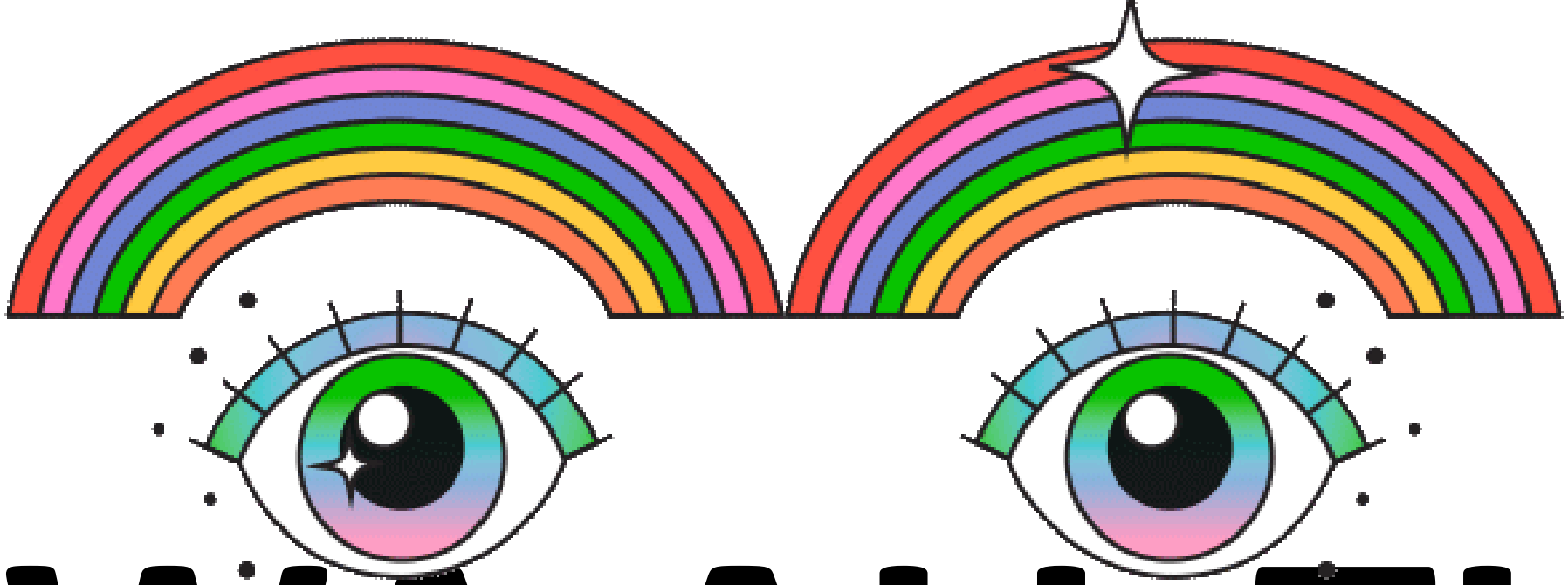
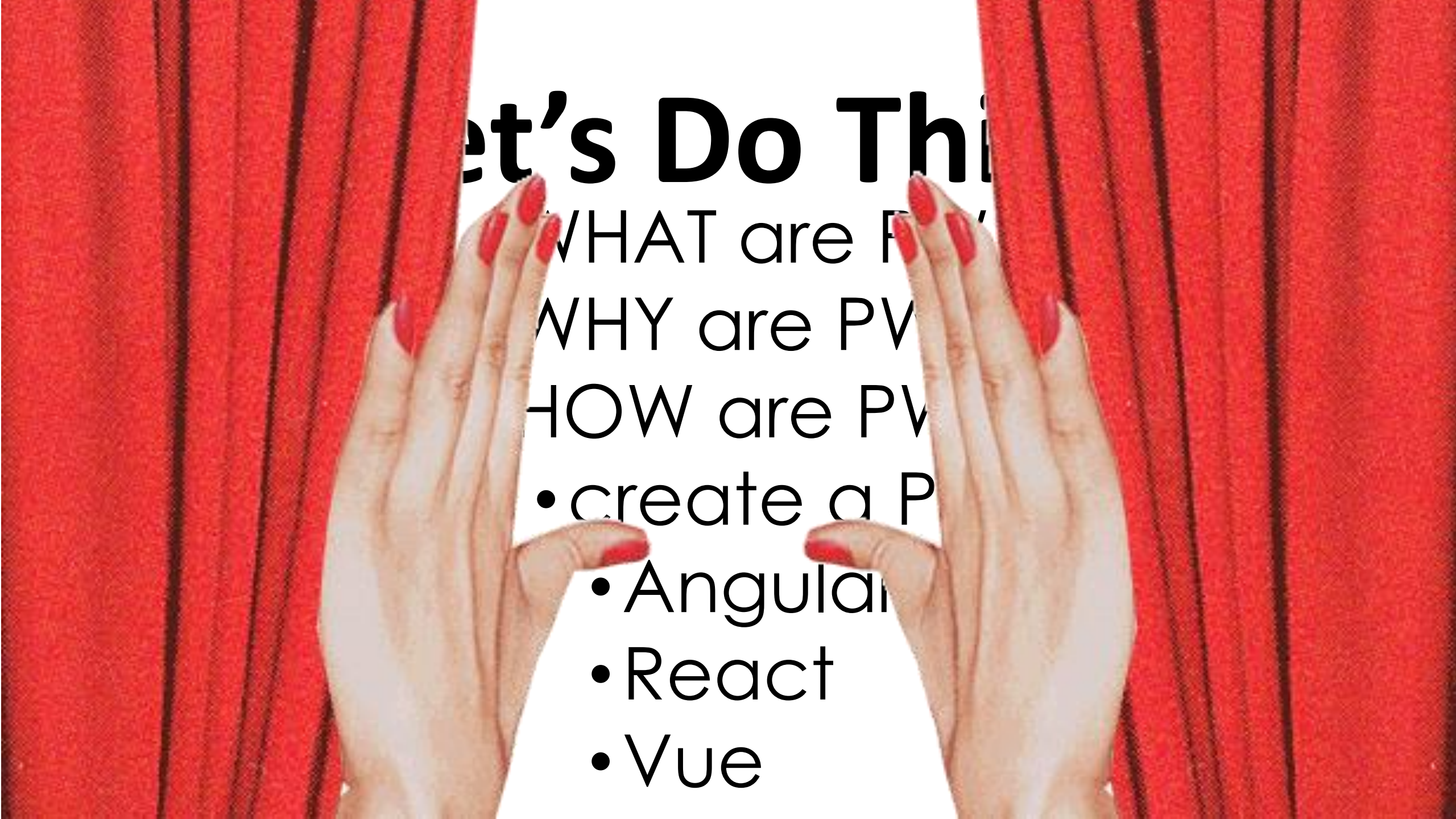


PWA ALL THE THINGS!!!


et's Do Thi
WHAT are P
WHY are PW
HOW are PW
• create a P
• Angular
• React
• Vue

Let's Do This!

- WHAT are PWAs
- WHY are PWAs
- HOW are PWAs
  - create a PWA w/
    - Angular
    - React
    - Vue

tara z. manicsic

- developer advocate for Progress
- founder & director or Cincy WWC
- co-organizer of Cincy NodeSchool
- human mama of #toshmagosh

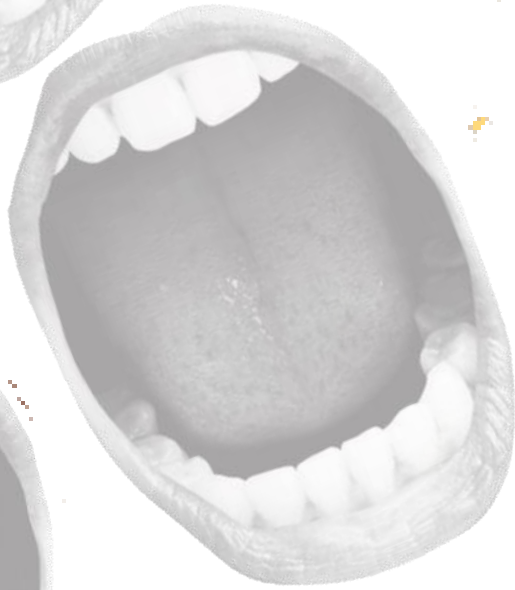
@tzmanics

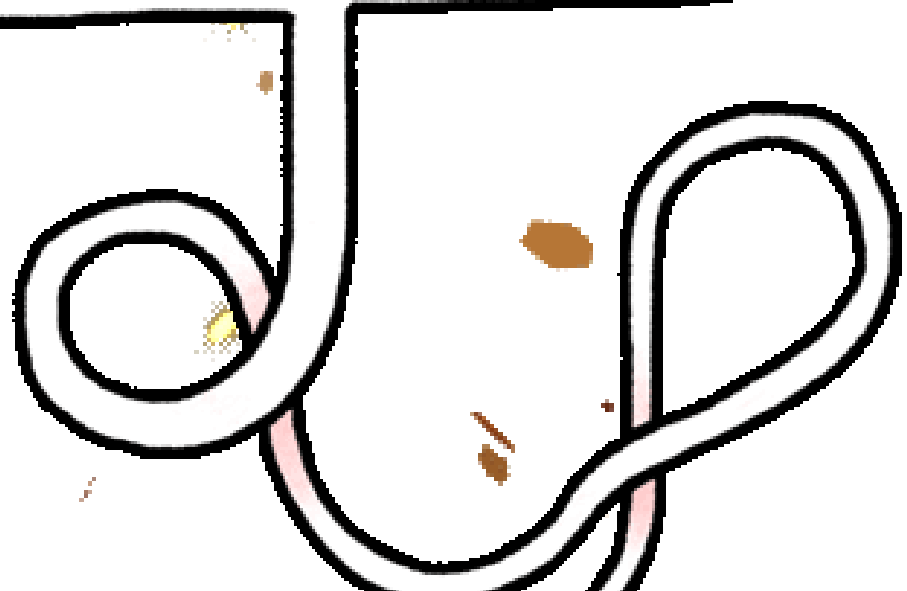
"These apps leverage the latest web capabilities to deliver an experience that combines the unique features of native mobile apps with the advantages of the web."

Tal Ater (@talater)

Building Progressive Web Apps

RAP CHALLENGE





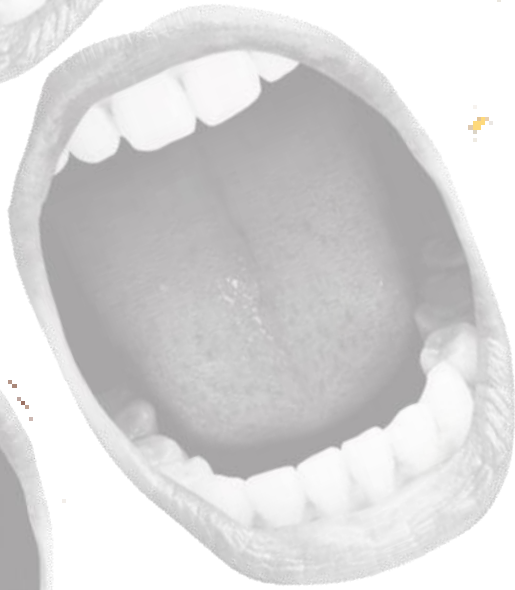
my name is Tara & I'm here to say

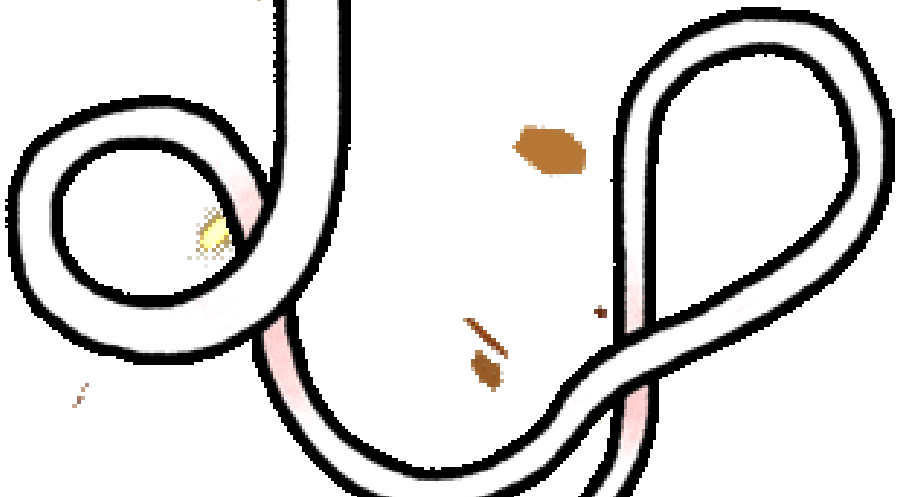
to build the modern web this is the way

manifests & service workers are bae

& will help you build a ...

PWA





#JSTALKS

@TZMANICS

"...the latest web capabilities ..."

service workers

- it's just JavaScript
- use at will
- served over https
- implementation is progressive

serviceworker.js

```
if ('serviceWorker' in navigator && 'PushManager' in window) {
  console.log('Service Worker and Push is supported');

  navigator.serviceWorker.register('sw.js')
  .then(function(swReg) {
    console.log('Service Worker is registered', swReg);

    swRegistration = swReg;
  })
  .catch(function(error) {
    console.error('Service Worker Error', error);
  });
} else {
  console.warn('Push messaging is not supported');
  pushButton.textContent = 'Push Not Supported';
}
```

“… unique features of native mobile apps …”

- push notifications
- offline functionality
- home screen icons
- full screen display

manifest.json

```
{
  "name": "pwa-ftw",
  "short_name": "🌈PWA-FTW💪",
  "icons": [
    {
      "src": "/static/img/icons/android-chrome-192x192.png",
      "sizes": "192x192",
      "type": "image/png"
    },
    {
      "src": "/static/img/icons/android-chrome-512x512.png",
      "sizes": "512x512",
      "type": "image/png"
    }
  ],
  "start_url": "/index.html",
  "display": "standalone",
  "background_color": "#000000",
  "theme_color": "#4DBA87"
}
```

“… advantages of the web …”

- no install needed
- easily shared
- browser prompts “install”
- no app/play store ~~hassle~~

PROGRESSIVE

the user's journey

WHY are PWAs

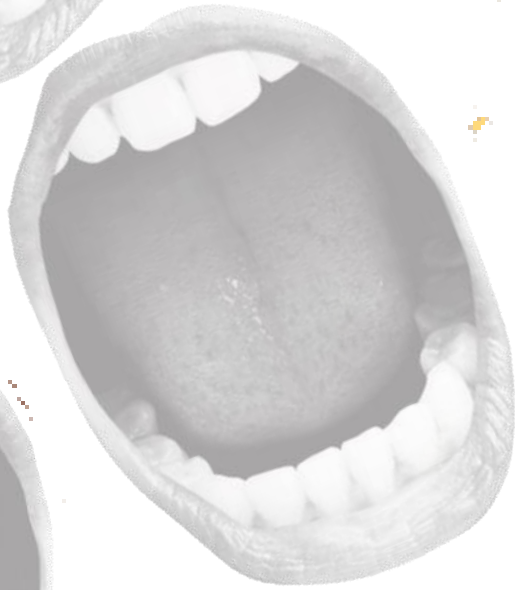
- reliability independent of network
- make go fast now
- user engagement
- making the web better

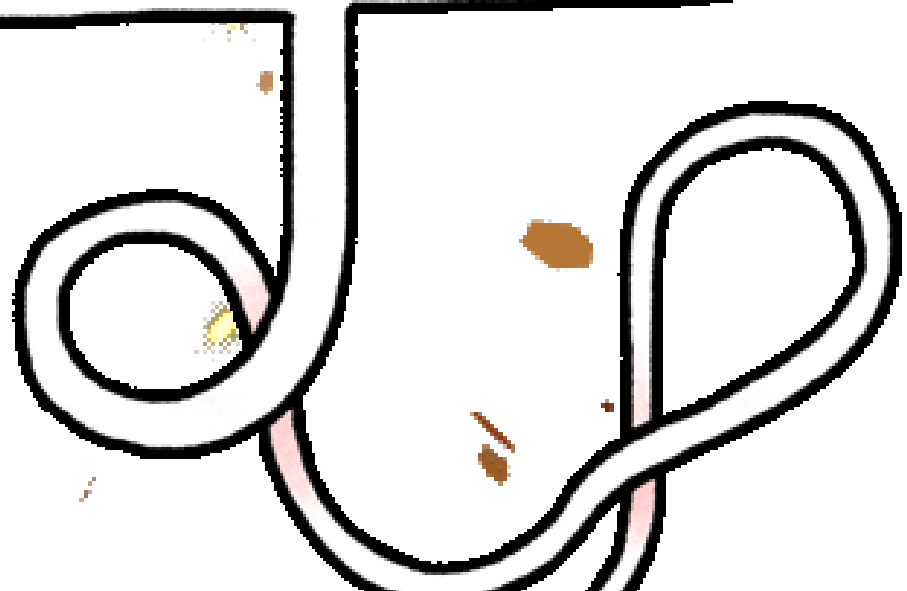
HOW are PWAs

Let's Do This!

- WHAT are PWAs
- WHY are PWAs
- HOW are PWAs
  - create a PWA w/
    - Angular
    - React
    - Vue

RAP CHALLENGE



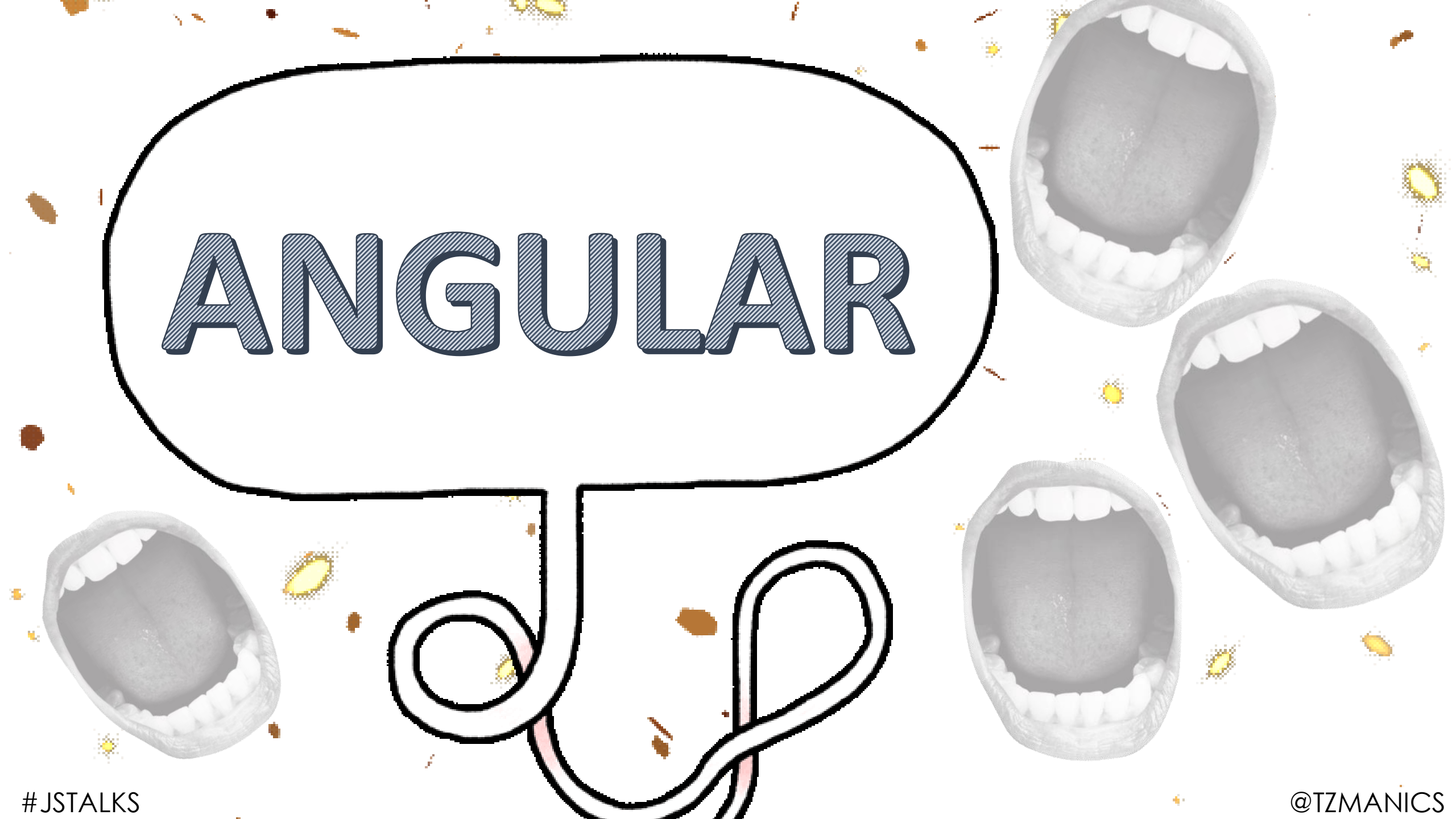


this framework has raised the bar

after switching from 1 to 2 it went real far

at Google this framework is the star

let's build a PWA with ...



#JSTALKS

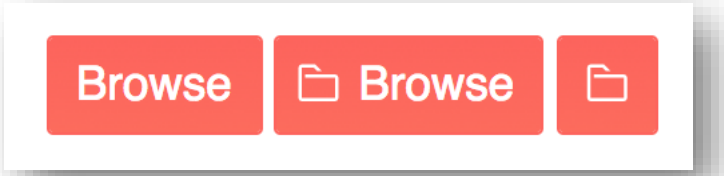
@TZMANICS

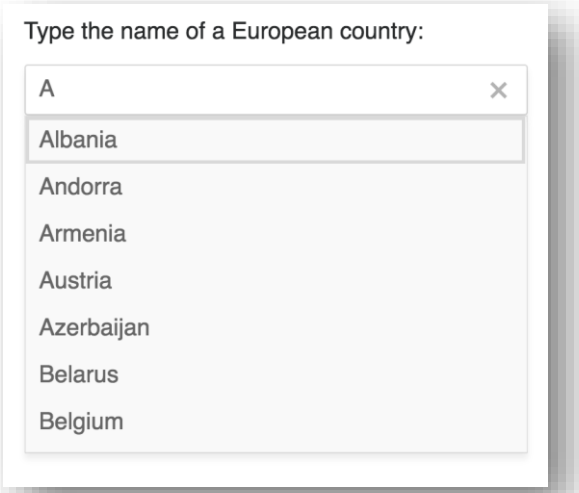

ANGULAR

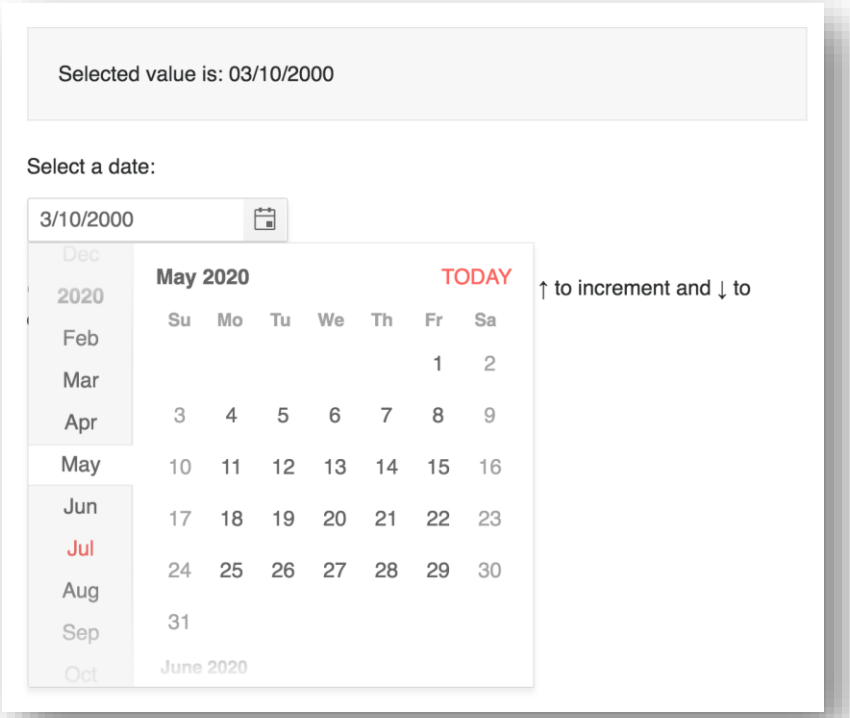
```
npm i angular-cli -g
```

```
ng new --style scss progressive-angular
```

```
npm i @progress/kendo-theme-material
```



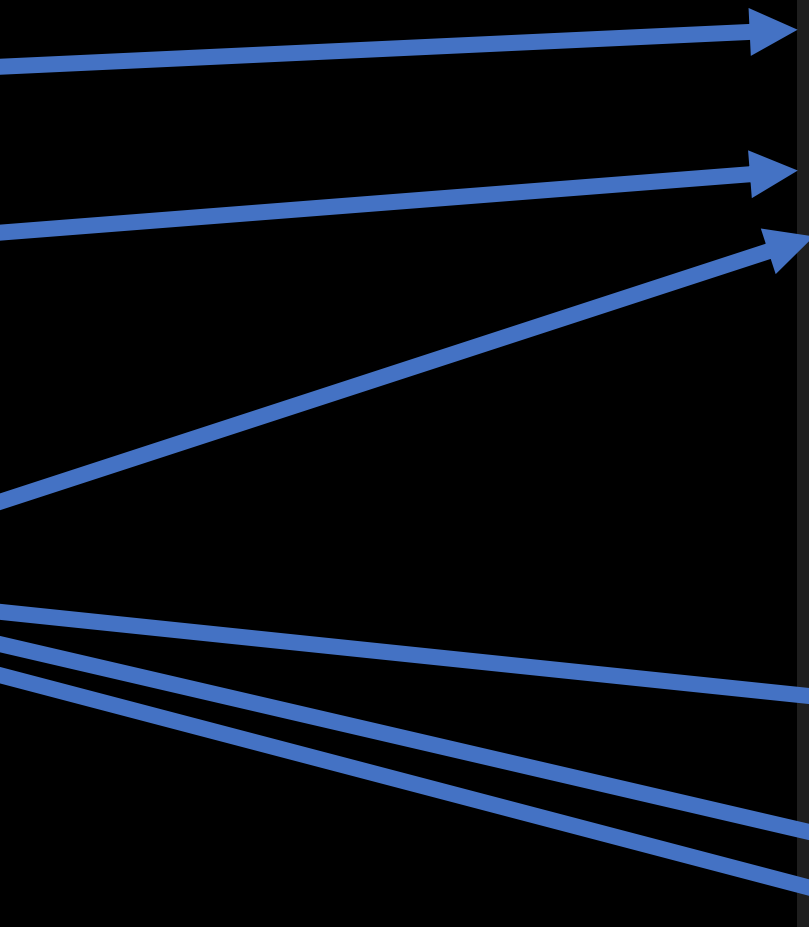





```
npm i @progress/kendo-angular-dropdowns
@progress/kendo-angular-buttons
@progress/kendo-angular-dateinputs
@progress/kendo-angular-l10n
@progress/kendo-angular-intl
@angular/animations
```

Kendo UI
THE ART OF WEB DEVELOPMENT

src/app/app.module.ts

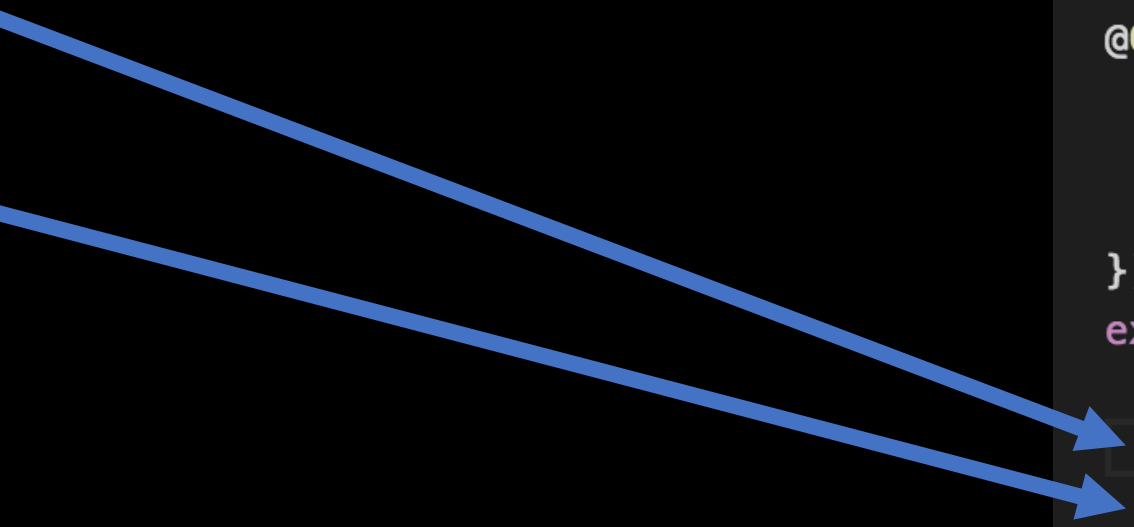


```
import { AutoCompleteModule } from '@progress/kendo-angular-dropdowns';
import { BrowserModule } from '@angular/platform-browser';
import { BrowserAnimationsModule } from '@angular/platform-browser/animations';
import { ButtonModule } from '@progress/kendo-angular-buttons';
import { DatePickerModule } from '@progress/kendo-angular-dateinputs';
import { NgModule } from '@angular/core';

import { AppComponent } from './app.component';

@NgModule({
  declarations: [
    AppComponent
  ],
  imports: [
    AutoCompleteModule,
    BrowserModule,
    BrowserAnimationsModule,
    ButtonModule,
    DatePickerModule
  ],
  providers: [],
  bootstrap: [AppComponent]
})
export class AppModule { }
```

src/app/app.component.html

```
<!--The content below is only a placeholder and can be replaced.-->
<div style="text-align:center">
  <h1>
    Welcome to {{title}}!
  </h1>
  <img width="300" src="http://www.beverlyoaksvet.com/wp-content/uploads/2014/01/space-dog.png">
  <div class="kendo-components">
    <p> Choose your FAVE planet: </p>
    <kendo-autocomplete
        [data]="listItems"
        [placeholder]="'e.g. Saturn'"
        class="planets"
    ></kendo-autocomplete>
    <p> Selected value is: {{value | date}} </p>
    <p> Select a date: </p>
    <kendo-datepicker
        [(value)]="value"
    ></kendo-datepicker>
    <br />
    <button kendoButton (click)="onButtonClick()" [primary]="true">
        Submit
    </button>
</div>
```

src/app/app.component.ts

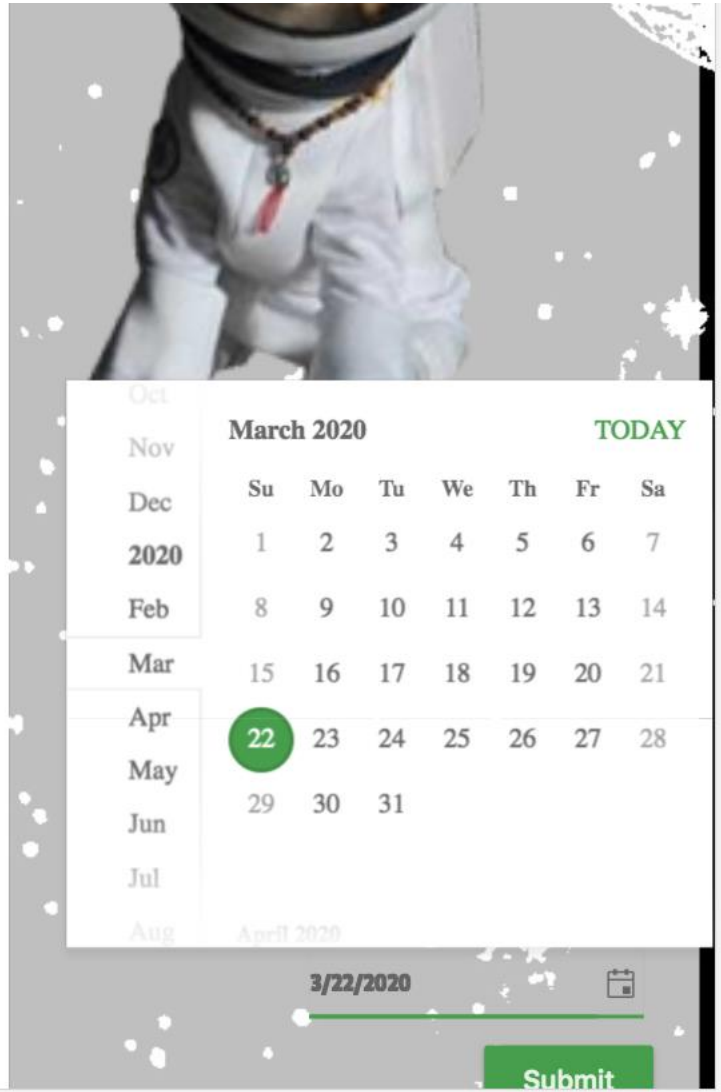


```
import { Component } from '@angular/core';

@Component({
  selector: 'app-root',
  templateUrl: './app.component.html',
  styleUrls: ['./app.component.scss']
})
export class AppComponent {
  title = 'PWAs at ATO';
  public value: Date = new Date(2020, 2, 22);
  public listItems: Array<string> = [
      "Earth",
      "Jupiter",
      "Mars",
      "Mercury",
      "Neptune",
      "Saturn",
      "Uranus",
      "Venus"
  ];
}
```

src/styles.scss

```scss
/* You can add global styles to this file, and also import other style files */
@import url('https://fonts.googleapis.com/css?family=Fascinate+Inline');
@import "~@progress/kendo-theme-material/scss/all";
html {
  background-image: url(http://www.publicdomainpictures.net/pictures/70000/velka/graphic-space.jpg);
}

h1 {
  color: white;
  font-family: 'Fascinate Inline', cursive;
  font-size: 3em;
  padding-left: 1em;
  text-align: left;
}

img {
  float: left;
}

button {
  margin-top: 1em;
}
```

it looks like this:



src/index.html

```
<!doctype html>
<html lang="en">
<head>
  <meta charset="utf-8">
  <title>ProgressiveAngular</title>
  <base href="/">

  <meta name="viewport" content="width=device-width, initial-scale=1">
  <meta name="theme-color" content="#009688">
  <link rel="manifest" href="assets/manifest.json">
  <link rel="icon" type="image/x-icon" href="favicon.ico">
</head>
<body>
  <app-root></app-root>
</body>
</html>
```

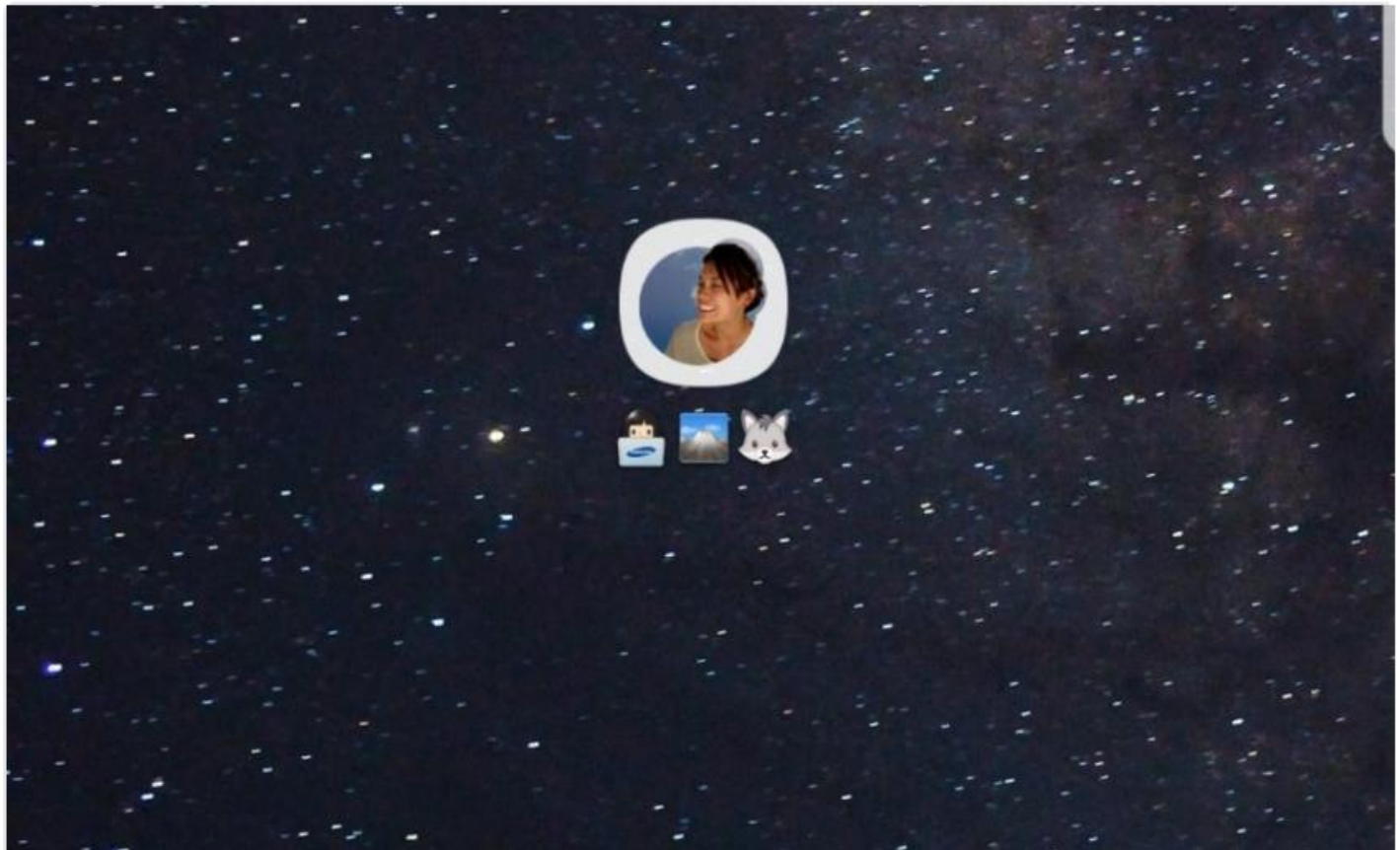
src/assets/manifest.json

```
{
  "name": "AOT Angular PWA",
  "short_name": "🌌💫🤘",
  "icons": [
    {
      "src": "./icons/android-chrome-192x192.png",
      "sizes": "192x192",
      "type": "image/png"
    },
    {
      "src": "./icons/android-chrome-512x512.png",
      "sizes": "512x512",
      "type": "image/png"
    }
  ],
  "start_url": "/",
  "display": "standalone",
  "background_color": "#DEDEDE",
  "theme_color": "#DEDEDE"
}
```

😆Tara Z. Manicsic🐺

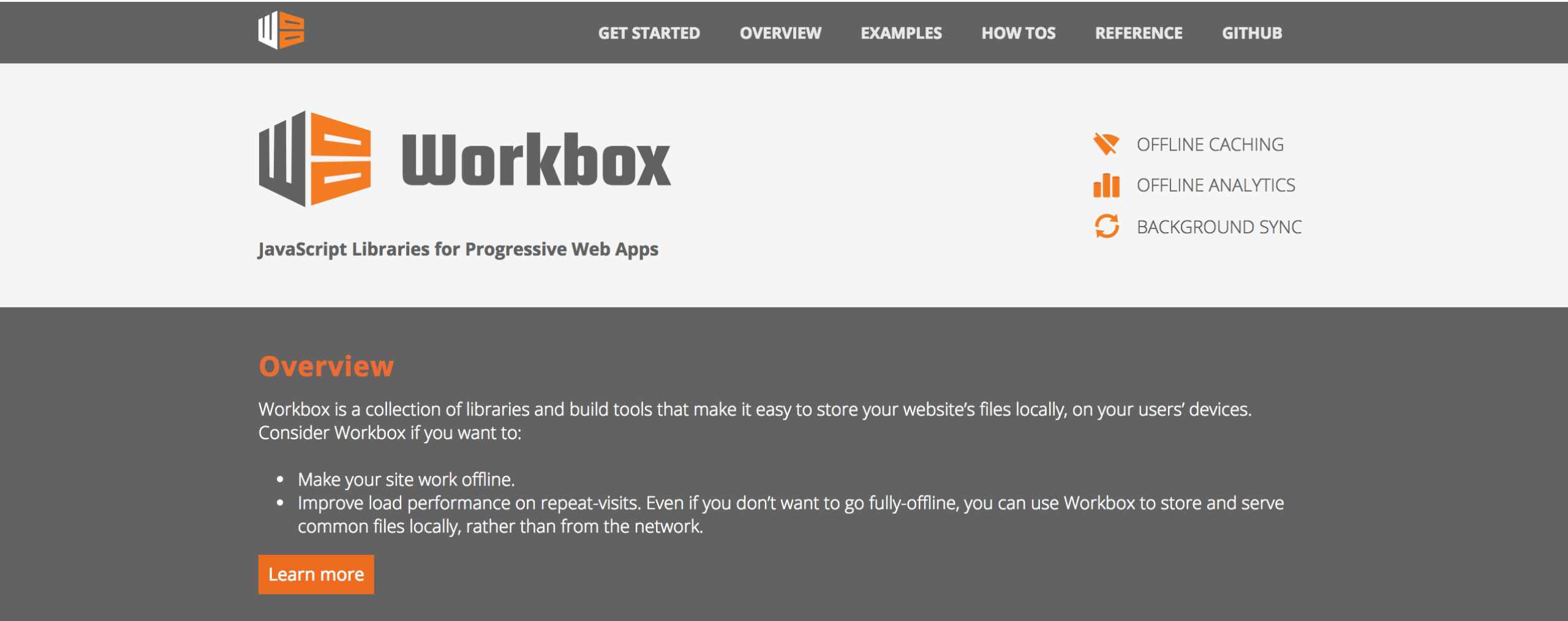
@Tzmanics

I am always strongly advocating for emoji use in your #pwa app manifest. Come on, who doesn't want to 👁 that adorable #toshmagosh emoji?!?



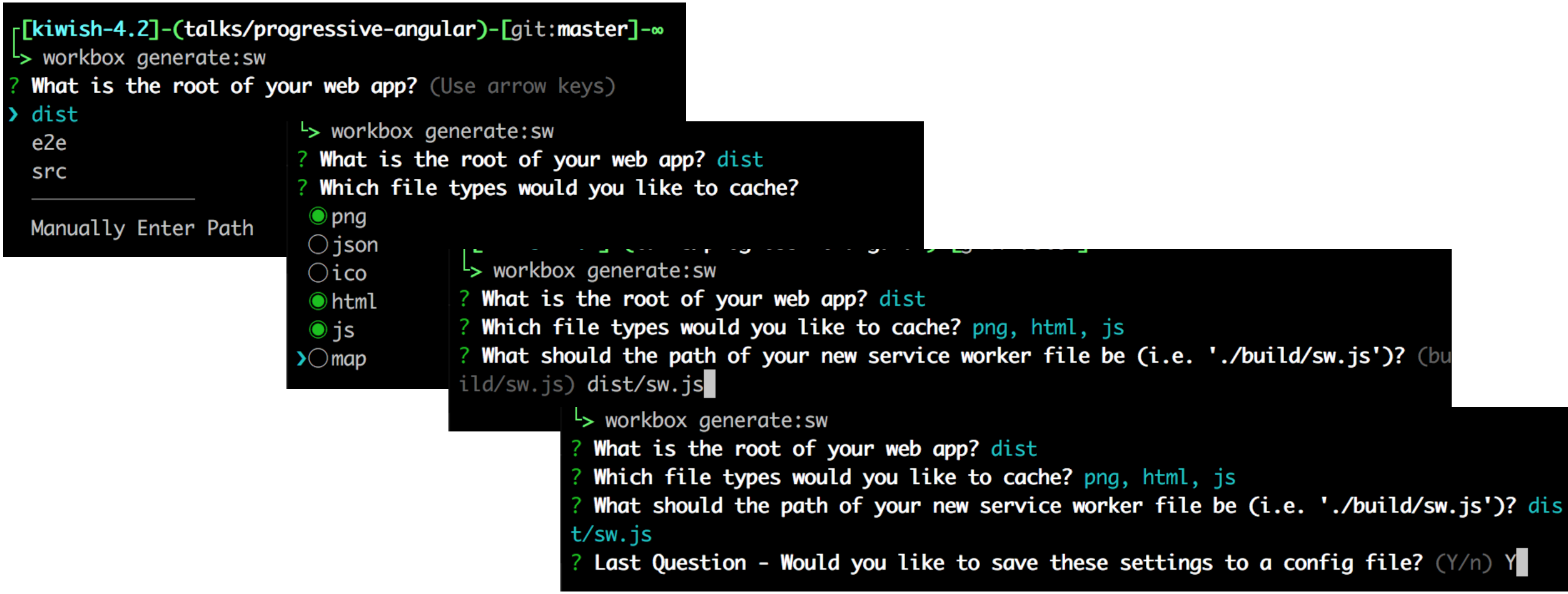
Install workbox & create a service worker

```
$ npm install workbox-cli -g
```



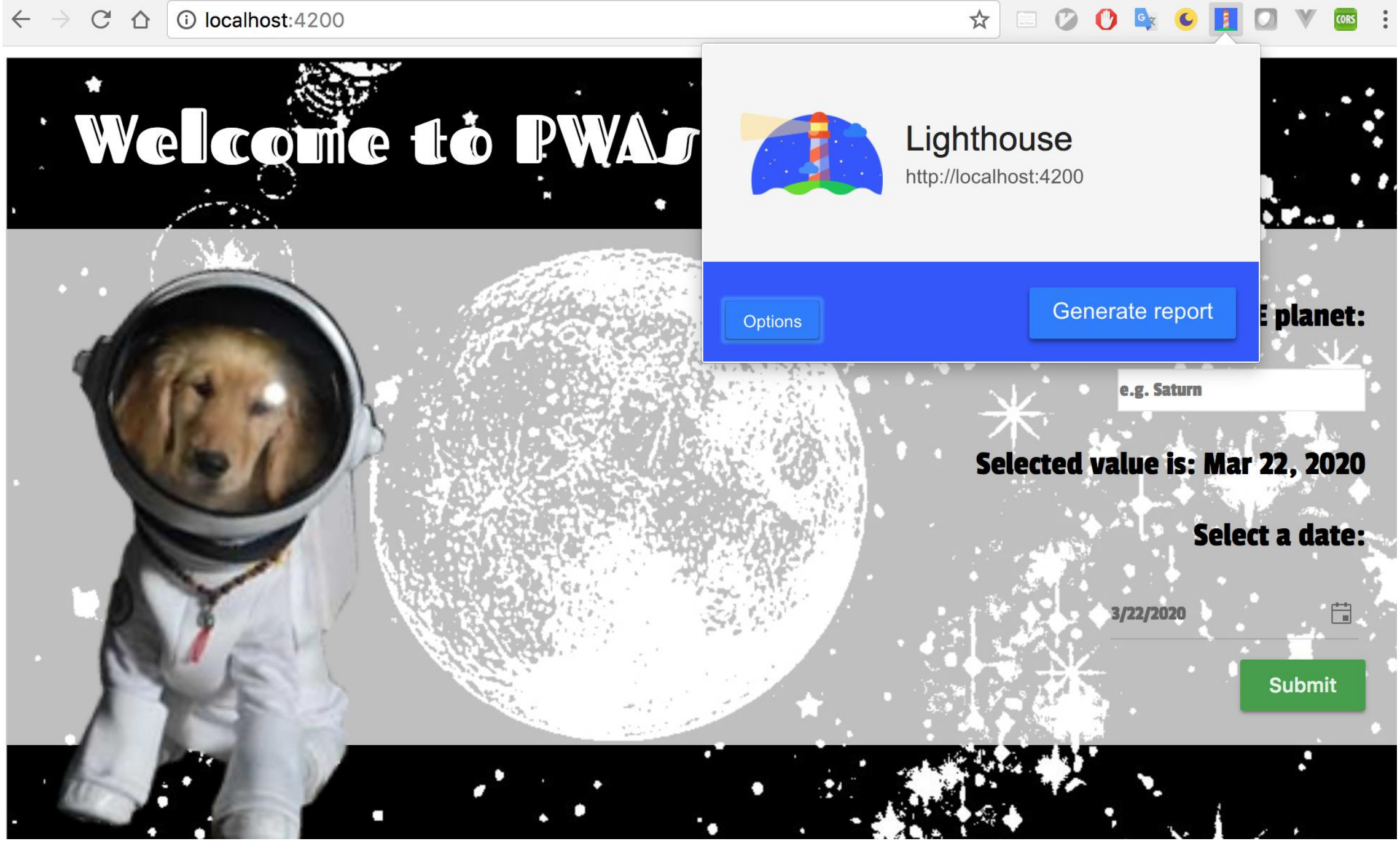
Install workbox & create a service worker

```
$ ng build && workbox generate:sw
```

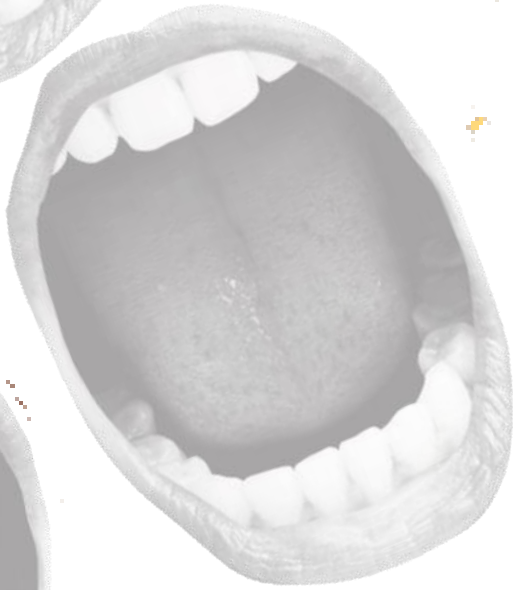


src/index.html

```
<!doctype html>
<html lang="en">
<head>
  <meta charset="utf-8">
  <title>ProgressiveAngular</title>
  <base href="/">

  <meta name="viewport" content="width=device-width, initial-scale=1">
  <meta name="theme-color" content="#009688">
  <link rel="manifest" href="assets/manifest.json">
  <link rel="icon" type="image/x-icon" href="favicon.ico">
</head>
<body>
  <app-root></app-root>
</body>
<script>
  if ('serviceWorker' in navigator) {
    window.addEventListener('load', function() {
      navigator.serviceWorker.register('/sw.js').then(function(registration) {
        // Registration was successful
        console.log('ServiceWorker registration successful with scope: ', registration.scope);
      }, function(err) {
        // registration failed :(
        console.log('ServiceWorker registration failed: ', err);
      });
    });
  }
</script>
</html>
```


localhost:4200
Welcome to PWAs
Lighthouse
http://localhost:4200
Options
Generate report
planet:
e.g. Saturn
Selected value is: Mar 22, 2020
Select a date:
3/22/2020
Submit

RAP CHALLENGE



this library is Facebook backed

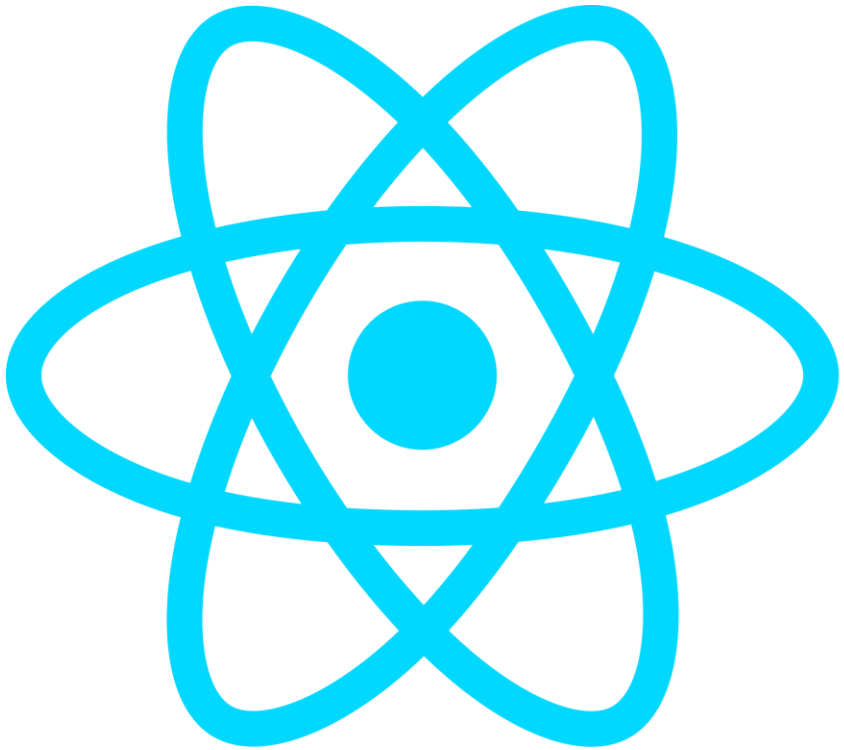
& very well-known that is a fact

if you dis it to a fan, you might get smacked

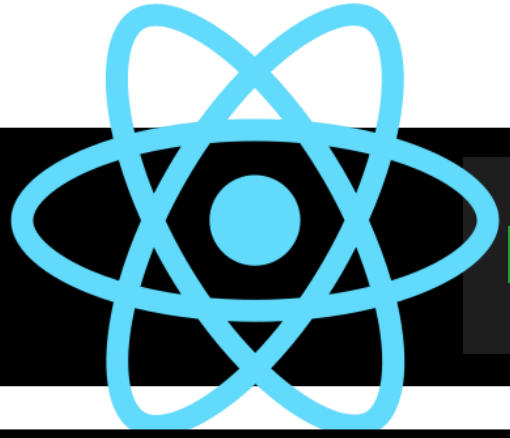
let's build a PWA with ...

#JSTALKS

@TZMANICS



React



```
npm i create-react-app -g
```

```
create-react-app kendo-ui-for-reactjs
```

```
npm i @progress/kendo-charts-react-wrapper @progress/kendo-ui
```

```
npm i @progress/kendo-theme-default
```

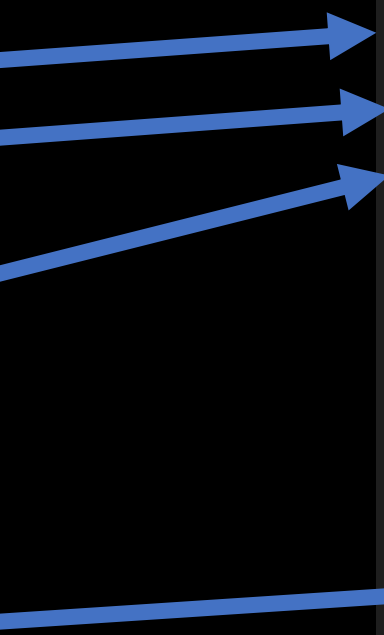
create-react-app PWA Files

```
my-app
├── README.md
├── node_modules
├── package.json
├── .gitignore
├── public
│   └── favicon.ico
│   └── index.html
│   └── manifest.json
└── src
    └── App.css
    └── App.js
    └── App.test.js
    └── index.css
    └── index.js
    └── logo.svg
    └── registerServiceWorker.js
```

public/index.html

```
<!doctype html>
<html lang="en">
  <head>
    <meta charset="utf-8">
    <meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=no">
    <meta name="theme-color" content="#000000">
    <link rel="manifest" href="%PUBLIC_URL%/manifest.json">
    <link rel="shortcut icon" href="%PUBLIC_URL%/favicon.ico">
    <title>React App</title>
  </head>
  <body>
    <noscript>
      You need to enable JavaScript to run this app.
    </noscript>
    <div id="root"></div>
  </body>
  <script src="/bundle.js"></script>
</html>
```

src/App.js



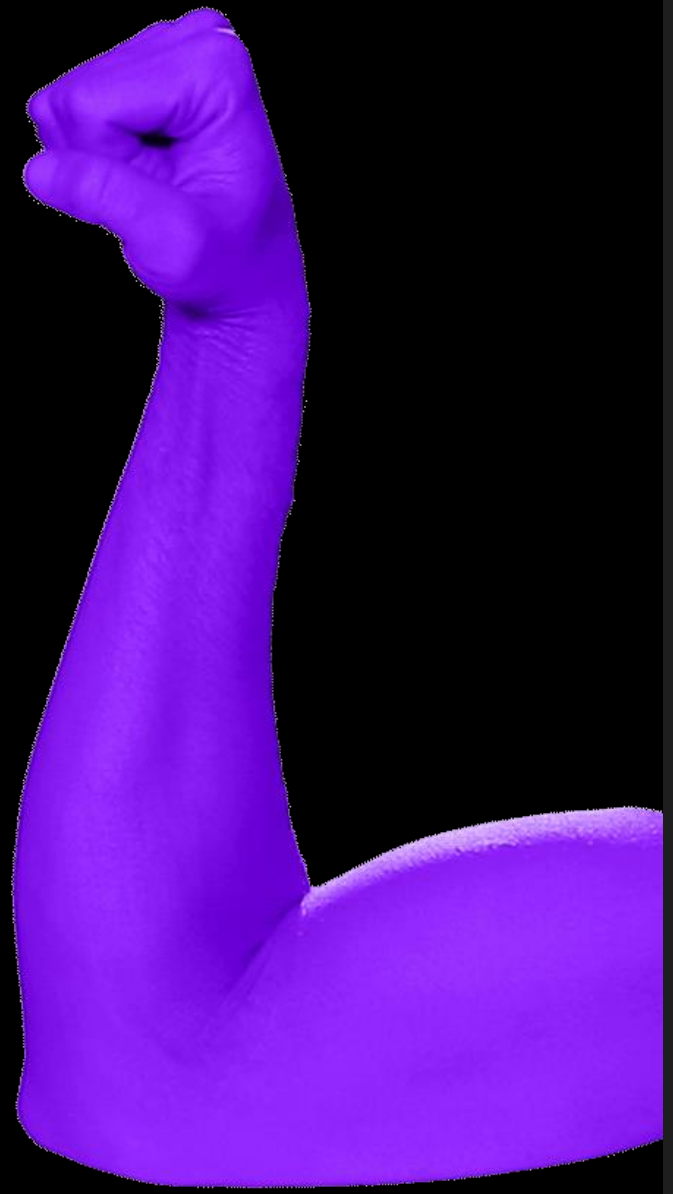
```
import React, { Component } from 'react';
import { Chart } from '@progress/kendo-charts-react-wrapper';
import '@progress/kendo-ui';
import '@progress/kendo-theme-default/dist/all.css';

class App extends Component {
  render() {
    return (
      <div className="App">
        <Chart series={[{ data: [1, 2, .5] }, { data: [.5, 1, 2] }]} />
      </div>
    );
  }
}



export default App;
```

public/manifest.json

```
{
  "short_name": "React App",
  "name": "Create React App Sample",
  "icons": [
    {
      "src": "favicon.ico",
      "sizes": "192x192",
      "type": "image/png"
    }
  ],
  "start_url": "./index.html",
  "display": "standalone",
  "theme_color": "#000000",
  "background_color": "#ffffff"
}
```

```
{
  "short_name": "Kendo UI + React.js",
  "name": "KUI ♥ RJS",
  "icons": [
    {
      "src": "/static/img/icons/android-chrome-192x192.png",
      "sizes": "192x192",
      "type": "image/png"
    },
    {
      "src": "/static/img/icons/android-chrome-512x512.png",
      "sizes": "512x512",
      "type": "image/png"
    },
    {
      "src": "favicon.ico",
      "sizes": "192x192",
      "type": "image/png"
    }
  ],
  "start_url": "./index.html",
  "display": "standalone",
  "theme_color": "#000000",
  "background_color": "#ffffff"
}
```

src/registerServiceWorker.js



```
// In production, we register a service worker to serve assets from local cache.

// This lets the app load faster on subsequent visits in production, and gives
// it offline capabilities. However, it also means that developers (and users)
// will only see deployed updates on the "N+1" visit to a page, since previously
// cached resources are updated in the background.

// To learn more about the benefits of this model, read https://goo.gl/KwvDNy.
// This link also includes instructions on opting out of this behavior.

const isLocalhost = Boolean(
  window.location.hostname === 'localhost' ||
    // [::1] is the IPv6 localhost address.
    window.location.hostname === '[::1]' ||
    // 127.0.0.1/8 is considered localhost for IPv4.
    window.location.hostname.match(
      /^127(?:\.(?:25[0-5]|2[0-4][0-9]|[01]?[0-9][0-9]?)){3}$/
    )
);

export default function register() {
  if (process.env.NODE_ENV === 'production' && 'serviceWorker' in navigator) {
    // The URL constructor is available in all browsers that support SW.
    const publicUrl = new URL(process.env.PUBLIC_URL, window.location);
    if (publicUrl.origin !== window.location.origin) {
      // Our service worker won't work if PUBLIC_URL is on a different origin
      // from what our page is served on. This might happen if a CDN is used to
      // serve assets; see https://github.com/facebookincubator/create-react-app/issues/2374
      return;
    }

    window.addEventListener('load', () => {
      const swUrl = `${process.env.PUBLIC_URL}/service-worker.js`;

      if (!isLocalhost) {
        // Is not local host. Just register service worker
        registerValidSW(swUrl);
```

#JSTALKS

@TZMANICS

ISSUES
SAMPLE DASHBOARD

PROJECT
Dashboard
Issues

ACCOUNT
My Profile
Sign Out

STATISTICS
Aug 14, 2017 - Nov 14, 2017

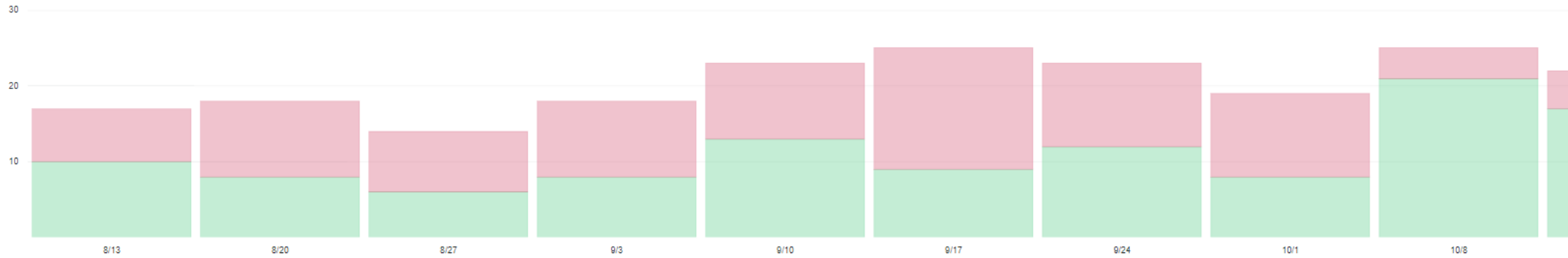
Active Issues

252
ACTIVE ISSUES

104
CLOSED ISSUES

148
OPEN ISSUES

All issues



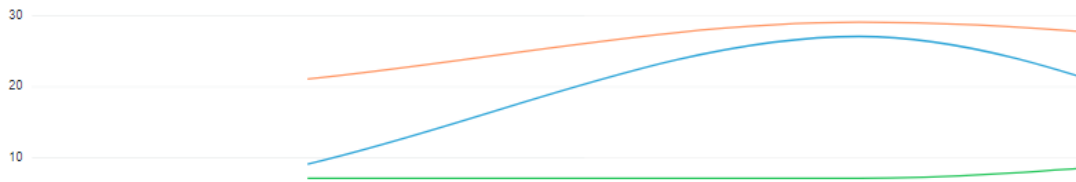
Issue Types

Types Distribution

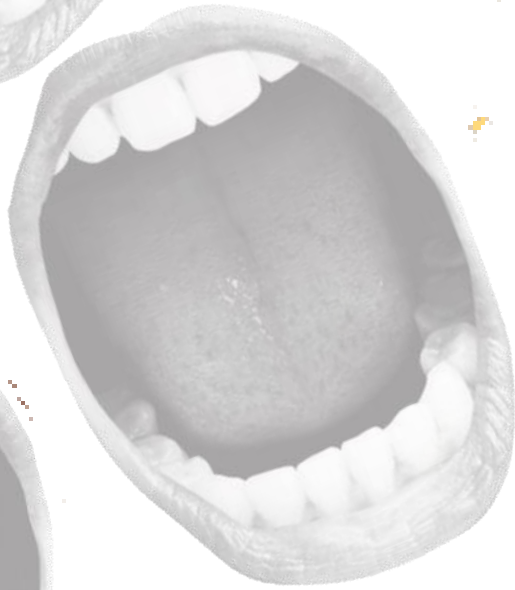
85
SEV: LOW

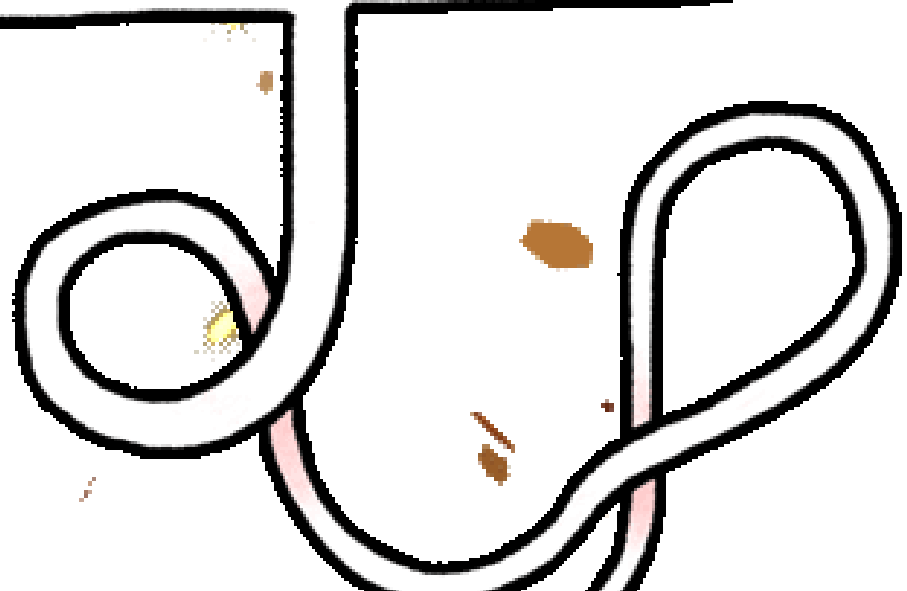
70
SEV: MEDIUM

20
SEV: HIGH

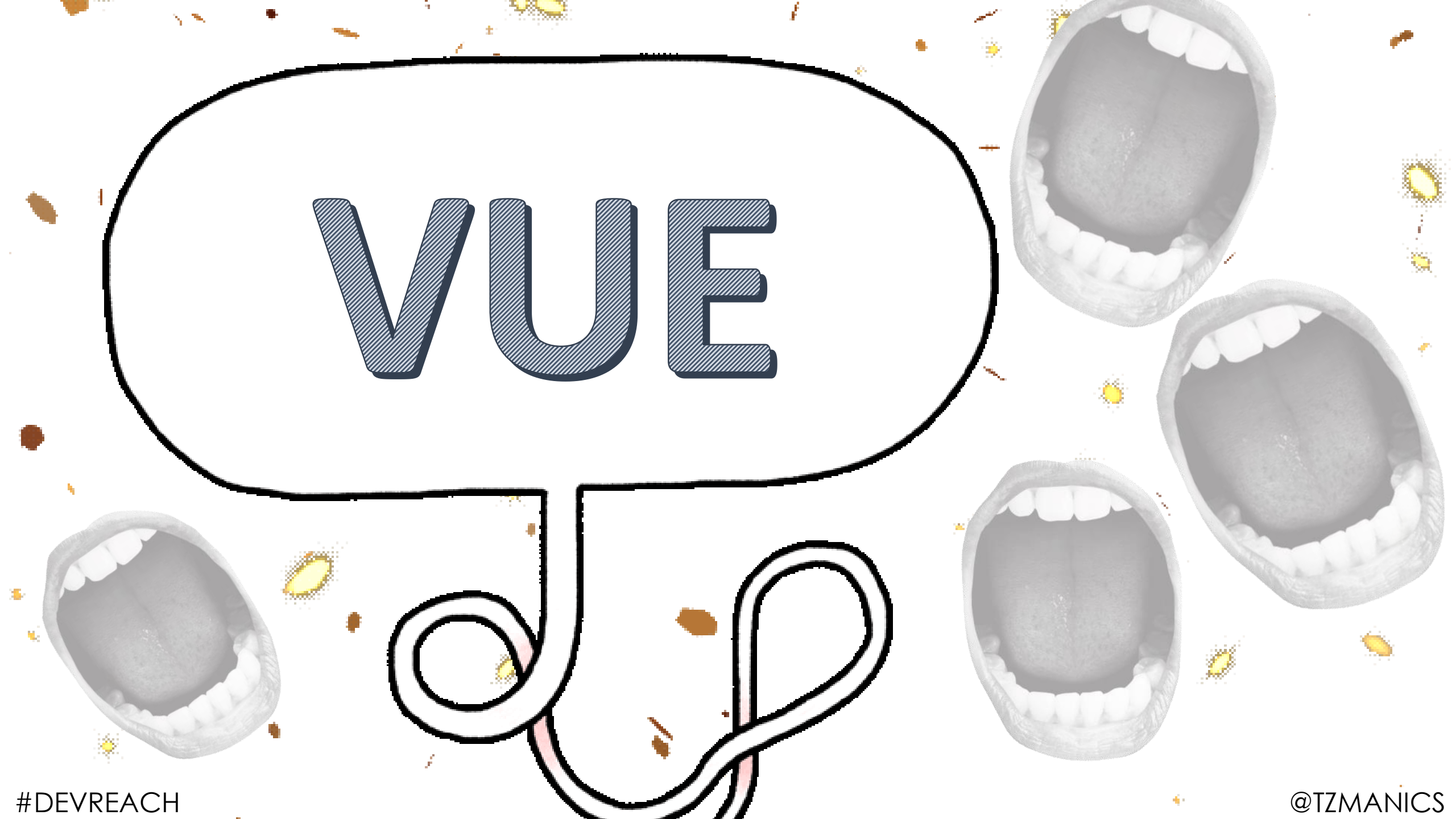


RAP CHALLENGE

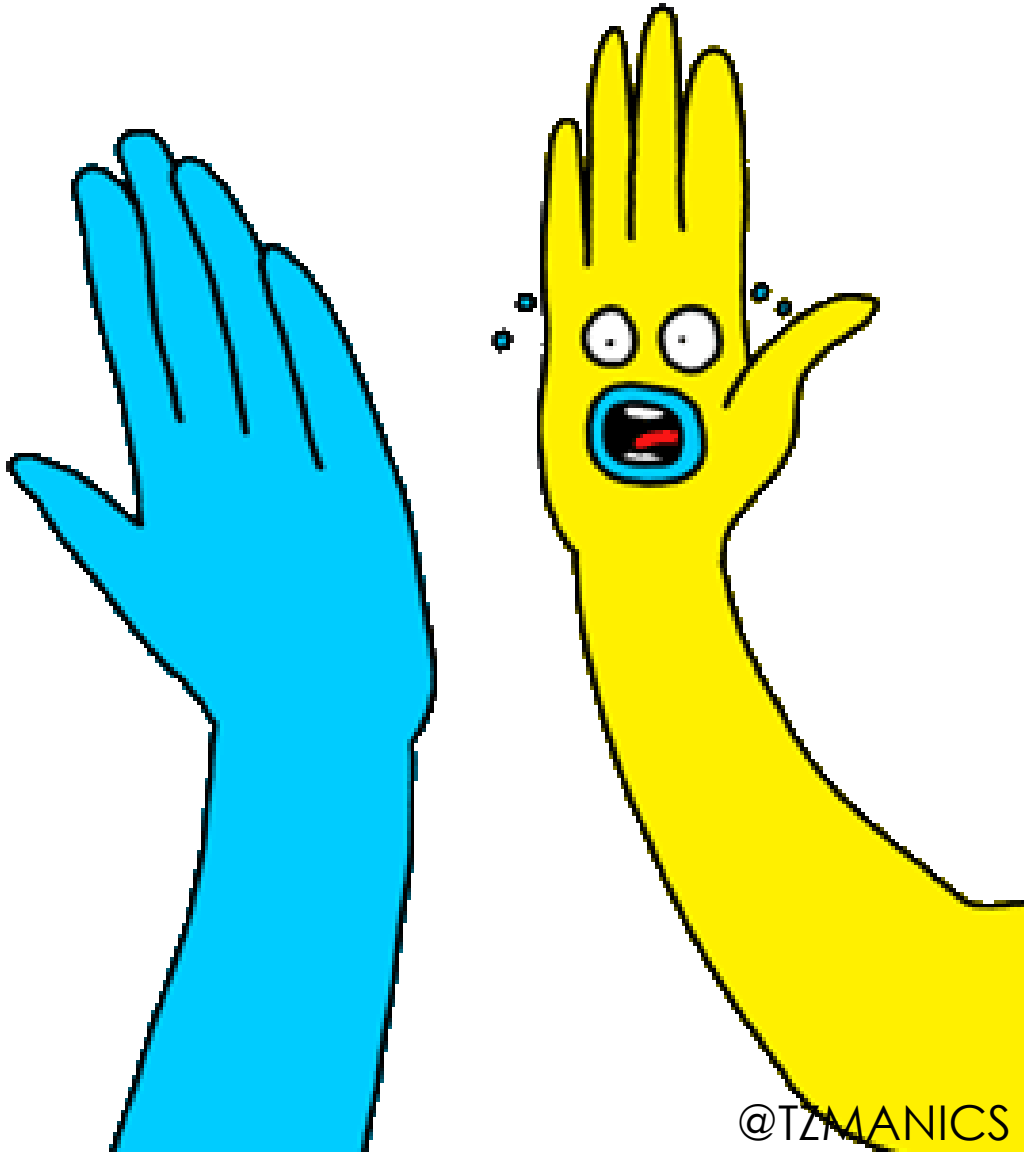




now this library is on version two
built by a man named Evan You
you can use all the things or just a few
now let's build a PWA with ...


VUE

Vue.js



```
npm i vue-cli -g
```

```
vue init pwa kendoui-vue
```

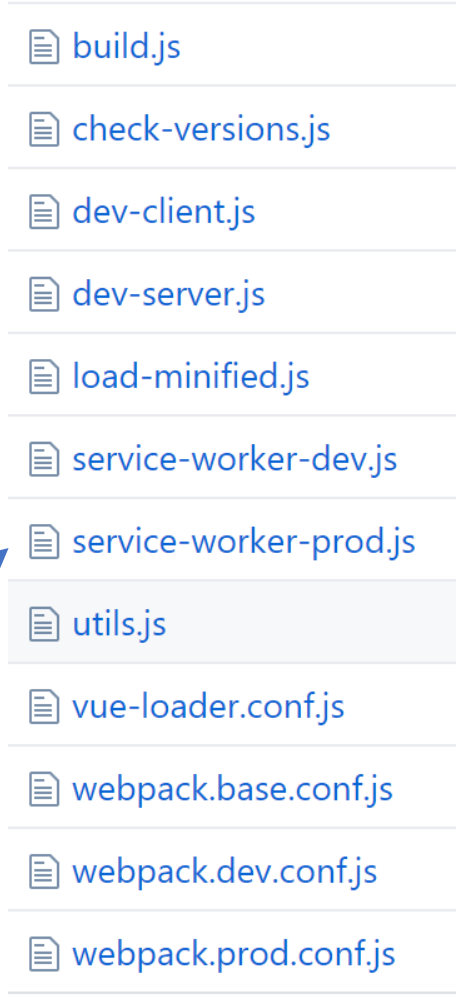
```
npm i @progress/kendo-ui
```

```
npm i @progress/kendo-datasource-vue-wrapper @progress/kendo-grid-vue-wrapper
```

VUE-cli PWA Files

static/

build/



- `npm run build` : Production ready build.
  - JavaScript minified with UglifyJS.
  - HTML minified with html-minifier.
  - CSS across all components extracted into a single file and minified with cssnano.
  - All static assets compiled with version hashes for efficient long-term caching, and a production `index.html` is auto-generated with proper URLs to these generated assets.
  - Use `npm run build --report` to build with bundle size analytics.
  - Generates a Service Worker for offline caching your static assets using sw-precache-webpack-plugin

build/service-worker-prod.js

```
(function() {
  'use strict';

  // Check to make sure service workers are supported in the current browser,
  // and that the current page is accessed from a secure origin. Using a
  // service worker from an insecure origin will trigger JS console errors.
  const isLocalhost = Boolean(window.location.hostname === 'localhost' ||
      // [::1] is the IPv6 localhost address.
      window.location.hostname === '[::1]' ||
      // 127.0.0.1/8 is considered localhost for IPv4.
      window.location.hostname.match(
        /^127(?:\.(?:25[0-5]|2[0-4][0-9]|[01]?[0-9][0-9]?)){3}$/
      )
    );

  window.addEventListener('load', function() {
      if ('serviceWorker' in navigator &&
          (window.location.protocol === 'https:' || isLocalhost)) {
        navigator.serviceWorker.register('service-worker.js')
        .then(function(registration) {
          // updatefound is fired if service-worker.js changes.
          registration.onupdatefound = function() {
            // updatefound is also fired the very first time the SW is installed,
            // and there's no need to prompt for a reload at that point.
            // So check here to see if the page is already controlled,
```

#JSTALKS

src/main.js

```
import Vue from 'vue'
import App from './App'

import '@progress/kendo-ui'
import { KendoGridColumn, KendoGrid, KendoGridInstaller } from '@progress/kendo-grid-vue-wrapper'
import { KendoDataSource, KendoDataSourceInstaller } from '@progress/kendo-datasource-vue-wrapper'

Vue.config.productionTip = false
Vue.use(KendoGridInstaller)
Vue.use(KendoDataSourceInstaller)

/* eslint-disable no-new */
new Vue({
  el: '#app',
  template: '<App/>',
  components: {
    App,
    KendoGrid,
    KendoGridColumn,
    KendoDataSource
  }
})
```

src/components/Hello.vue

```
<template>
  <div class="hello">
    <div class="grid">
      <kendo-datasource
        ref="datasource"
        :type="'odata'"
        :pageSize="20"
        :transportRead="'https://demos.telerik.com/kendo-ui/service/Northwind.svc/Customers'"
      ></kendo-datasource>
      <kendo-grid
        :height="550"
        :dataSourceRef="'datasource'"
        :groupable='true'
        :sortable='true'
        :pageable-page-sizes='true'
        :pageable-button-count="5">
        <kendo-grid-column
          field="ContactName"
          title="Contact Name"
          :width="250">
        </kendo-grid-column>
        <kendo-grid-column
          field="ContactTitle"
          title="Contact Title">
        </kendo-grid-column>
        <kendo-grid-column
          field="CompanyName"
          title="Company Name">
        </kendo-grid-column>
      </kendo-grid>
    </div>
  </div>
</template>
```

index.html

```
<!DOCTYPE html>
<html lang="en">
  <head>
    <meta charset="utf-8">
    <meta http-equiv="X-UA-Compatible" content="IE=edge">
    <meta name="viewport" content="width=device-width, initial-scale=1">
    <title>kendoui-vue</title>
    <link rel="stylesheet" href="https://kendo.cdn.telerik.com/2017.2.621/styles/kendo.common.min.css">
    <link rel="stylesheet" href="https://kendo.cdn.telerik.com/2017.2.621/styles/kendo.rtl.min.css">
    <link rel="stylesheet" href="https://kendo.cdn.telerik.com/2017.2.621/styles/kendo.default.min.css">
    <link rel="stylesheet" href="https://kendo.cdn.telerik.com/2017.2.621/styles/kendo.default.mobile.min.css">
    <link rel="icon" type="image/png" sizes="32x32" href="<%= htmlWebpackPlugin.files.publicPath %>static/img/icons/favicon-32x32.png">
    <link rel="icon" type="image/png" sizes="16x16" href="<%= htmlWebpackPlugin.files.publicPath %>static/img/icons/favicon-16x16.png">
    <!--[if IE]><link rel="shortcut icon" href="/static/img/icons/favicon.ico"><![endif]-->
    <!-- Add to home screen for Android and modern mobile browsers -->
    <link rel="manifest" href="<%= htmlWebpackPlugin.files.publicPath %>static/manifest.json">
    <meta name="theme-color" content="#4DBA87">

    <!-- Add to home screen for Safari on iOS -->
    de
    <meta name="apple-mobile-web-app-capable" content="yes">
    <meta name="apple-mobile-web-app-status-bar-style" content="black">
    <meta name="apple-mobile-web-app-title" content="kendoui-vue">
    <link rel="apple-touch-icon" href="<%= htmlWebpackPlugin.files.publicPath %>static/img/icons/apple-touch-icon-152x152.png">
    <link rel="mask-icon" href="<%= htmlWebpackPlugin.files.publicPath %>static/img/icons/safari-pinned-tab.svg" color="#4DBA87">
    <!-- Add to home screen for Windows -->
    <meta name="msapplication-TileImage" content="<%= htmlWebpackPlugin.files.publicPath %>static/img/icons/msapplication-icon-144x144.png">
    <meta name="msapplication-TileColor" content="#000000">
    <% for (var chunk of webpack.chunks) {
         for (var file of chunk.files) {
           if (file.match(/\.(js|css)$/)) { %>
    <link rel="<%= chunk.initial?'preload':'prefetch' %>" href="<%= htmlWebpackPlugin.files.publicPath + file %>" as="<%= file.match(/\.css$/)
  </head>
  <body>
    <noscript>
      This is your fallback content in case JavaScript fails to load.
    </noscript>
    <div id="app"></div>
    <!-- Todo: only include in production -->
    <%= htmlWebpackPlugin.options.serviceWorkerLoader %>
    <!-- built files will be auto injected -->
  </body>
</html>
```

#JSTALKS

@TZMANICS

it looks like this:

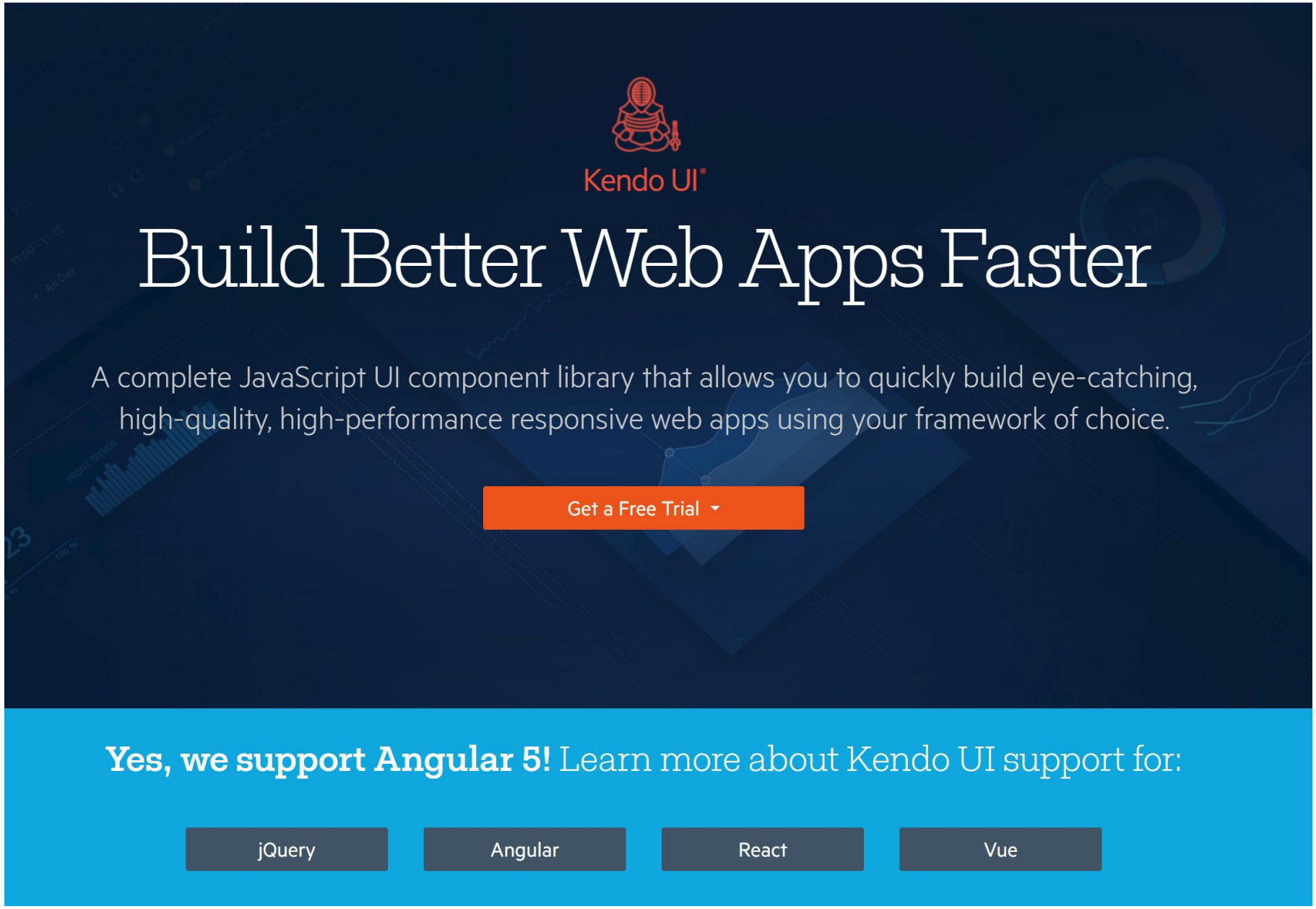
Drag a column header and drop it here to group by that column

Contact Name	Contact Title	Company Name
Maria Anders	Sales Representative	A[illegible]rkis
Ana Trujillo	Owner	Ana T[illegible]os
Antonio Moreno	Owner	Antonio Moreno Taquería
Thomas Hardy	Sales Representative	Around the Horn
Christina Berglund	Order Administrator	Berglunds snabbköp
Hanna Moos	Sales Representative	Blauer See Delikatessen
Frédérique Citeaux	Marketing Manager	Blondel père et fils
Martín Sommer	Owner	Bólido Comidas preparadas
Laurence Lebihan	Owner	Bon app'
Elizabeth Lincoln	Accounting Manager	Bottom-Dollar Markets
Victoria Ashworth	Sales Representative	B's Beverages
Patricio Simpson	Sales Agent	Cactus Comidas para llevar

1 2 3 4 5 20 items per page

there's our manifest info 😍

KendoUI.com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Get a Free Trial
Yes, we support Angular 5! Learn more about Kendo UI support for:
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Angular
React
Vue

"An excellent introduction to Progressive Web Apps"

Andreas Bovens
Lead, Product Management, Mozilla

"Building your first PWA? This book has got you covered!"

Kenneth Rohde Christiansen
Web Platform Architect, Intel

"Everything you need to build a high-quality PWA"

Jeff Posnick
Web DevRel and Platform Engineer, Google

"A great resource!"

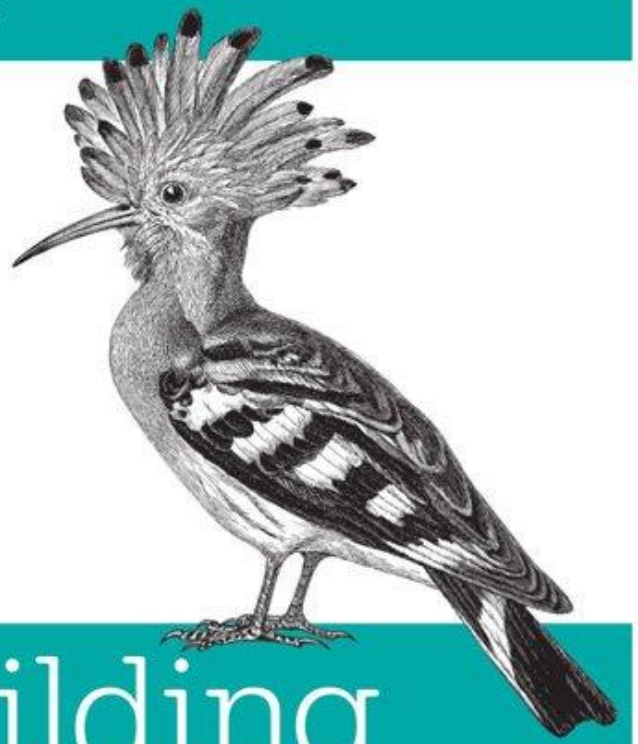
Nitya Narasimhan PhD
Google Dev Group NYC Organizer

Building Progressive Web Apps

Ater

O'REILLY

O'REILLY



Building Progressive Web Apps

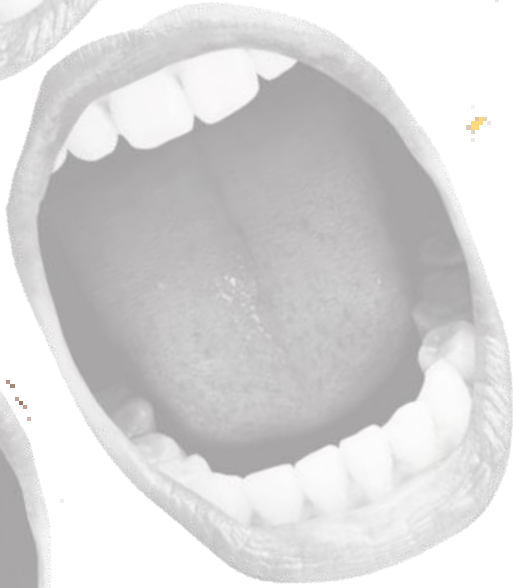
BRINGING THE POWER OF NATIVE TO THE BROWSER

Tal Ater

THANK YOU!!!
Code & Slides will be tweeted from @tzmanics

#JSTALKS

RAP CHALLENGE



thanks for having me here behind this box

enjoying Bulgaria on so many walks

there's no doubt this conference rocks

it's great being with you all at ...

JSTalks!

#JSTALKS

@TZMANICS

THANK YOU!!!
Code & Slides will be tweeted from @tzmanics

#JSTALKS