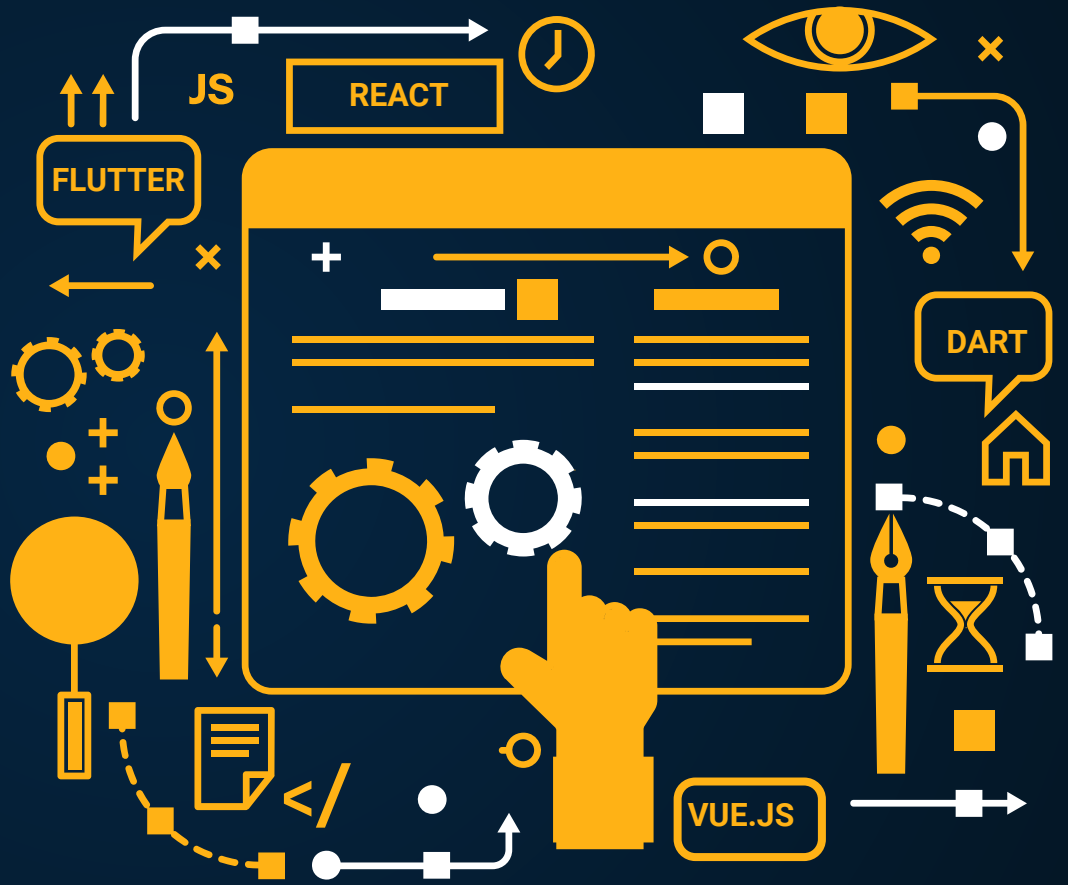
SEMINAR 3:

Hybrid Applications

MAITE FERNÁNDEZ MATEOS
KRUNAL RATAN BADSIWAL



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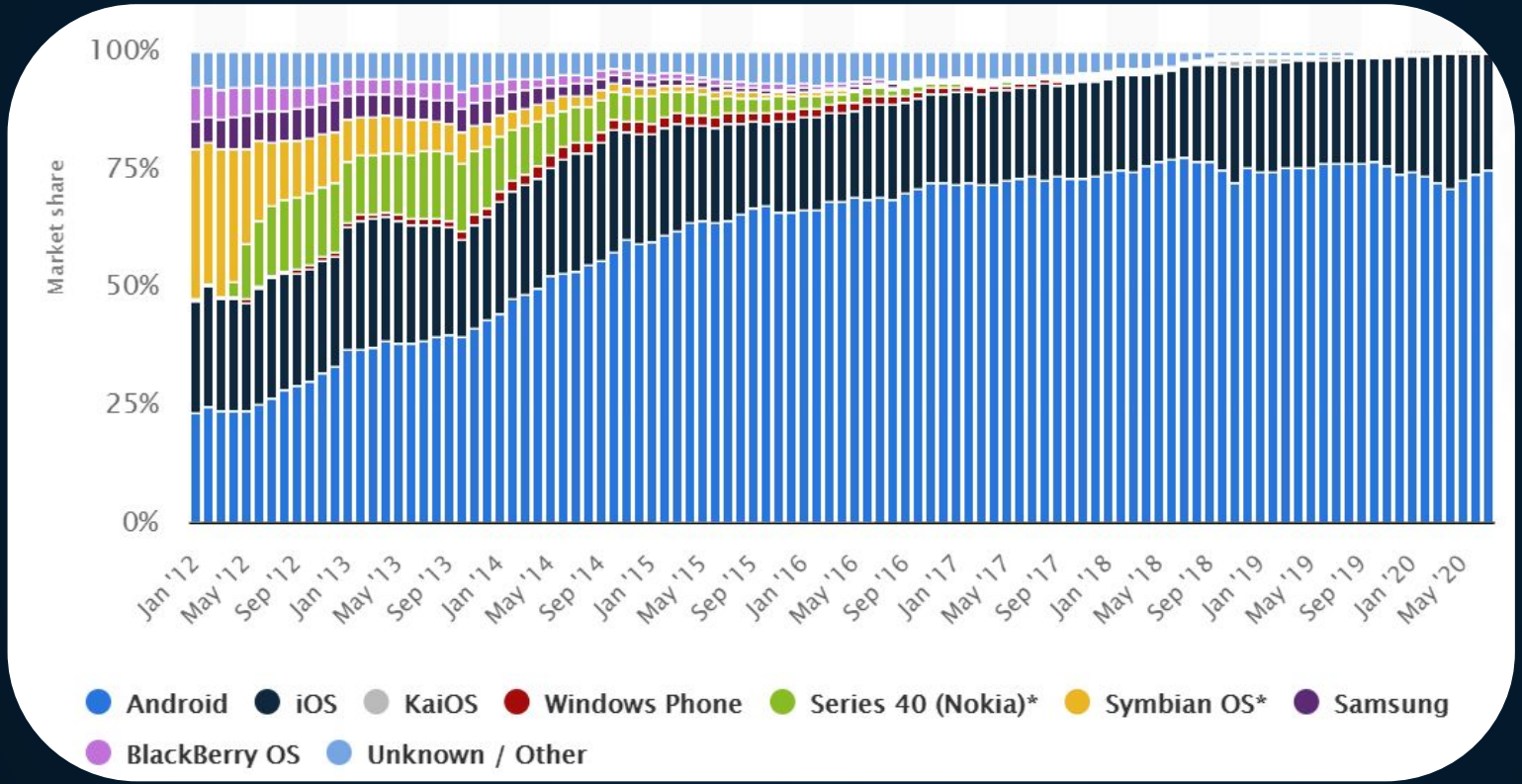
Hybrid Applications



The Difference Between

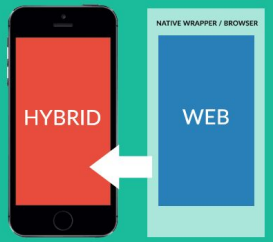
NATIVE, WEB & HYBRID MOBILE APPLICATIONS

Native applications are coded in the native language of the device (e.g Objective C for iOS, Java for Android). They are run directly on the device.

- ✓ Access Native APIs
- ✓ Distribute through App Stores
- ✗ Run on multiple platforms

Web applications are coded in HTML, CSS and JavaScript. They are served through the Internet and run through a browser.

- ✗ Access Native APIs
- ✗ Distribute through App Stores
- ✓ Run on multiple platforms



Hybrid aplications are coded in HTML, CSS and JavaScript*. They are run through an invisible browser that is packaged into a native application.

- ✓ Access Native APIs
- ✓ Distribute through App Stores
- ✓ Run on multiple platforms

Hybrid Applications

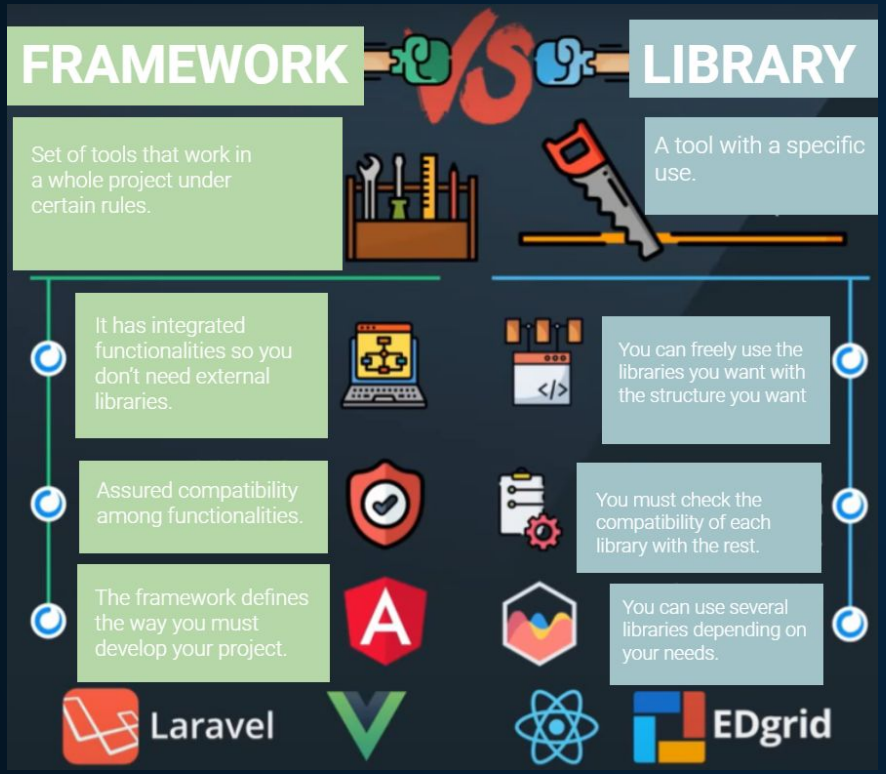
- Need to build for many platforms to reach all your users.
- Hybrid applications can run on multiple platforms
- Different options to code hybrid apps in a quick and optimized way.
- Brand new features like hot reload make it easier.

FrontEnd Options

- **SSR:** Server-Side Rendering - rendering a client-side or universal app to HTML on the server.

- **CSR:** Client-Side Rendering - rendering an app in a browser, generally using the DOM.

FrontEnd Options



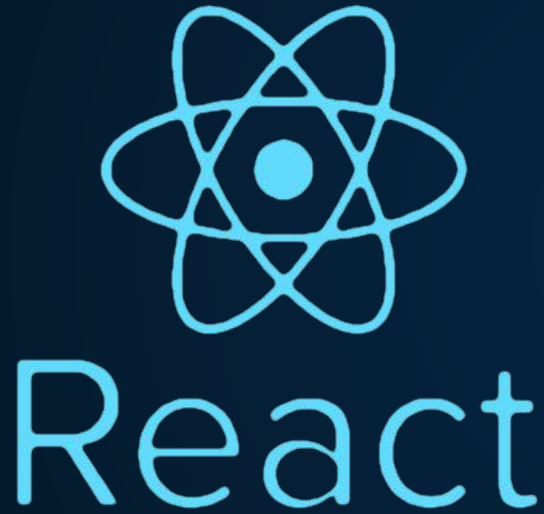
- **Libraries:** controls the logics of the application.

Vue.js React

- **Framework:** gives you access to predefined directives (logic and UI).

FrontEnd Options

- ANGULAR.JS
- REACT.JS
- VUE.JS
- FLUTTER

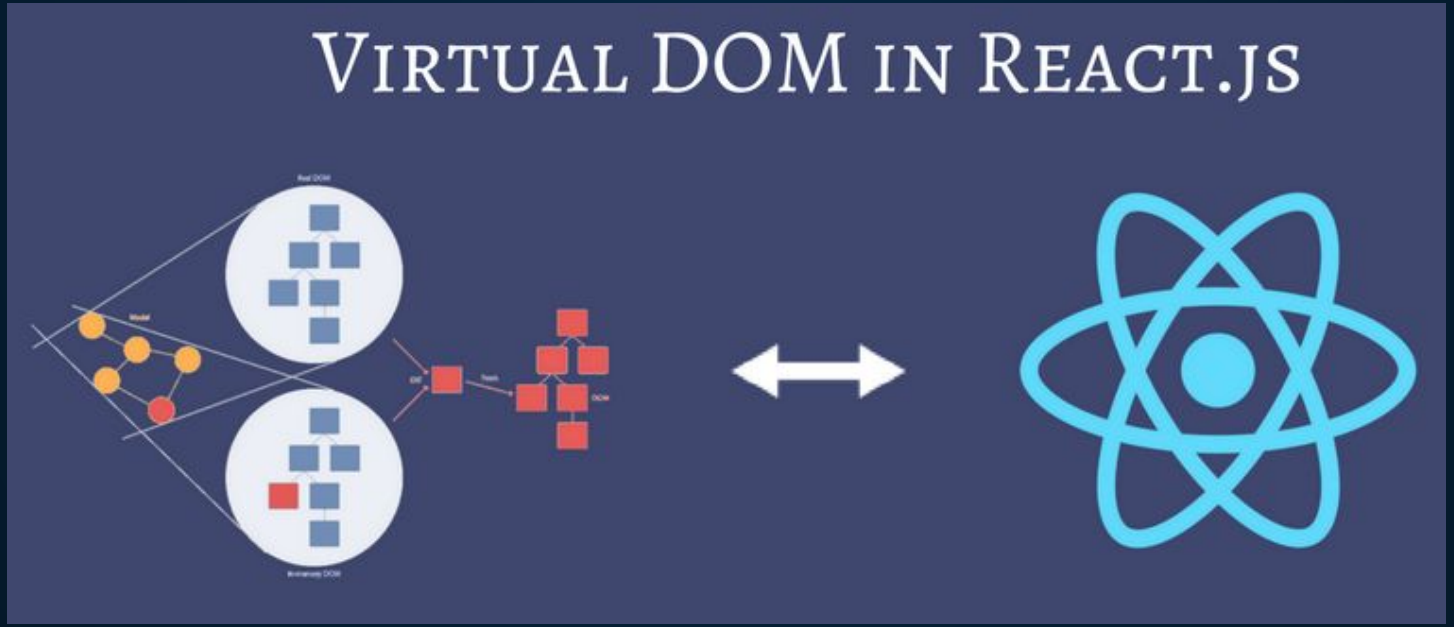


ReactJS

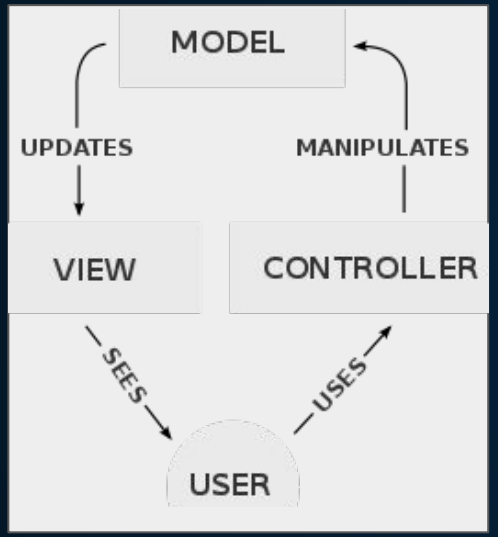
Developed by Facebook and supported by community

WHAT IS REACTJS?

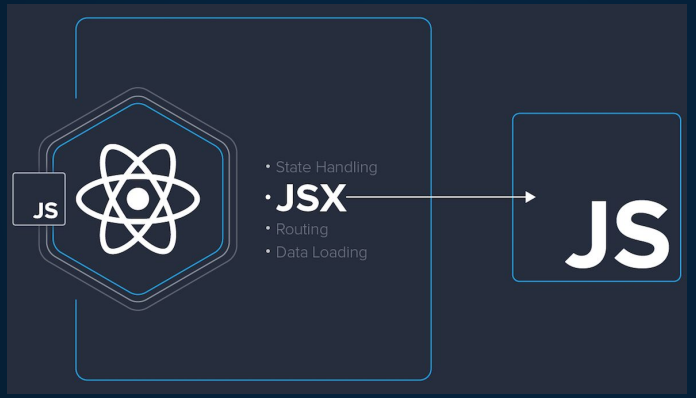
ReactJs is a progressive and performant JavaScript library which mainly focuses on the application logic and not on its appearance with virtual Dom.



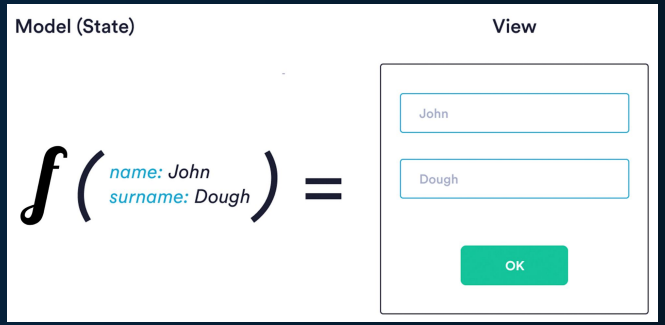
REACT PARADIGM?



MVC

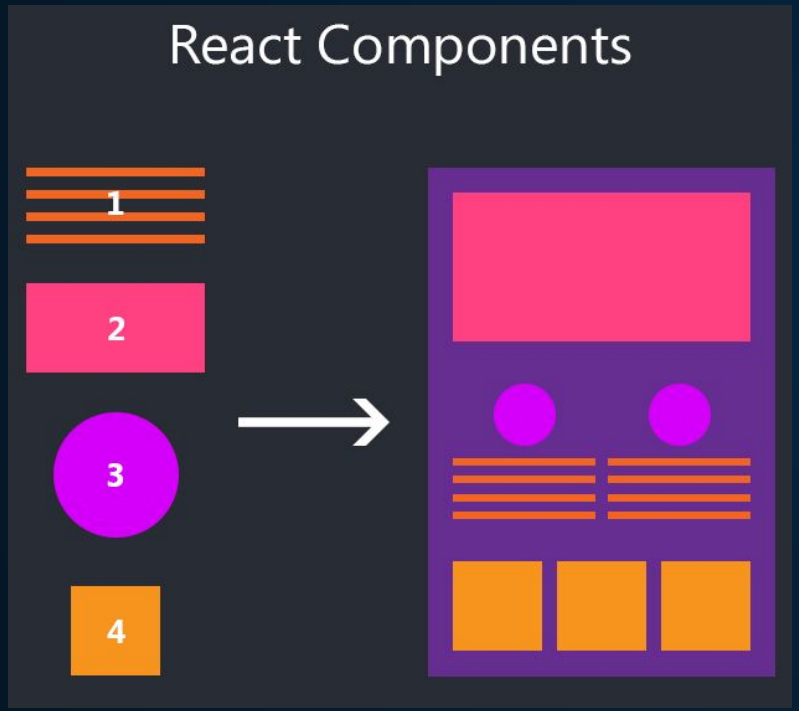


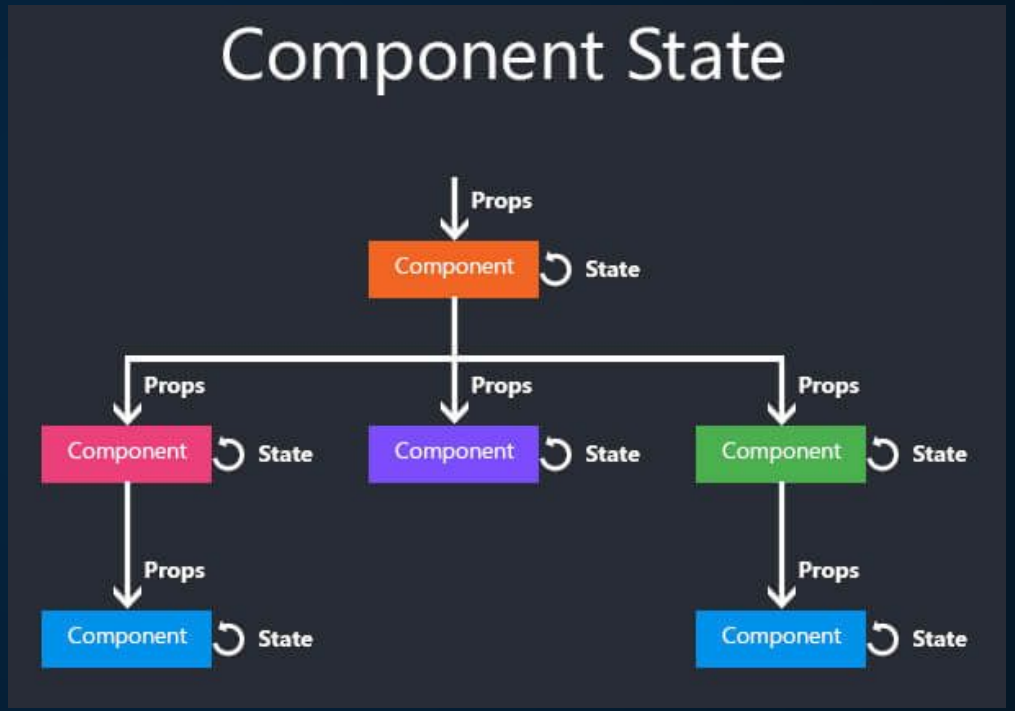
JSX ES6



DECLARATIVE

WHAT ARE COMPONENTS?

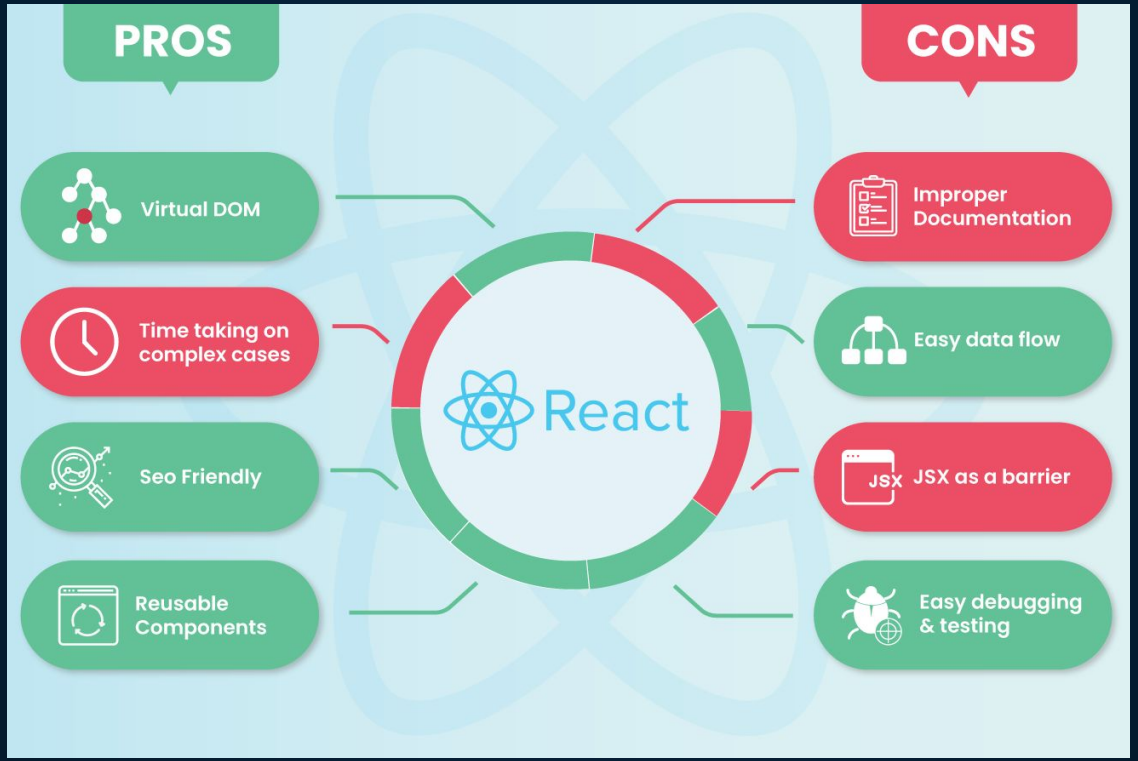




REACT.JS COMPONENTS?

```
import React from 'react';
function Tweet({name,message}){
    //We can use the imported data anywhere
    const sayHello =()=>{
        console.log("Hello There!");
    }
    return(
        <div>
            <h2>{name}</h2>
            <p>{message}</p>
            <h3>Hello World, from Isolated Component</h3>
            <button onClick={sayHello}>Press Me!</button>
        </div>
    );
}
export default Tweet;
```

WHY USE REACT?

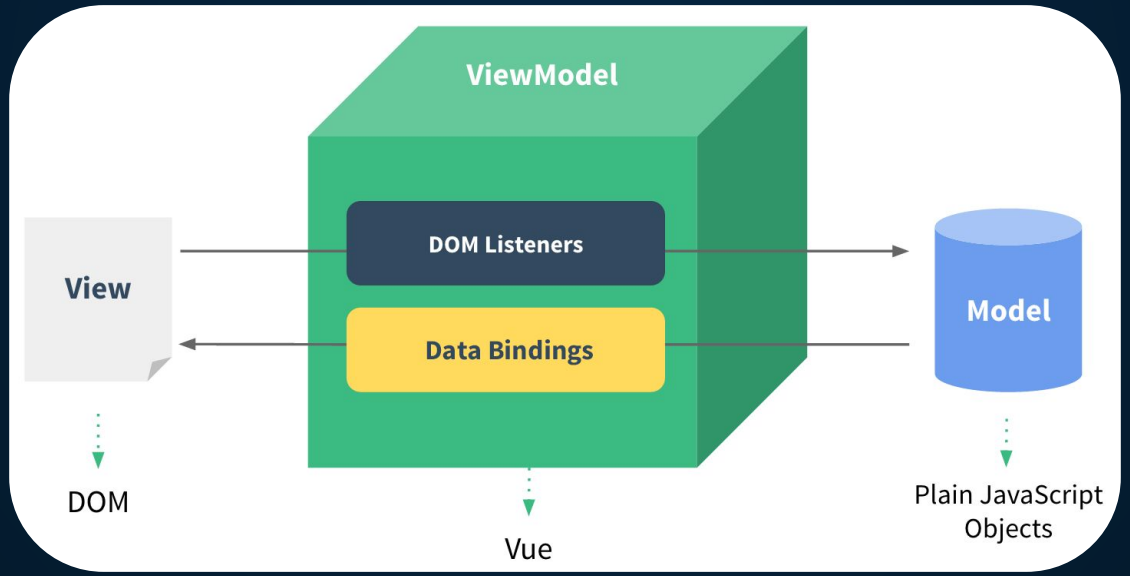


VUE.JS

Ex Developers of Netflix and NetGuru

WHAT IS VUE.JS?

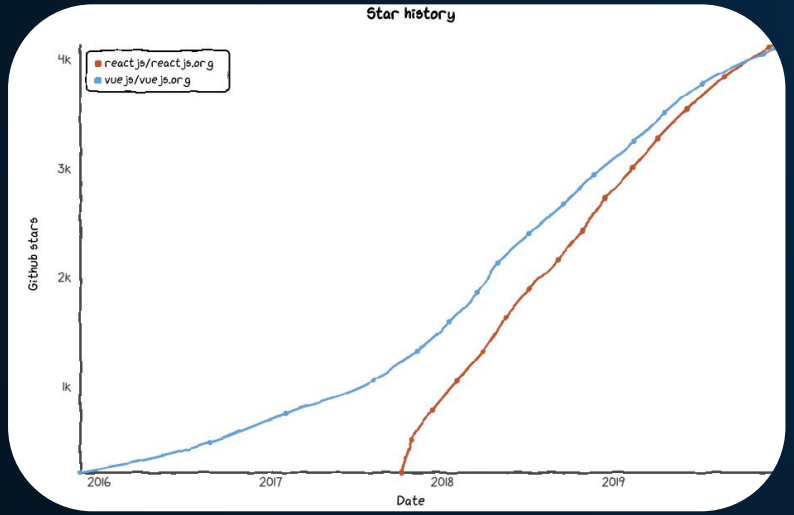
Vue.js is a progressive and performant JavaScript framework which mainly focuses on the application logic and not on its appearance.

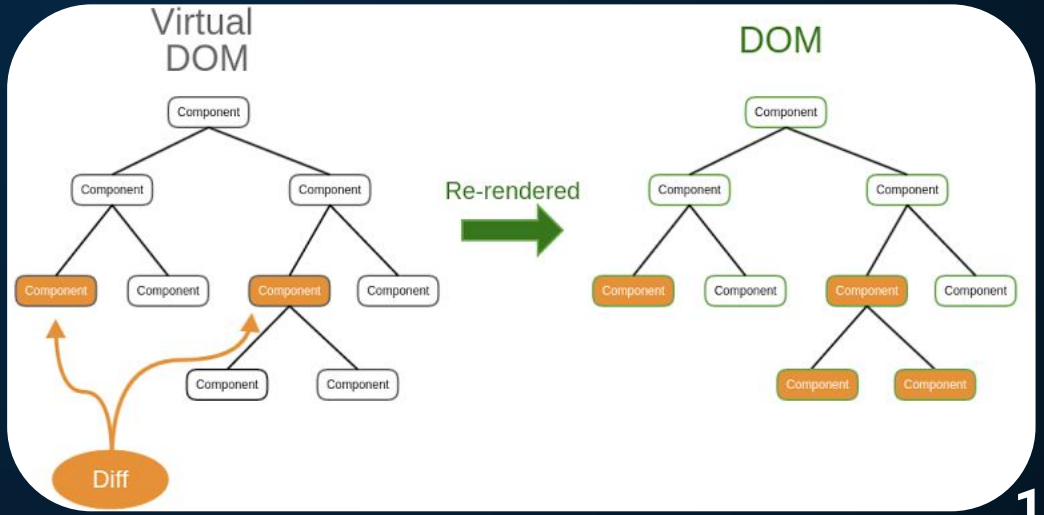


WHY USE VUE.JS?

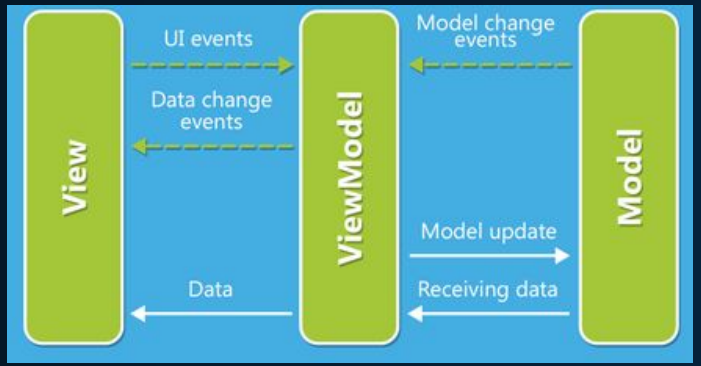
- Makes creating UI's and Frontend much easier compared to other framework and native JavaScript.
- Less of a learning curve than other framework (React or AngularJs).

- Extremely Fast and Light
- Build PowerFul SPA
- Virtual DOM
- Growing stupidly fast in the community





VUE.JS PARADIGM?

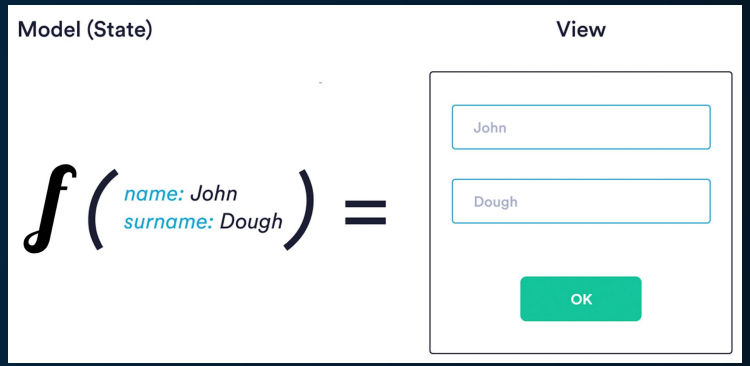


MVVM

Model View View Model

HTML

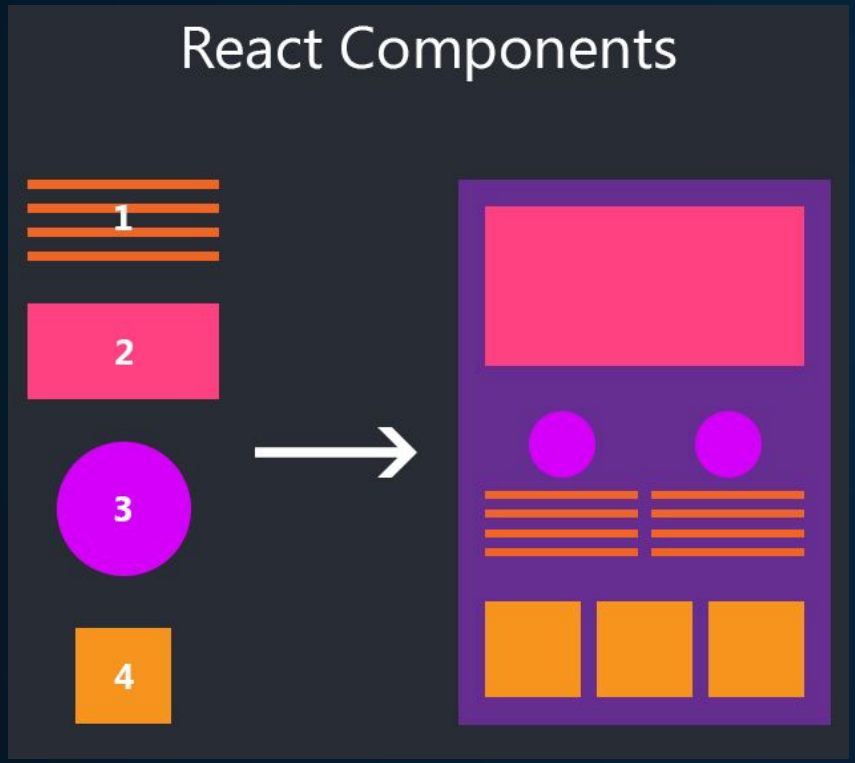
HTML + Javascript ES6



DECLARATIVE

Neptune is the farthest planet from the Sun

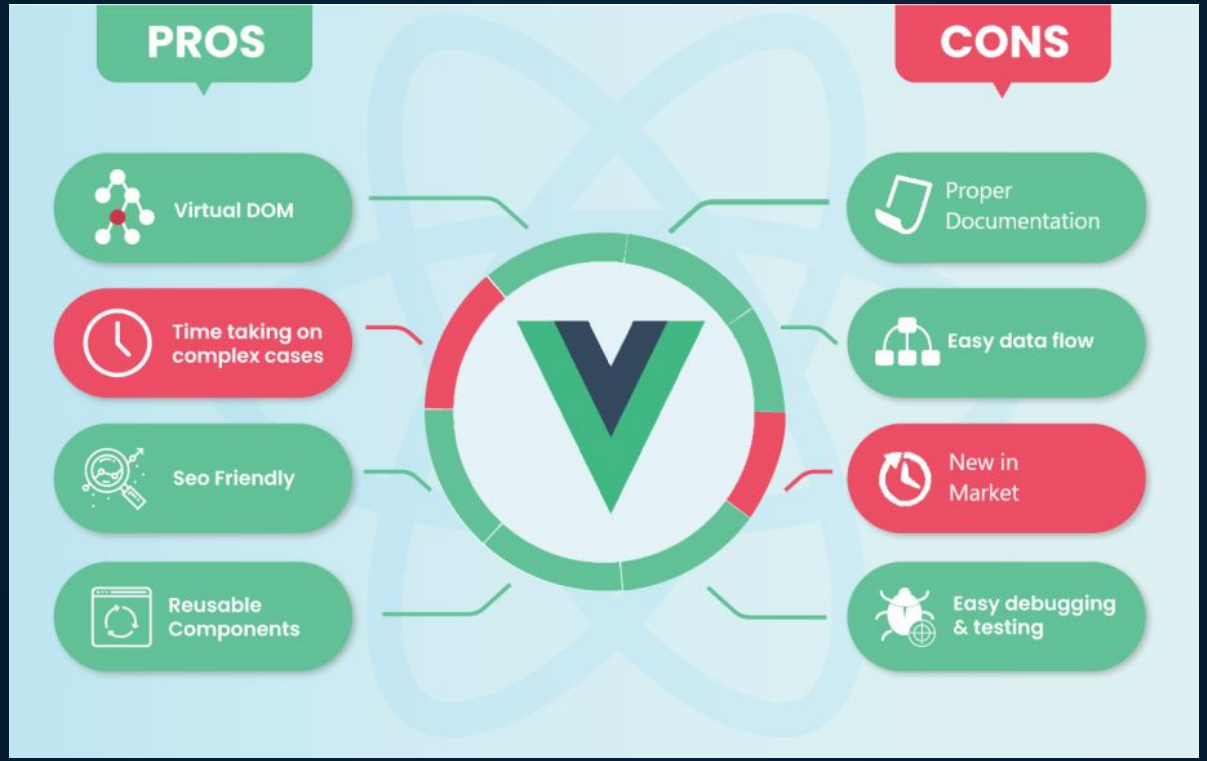
VUE.JS COMPONENTS?



app.vue | a.vue | package.json

```
1  <style>
2    html, body {
3      color: #666;
4      font-family: Helvetica, Arial, sans-serif;
5    }
6  </style>
7
8  <template>
9    <h1>This is the app</h1>
10   <div v-component="a"></div>
11   <div v-component="b"></div>
12 </template>
13
14 <script>
15   module.exports = {
16     components: {
17       a: require('./components/a.vue'),
18       b: require('./components/b.vue')
19     }
20   }
21 </script>
```

WHY USE VUE.JS



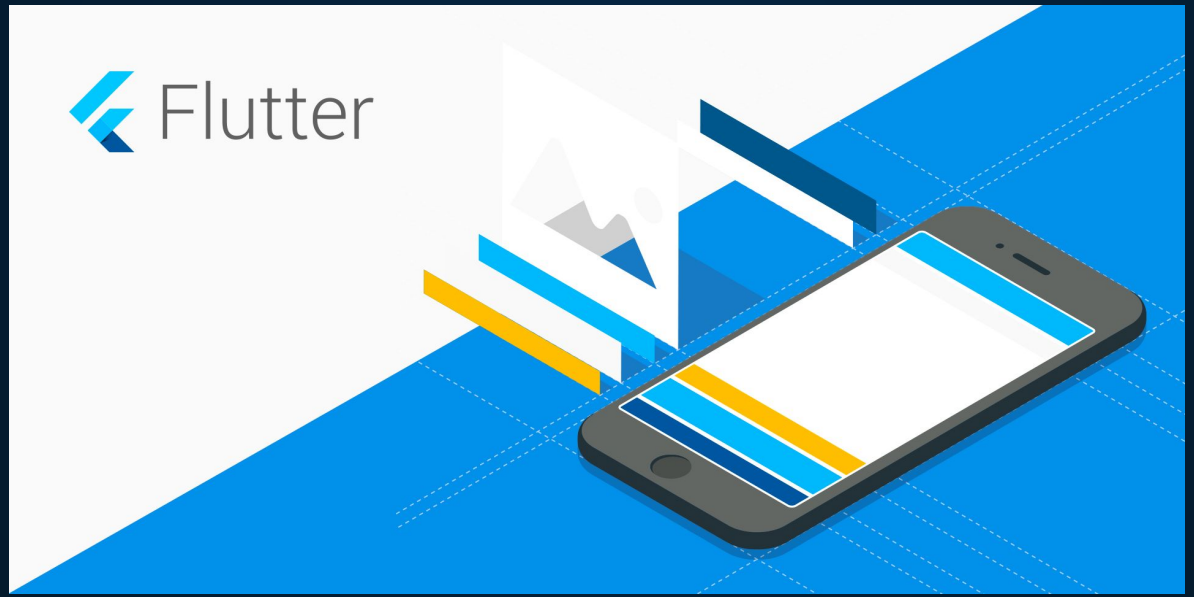
DEMO TIME

FLUTTER

Framework developed by Google

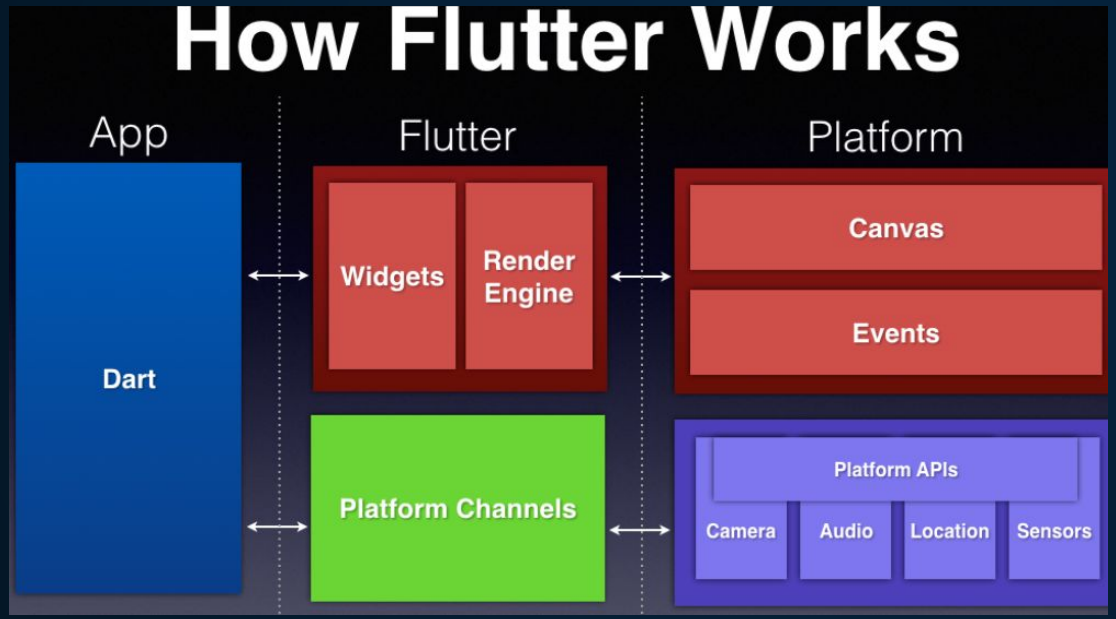
WHAT IS FLUTTER?

Flutter is Google's mobile UI free and open source framework that provides a fast and expressive way for developers to build native apps on both IOS and Android.



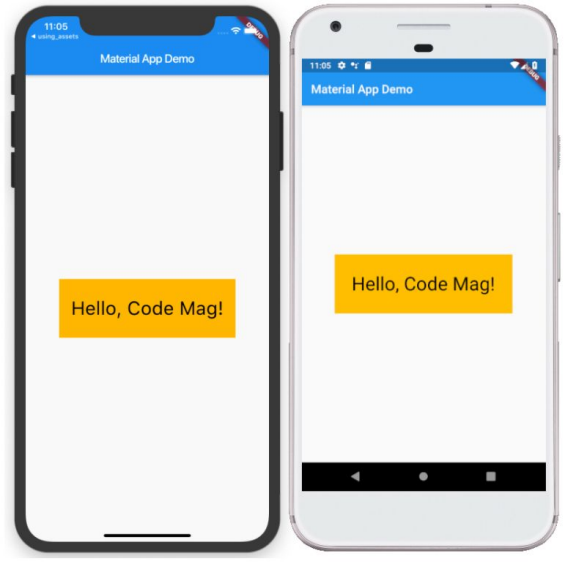
How does Flutter work?

Widgets describe how the view should look, given its current configuration and state.

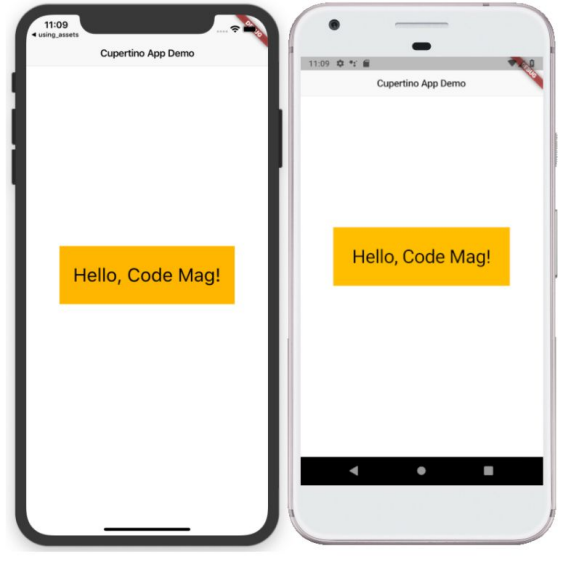


- **Stateless widgets:** Changing the properties of stateless widgets has no effect on the rendering of the widget.
- **Stateful widgets:** Changing the properties of stately widgets triggers the life cycle hooks and updates its UI using the new state.

Design style classes



- **Material App:** It implements the Material design language for iOS, Android, and Web.



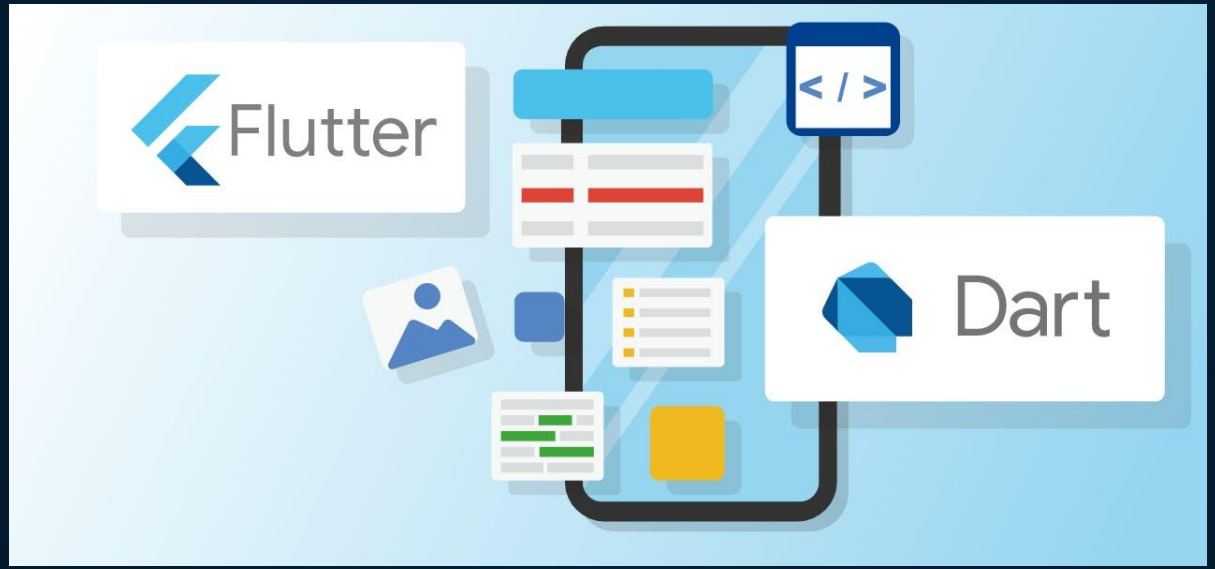
- **Cupertino App:** It implements the current iOS design language based on Apple's Human Interface Guidelines.

DART

Programming language by Google

WHAT IS DART?

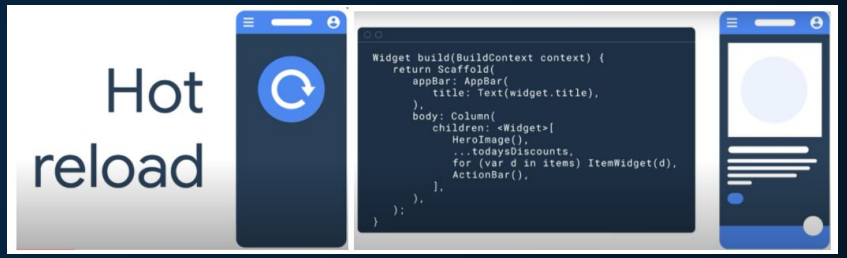
Dart is a client-optimized programming language for apps on multiple platforms. It is developed by Google and is used to build mobile, desktop, server, and web applications



WHY USING DART?

- Dart is quick and optimized.

- Hot Reload.



- Easy to learn.

WHY USING DART?

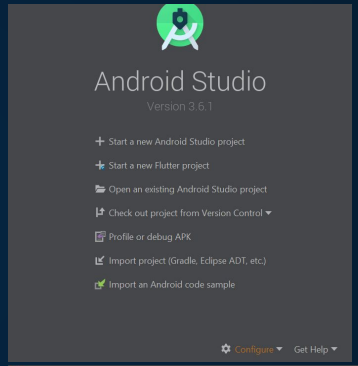
Google developed Android without a Java license and copied its APIs, so they infringed Oracle's copyright. Dart is closer to Kotlin than Java so they have no more legal issues with Oracle.

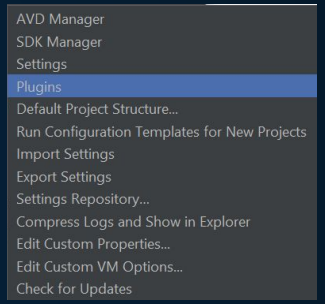
FLUTTER INSTALLATION

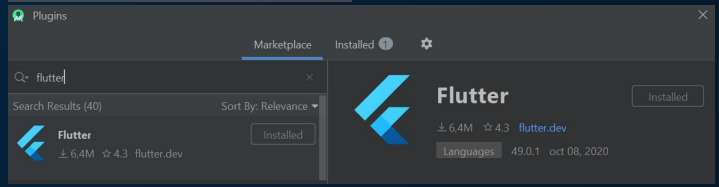
https://flutter.dev/docs/get-started/install/windows

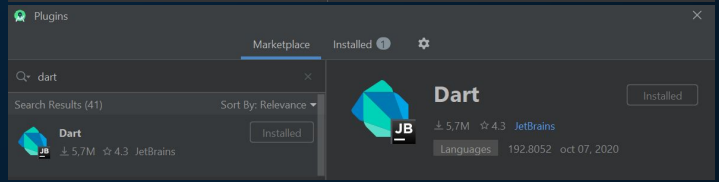
https://flutter.dev/docs/get-started/install/macos

```
PS C:\Users\Maite> flutter doctor

                Welcome to Flutter! - https://flutter.dev

The Flutter tool uses Google Analytics to anonymously report feature usage
statistics and basic crash reports. This data is used to help improve
Flutter tools over time.

Flutter tool analytics are not sent on the very first run. To disable
reporting, type 'flutter config --no-analytics'. To display the current
setting, type 'flutter config'. If you opt out of analytics, an opt-out
event will be sent, and then no further information will be sent by the
Flutter tool.

By downloading the Flutter SDK, you agree to the Google Terms of Service.
Note: The Google Privacy Policy describes how data is handled in this
service.

Moreover, Flutter includes the Dart SDK, which may send usage metrics and
crash reports to Google.

Read about data we send with crash reports:
https://flutter.dev/docs/reference/crash-reporting

See Google's privacy policy:
https://policies.google.com/privacy


Doctor summary (to see all details, run flutter doctor -v):
[√] Flutter (Channel stable, 1.22.1, on Microsoft Windows [VersiÃ³n 10.0.18363.1082], locale es-ES)

[!] Android toolchain - develop for Android devices (Android SDK version 29.0.3)
    ! Some Android licenses not accepted.  To resolve this, run: flutter doctor --android-licenses
[!] Android Studio (version 3.6)
    X Flutter plugin not installed; this adds Flutter specific functionality.
    X Dart plugin not installed; this adds Dart specific functionality.
[!] VS Code (version 1.50.0)
    X Flutter extension not installed; install from
      https://marketplace.visualstudio.com/items?itemName=Dart-Code.flutter
[!] Connected device
    ! No devices available
```

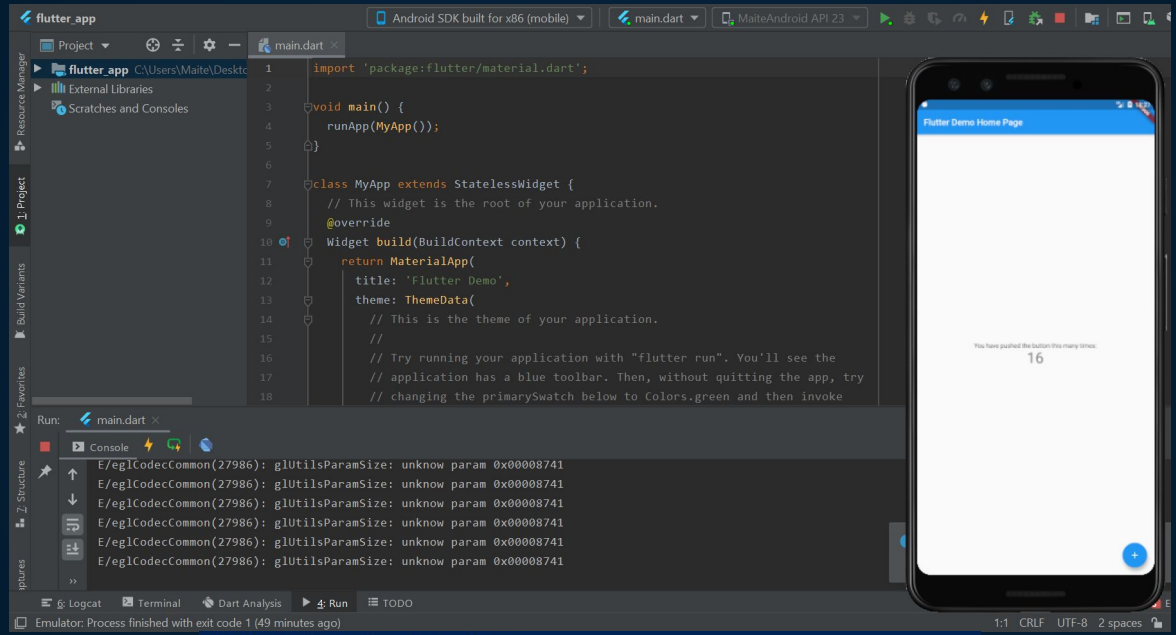








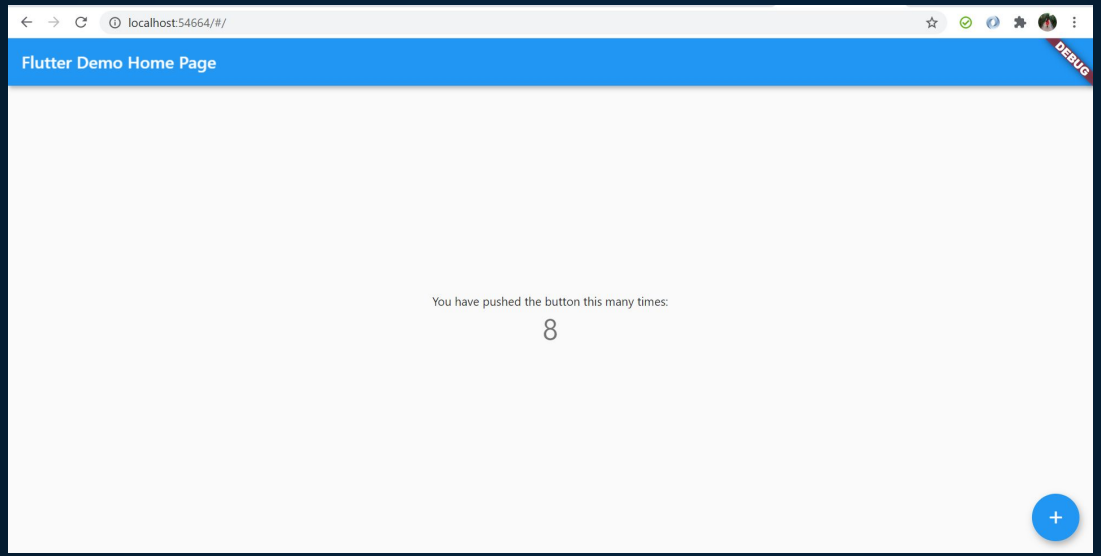
FLUTTER INSTALLATION




```
! Doctor found issues in 1 category.
PS C:\Users\Maite> flutter doctor
Doctor summary (to see all details, run flutter doctor -v):
[√] Flutter (Channel stable, 1.22.1, on Microsoft Windows [VersiÃ³n 10.0.18363.1082],

[√] Android toolchain - develop for Android devices (Android SDK version 29.0.3)
[√] Android Studio (version 3.6)
[√] VS Code (version 1.50.0)
[√] Connected device (1 available)

• No issues found!
```

FLUTTER INSTALLATION

https://flutter.dev/docs/get-started/web




```
$ flutter channel beta
$ flutter upgrade
$ flutter config --enable-web
```

DEMO TIME

NEXT STEPS

https://codelabs.developers.google.com/codelabs/google-maps-in-flutter/#0
https://www.youtube.com/watch?v=hFMsy5onJx8

Add map services with Flutter Google Maps plugin

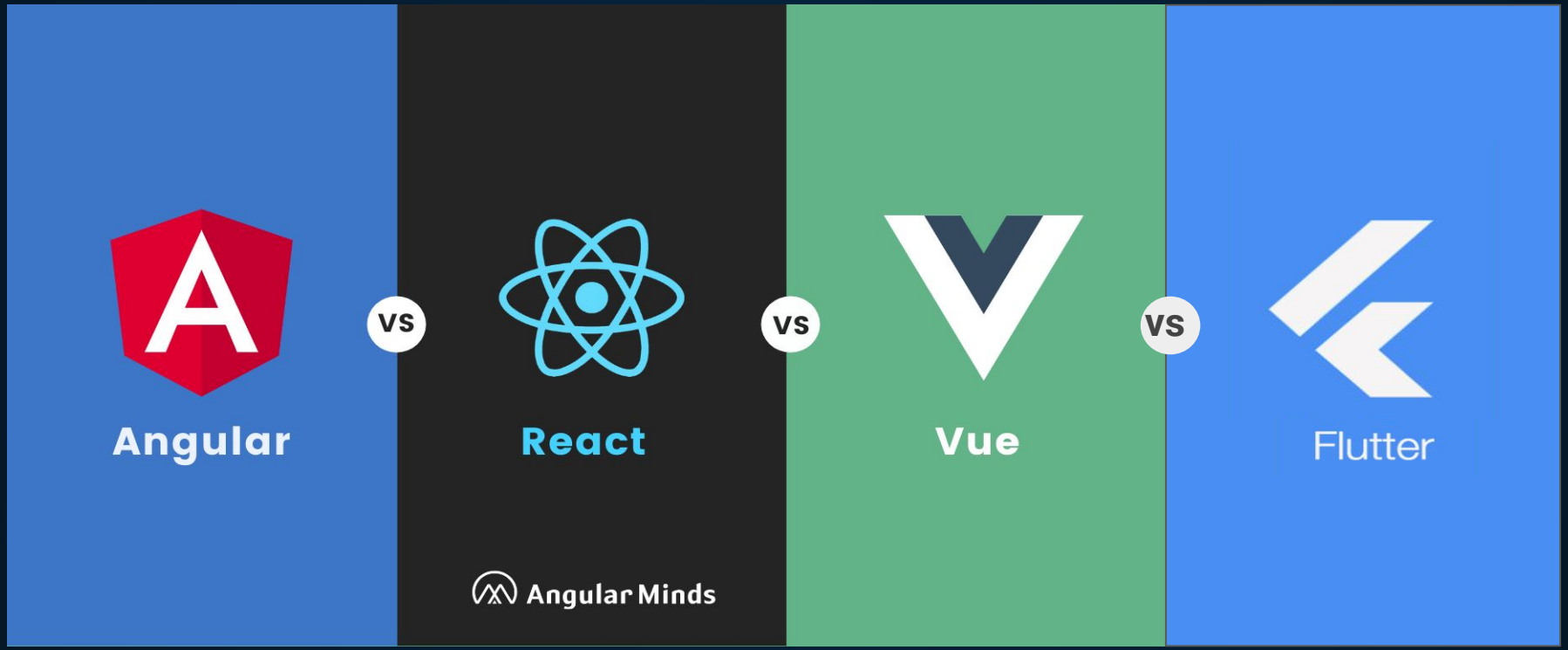
Consume an API with Flutter using an HTTP client

Handle asynchronous events with Flutter using Streambuilders

https://flutter.dev/docs/cookbook/networking/fetch-data
https://www.youtube.com/playlist?list=PL_Wj0DgxTIJeLFYfRBfpFveEd9cOfIpDx

https://api.flutter.dev/flutter/widgets/StreamBuilder-class.html
https://www.youtube.com/watch?v=MkKEWHfy99Y&feature=emb_logo

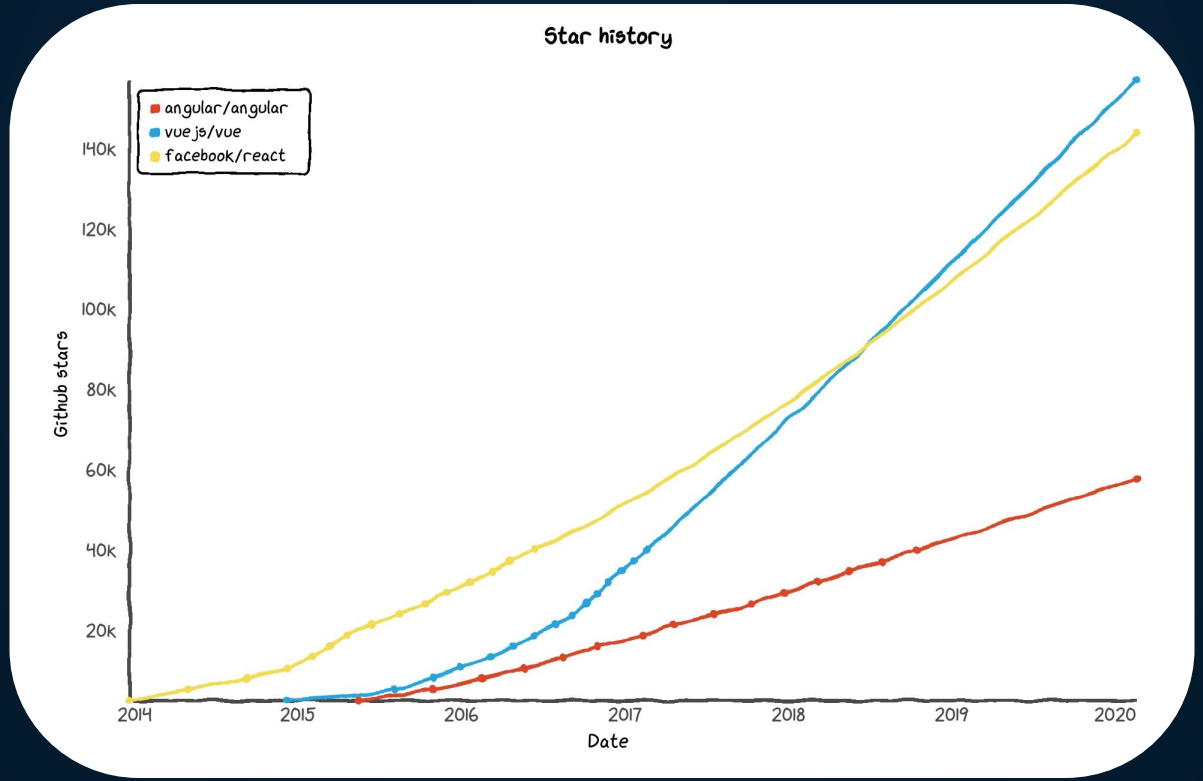
Comparisons



Comparisons

	Angular	React	Vue	Flutter
Difficulty	Hard	Hard	Easy	Medium
Language	TYPESCRIPT	JSX ES6	HTML/JSX	JAVA/KOTLIN
Unit Test Code	Yes	Yes	Yes	Yes
Unit Test UI	Yes	Hard to work	Library required	Yes
Architecture	Web+Android (Java)	Ionic Required	Vue Native using JS	Native
UI Compilation	Fast	Good	Optimized	Almost Native
Performance	Fast	Fast	Fast	Native
Community	Large	Medium	Large	Really Small

Comparisons



Comparisons

Number of jobs	Angular	React	Vue	Flutter
LinkedIn	72747	70963	11590	Almost None
Indeed	15141	14595	1810	Almost None
SimplyHired	11357	10508	1526	Almost None
Dice	4719	3529	331	Almost None
AngelList	2350	4383	419	Almost None
Hired	13	9	0	Almost None
Remote	1069	1136	166	Almost None

THANKS!

Does anyone have any question?

Find out more in:

https://github.com/Maite-Fernandez/Seminar-3.git