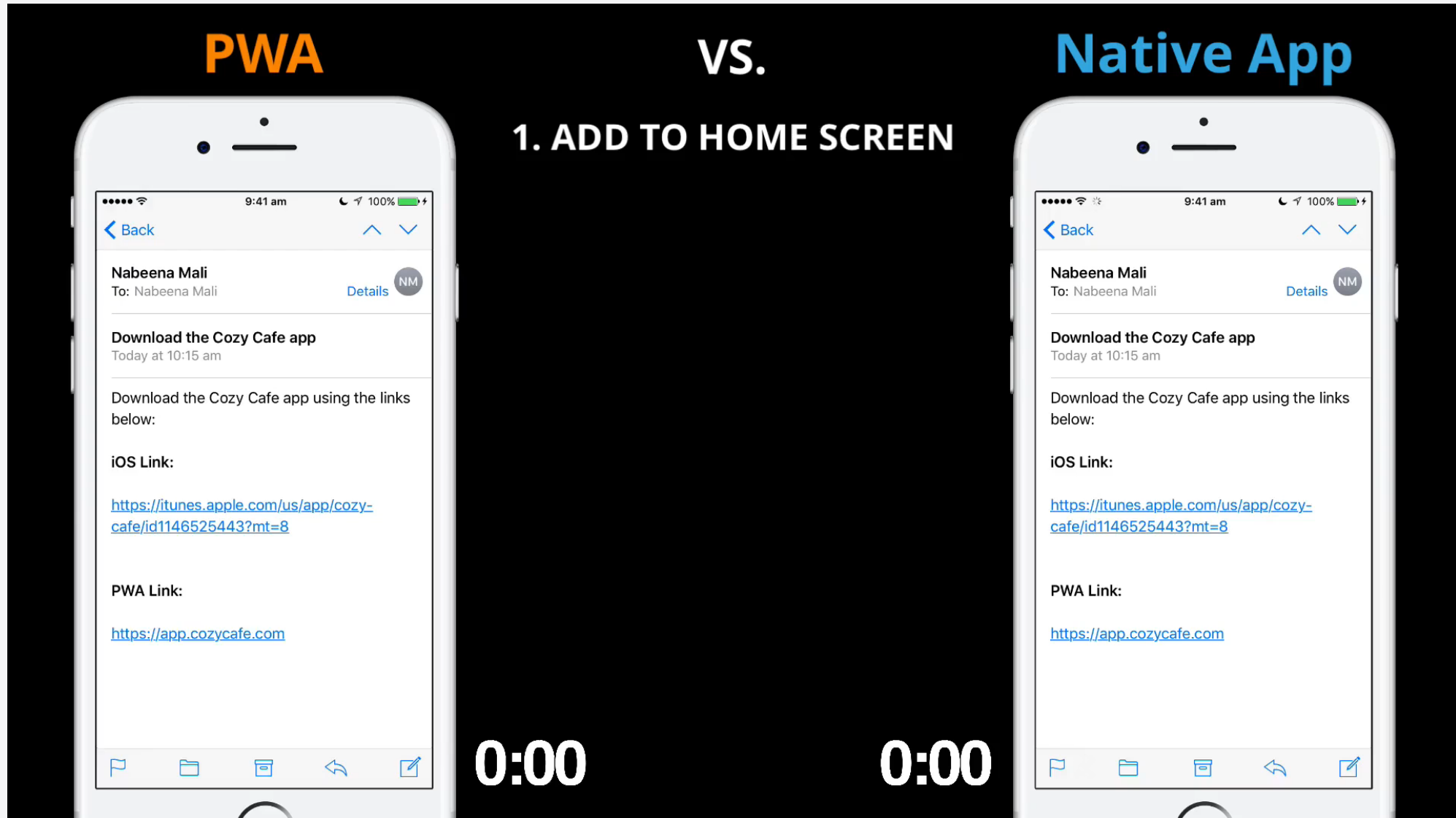
# Faster Development

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



# PWA vs Native Apps



# No need to App store



App Store



Google Play

Bypassing Sanctions :))



# Automated and Powerful Tools

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- Lighthouse
- Workbox
- Etc.



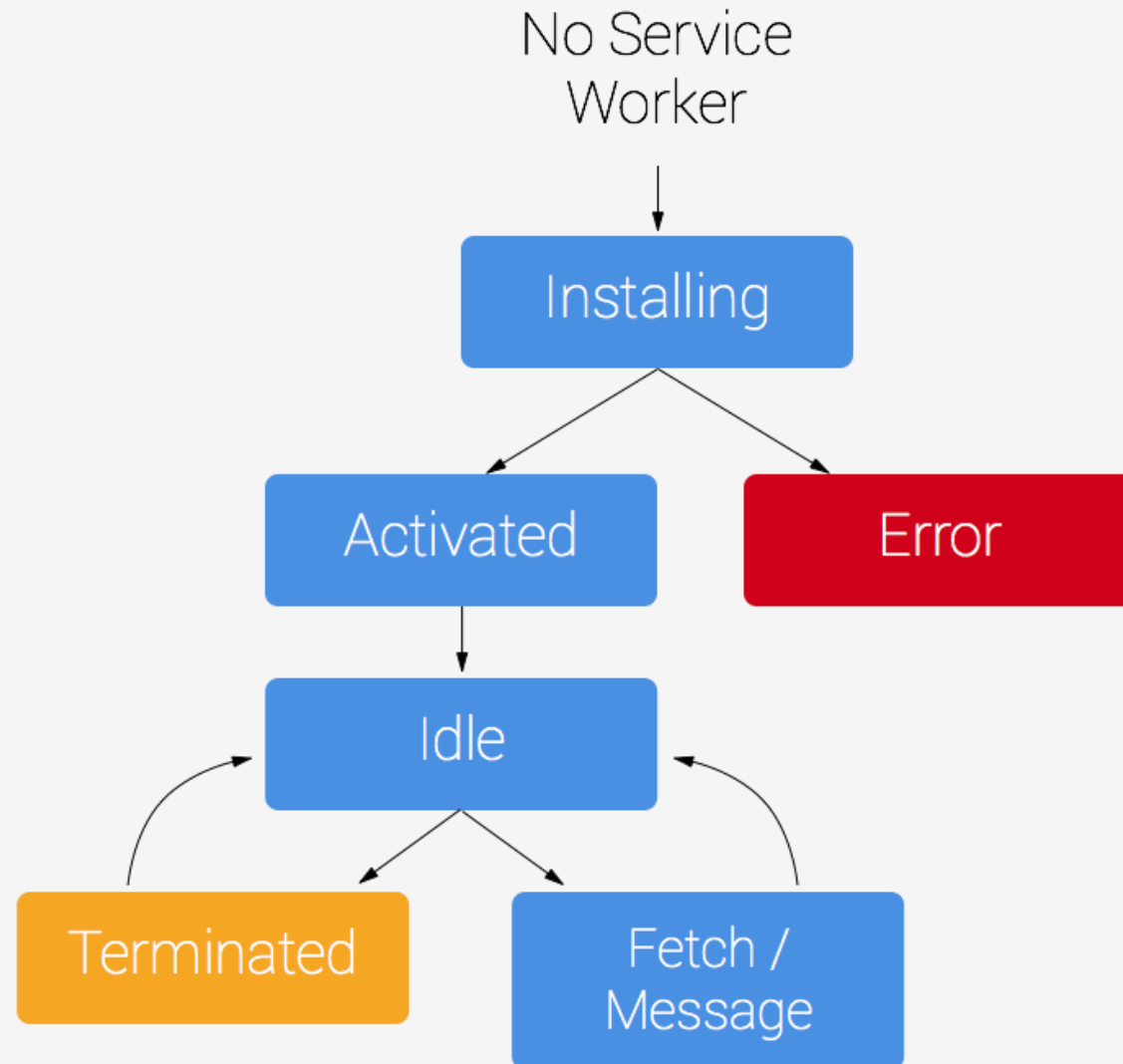
# What is Service Worker?

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- 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

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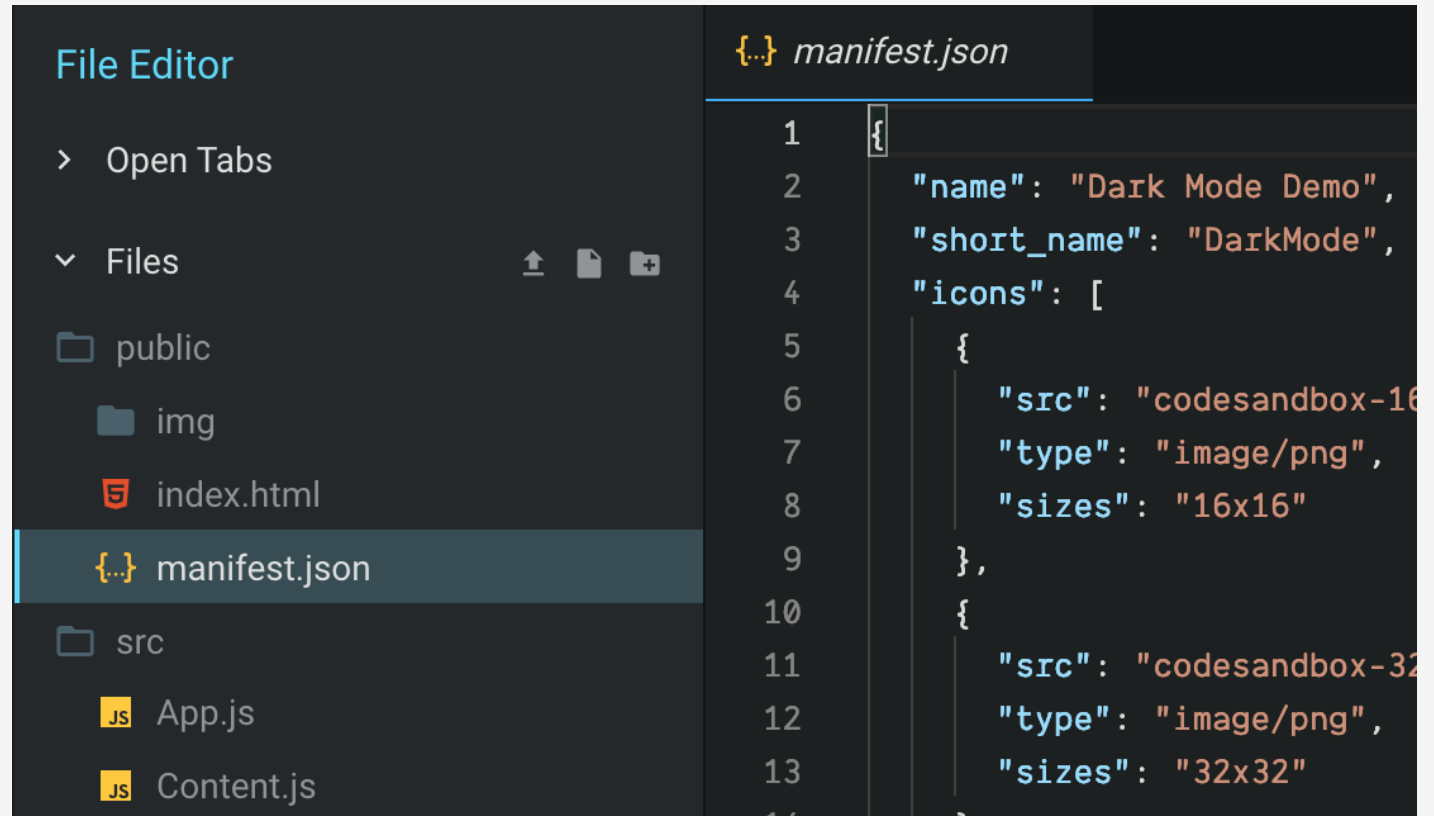




# PWA Basics

Manifest.json defines:

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



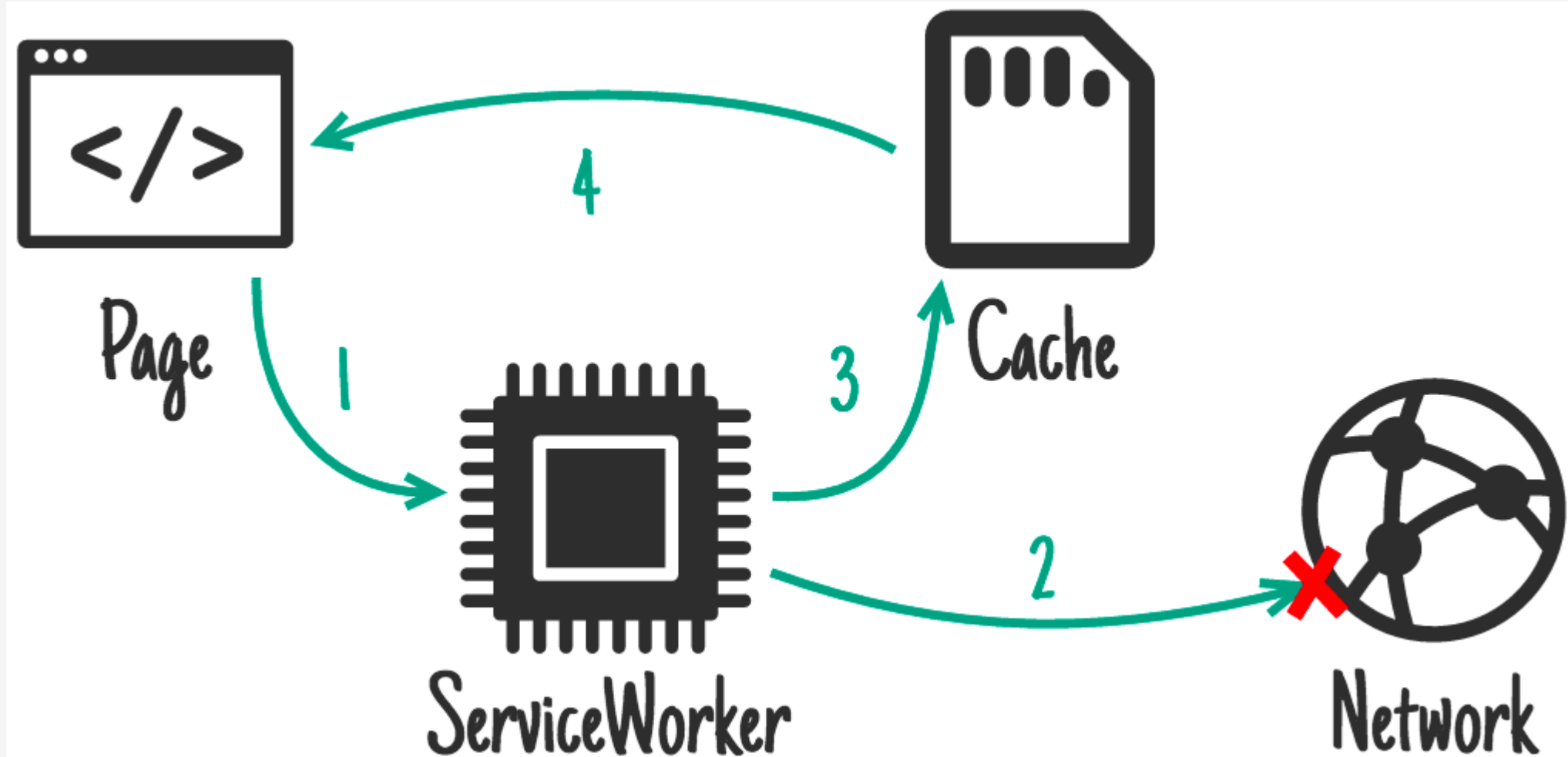
# PWA Basics

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Caching:

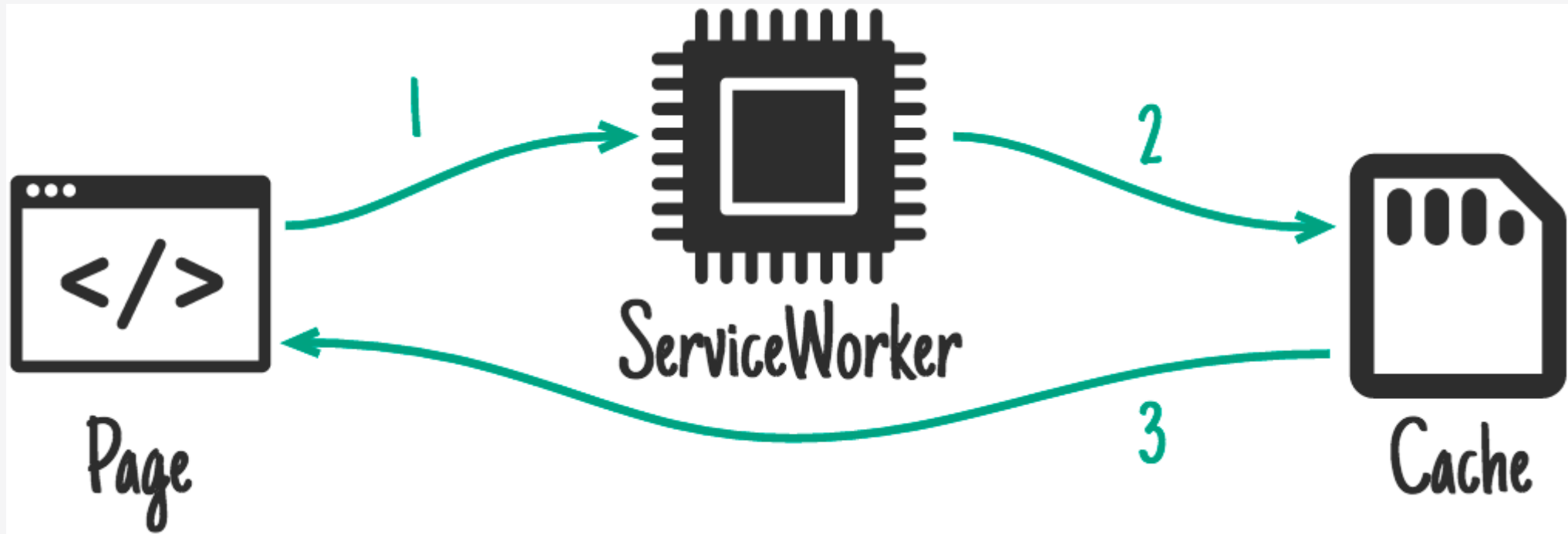
1. Register Service Worker
2. Choose a cache strategy
  - Caching static resources
    - Basic Offline Approach
    - Full Offline Approach (for Static Files)
  - Caching the App Data

# Basic Offline Approach

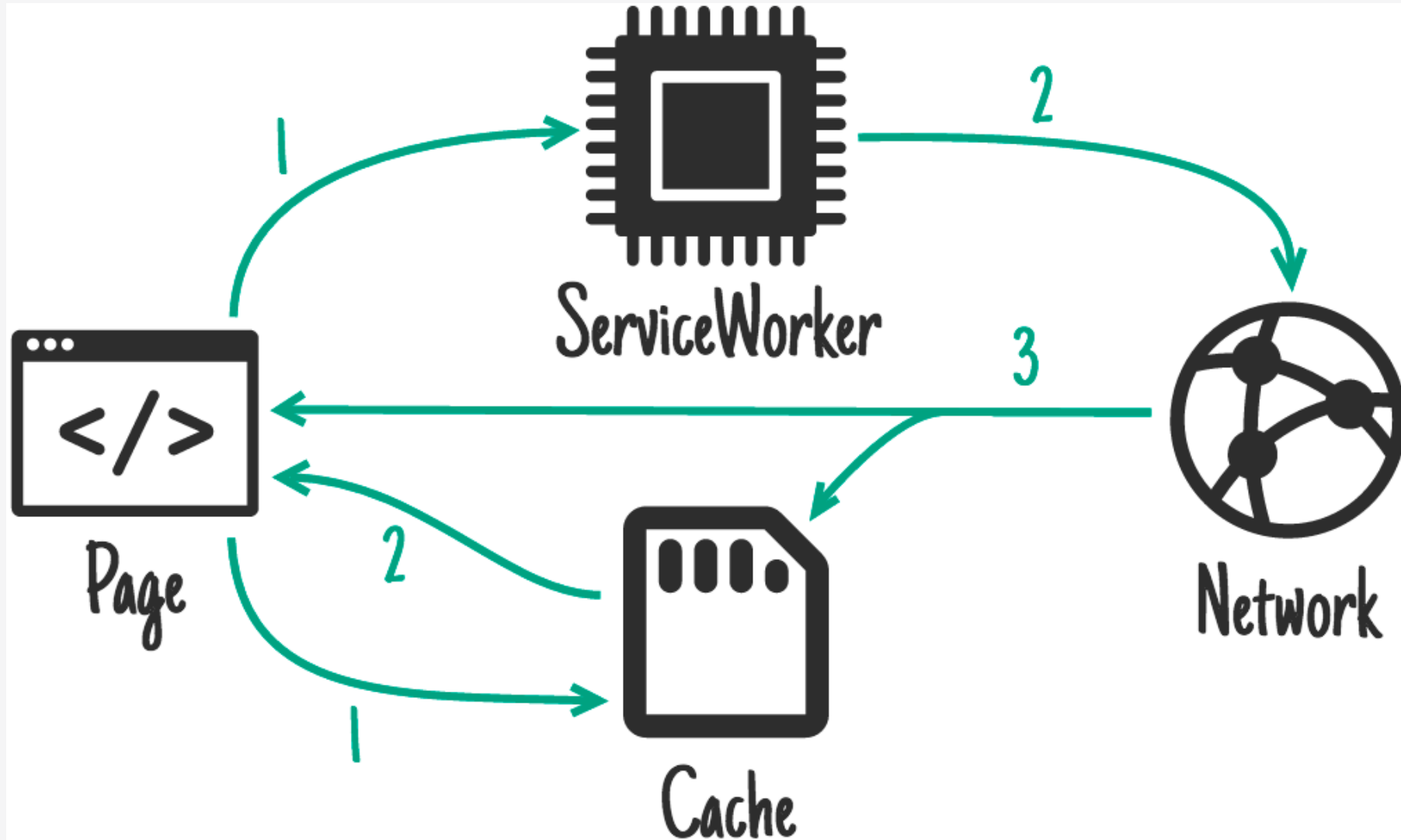


# Full Offline Approach

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# Full Offline Approach

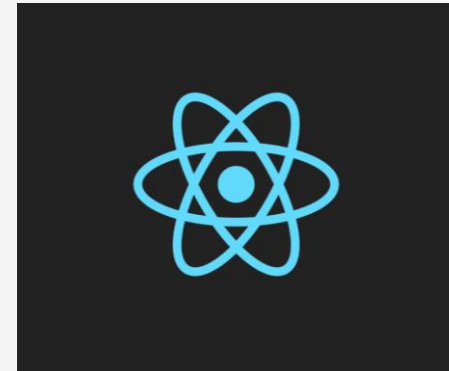
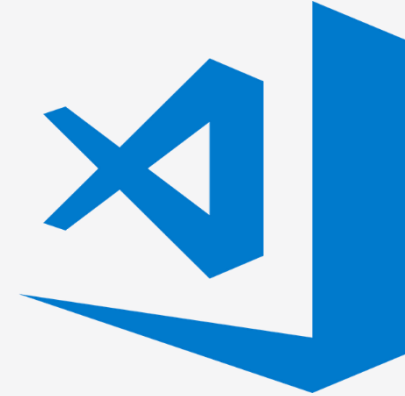


# First Project in PWA

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Prerequisites:

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



# First Project in PWA

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Let's dive into the first project.

```
<!--meta-->
```

```
<title></title>
```

```
<meta name="viewport" content="width=device-width, initial-scale=1.0, maximum-scale=1.0, user-scalable=no">
```

```
<link rel="shortcut icon" href="/favicon.ico" type="image/x-icon">
```

```
<link rel="icon" href="/favicon.ico" type="image/x-icon">
```

```
<!--CSS-->
```

```
<link type="text/css" rel="stylesheet" href="css/materialize.min.css" media="screen,projection">
```

```
<link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/font-awesome/4.4.0/css/font-awesome.min.css">
```

```
<link rel="stylesheet" href="/css/animate.css">
```

```
<link rel="stylesheet" href="css/theme.css">
```

```
</head>
```

```
<body>
```

```
<!-- banner -->
```

```
<div class="banner">
```

```
<nav class="nav">
```

```
<div class="nav-wrapper">
```

```
<div class="container">
```

```
<a href="#" class="brand-logo hide-on-med-and-up"><span style="font-weight: bold">
```