WEB FRAMEWORKS {REACT}

Our team

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Introduction to web frameworks

Web Frameworks

- Set of tools, libraries, and standards.

- Predefined structure and functionalities for web development.

- Facilitates efficient code writing.

- Solutions to common problems.

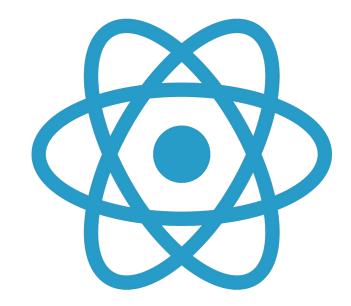- Examples: React, Angular, Vue, Svelte.

Web Frameworks Characteristics

- Security.

- Reuse of web code.

- Architecture: Most of them use MVC!

- Job vacancies.

For now, React

¿First, where does React come from?

- React comes from Meta in 2011

- Created by Jordan Walke to simplify UI

- Prevent attacks from XSS (Cross Site Scripting)

∞ Meta

¿First, where does React come from?

TIMELINE

Jordan Walke created FaxJS, the early prototype of React - shipped a search element on Facebook.
AN EARLY PROTOTYPE

#reactjsworldtour conferences started, to build community and to 'turn haters into advocates'.
#REACTJSWORLDTOUR

React Native, which enables native Android, iOS, and UWP development with React, was open-sourced
REACT NATIVE

Facebook announced React Fiber, a new core algorithm of React framework library for building user interfaces
REACT FIBER

2010   May 2013   Jan 2014   Jun 2015   Mar 2018

2011   early 2014   Mar 2015   Apr 2017

THE FIRST SIGNS OF REACT
Facebook introduced XHP into its PHP stack and open sourced it.

THE BIG LAUNCH OF REACT
JS ConfUS. Jordan Walke introduced React. React gets open sourced.

REACT DEVELOPER TOOLS
React Developer Tools becomes an extension of the Chrome Developer Tools.

REDUX RELEASED
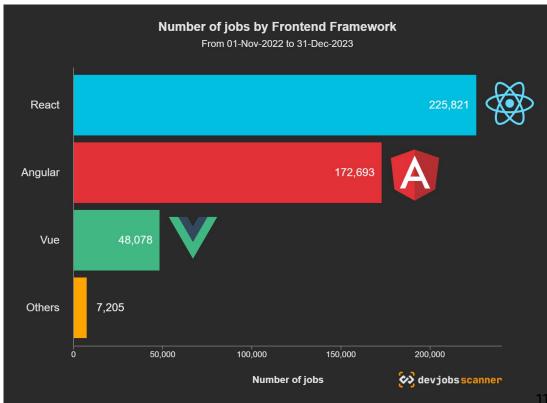Redux was released by Dan Abramov and Andrew Clark.

REACT 16.3.0
Latest version of React was released

¿Why React?

Most Demanded Framework

Frontend framework
● Angular ● Vue ● React
● Others

Percentage of jobs by Country in 2023

Country	Angular	React	Others/Vue
United States	41% (56,998)	51% (70,755)	5% (6,662)
India	37% (25,617)	56% (38,383)	6% (4,200)
France	47% (23,022)	36% (17,551)	16% (7,789)
Germany	34% (16,575)	46% (22,068)	17% (8,204)
United Kingdom	26% (4,212)	63% (10,294)	10% (1,700)
China	8% (1,146)	56% (7,566)	36% (4,869)
Spain	50% (5,821)	41% (4,828)	9% (1,057)
Canada	43% (3,831)	53% (4,730)	4% (380)
Belgium	26% (1,809)	15% (1,089)	59% (4,135)
Switzerland	65% (3,382)	26% (1,340)	8% (432)
Sweden	9% (270)	86% (2,675)	4% (113)
Italy	51% (2,432)	41% (1,969)	7% (348)
Romania	45% (1,649)	49% (1,776)	5% (196)
Japan	10% (231)	63% (1,453)	26% (606)
Ireland	44% (678)	51% (793)	4% (65)
Denmark	21% (205)	61% (587)	17% (160)
Finland	20% (87)	73% (322)	6% (25)
Norway	20% (120)	49% (297)	30% (184)
Poland	38% (117)	39% (120)	23% (72)
Russia	36% (54)	51% (78)	13% (20)
Greece	45% (20)	43% (19)	9% (4)

devjobsscanner

Number of jobs by Frontend Framework
From 01-Nov-2022 to 31-Dec-2023

Framework	Number of jobs
React	225,821
Angular	172,693
Vue	48,078
Others	7,205

Number of jobs

devjobsscanner

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Many companies use React

You can also develop Mobile APPS with React!

React Native

Assured maintenance and great community

¿What is React?

- A Javascript library to build User interfaces

- It is declarative, it allows creating user interfaces in a simpler way

- It's based in components

- It's an universal library.

React usage examples

```html
<!DOCTYPE html>
<html lang="eng">
<head>
    <script src="script.js"></script>
</head>
<body>
    <button id="ButtonJS">Click me!</button>
</body>
</html>
```

```javascript
document.getElementById('ButtonJS').addEventListener('click', function() {});
```

JS

React usage examples

React - JSX
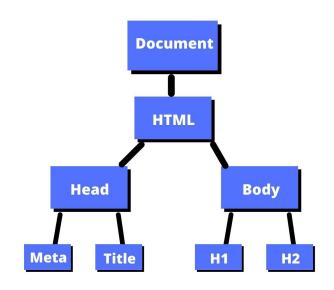
```
const button = <button data-id='ButtonJSX'>Click me!</button>;
```

Virtual DOM

¿What is?

- Technique used in libraries and frameworks of Javascript.

- Virtual copy of document structure.

- Better performance of the website.

Virtual DOM

Example of this:

1. Generate <u>virtual</u> copy of browser <u>DOM</u>.

2. Modify changes on the <u>virtual DOM</u>.

3. Compare both <u>DOMS</u>.

4. Only applies the difference between.

5. Re-render website with the new <u>DOM</u>.

JSX / TSX

Java**S**cript **X**ML is a similar HTML syntax extension that allows us to write code in declarative way.

Syntax Rules:

1. HTML tags can be written inside a function.
2. {} are used to use Javascript expressions within JSX.
3. HTML attributes become React props.
4. Component names written in PascalCase.

JSX / TSX

```
export default function App() {
  return (
    <main className='board'>
      <h1>Tic Tac Toe</h1>
      <section className='game'>
        {
          board.map((_, index) => {
            return (
              <Square key={index} index={index}>
                {index}
              </Square>
            )
          })
        }
      </section>
    </main>
  )
}
```

JSX / TSX

React Element

JSX

Guided tour of the first component

¿What is?

- Reusable modular unit of user interface that encapsulates specific functionality and can be rendered in the DOM.

- It can be functional or class, receiving external data called props to configure its behavior.

```
1  export default function Profile() {
2    return (
3      <img
4        src="https://upload.wikimedia.org/wikipedia/commons/thumb
5        alt="React icon"
6      />
7    )
8  }
9
```

Types of Components

Functional

```
function Welcome(props) {
  return <h1>Hello, {props.name}</h1>;
}
```

Example of use
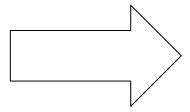
```
const root = ReactDOM.createRoot(document.getElementById('root'));
const element = <Welcome name="Sara" />;
root.render(element);
```

Class

```
class Welcome extends React.Component {
  render() {
    return <h1>Hello, {this.props.name}</h1>;
  }
}
```

Try by yourself

Use of Components

```
function Comment(props) {
  return (
    <div className="Comment">
      <div className="UserInfo">
        <img className="Avatar"
          src={props.author.avatarUrl}
          alt={props.author.name}
        />
        <div className="UserInfo-name">
          {props.author.name}
        </div>
      </div>
      <div className="Comment-text">
        {props.text}
      </div>
      <div className="Comment-date">
        {formatDate(props.date)}
      </div>
    </div>
  );
}
```

```
function Avatar(props) {
  return (
    <img className="Avatar"
      src={props.user.avatarUrl}
      alt={props.user.name}
    />
  );
}
```

```
function Comment(props) {
  return (
    <div className="Comment">
      <div className="UserInfo">
        <Avatar user={props.author} />
        <div className="UserInfo-name">
          {props.author.name}
        </div>
      </div>
      <div className="Comment-text">
        {props.text}
      </div>
      <div className="Comment-date">
        {formatDate(props.date)}
      </div>
    </div>
  );
}
```
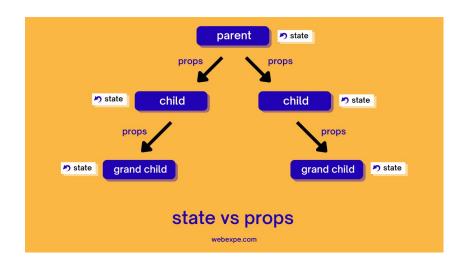
Props

¿What is?

- A mechanism for passing data from a parent component to a child component.

- Props are read-only.

- Props pass from parents to children in a unidirectional way.
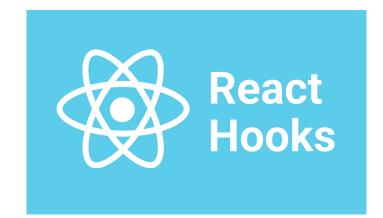
state vs props

webexpe.com

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State

¿What is?

- The "state" is a special object in React that represents information relevant to a component and can change over time.

- Determines the behavior and appearance of a component based on its current state.

Hooks 🪝

- Hooks simplify code.

- They enable state logic reuse.

- Hooks improve code organization.

- They optimize performance.

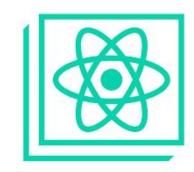- Hooks make testing easier.

- They align with modern trends.

React Hooks

Hooks

useState:

```
function ExampleWithManyStates() {
  // Declarar múltiple variables de estado!
  const [age, setAge] = useState(42);
  const [fruit, setFruit] = useState('banana');
  const [todos, setTodos] = useState([{ text: 'Learn Hooks' }]);
  // ...
}
```

```
import React, { useState } from 'react';

function Example() {
  // Declara una nueva variable de estado, que llamaremos "count".
  const [count, setCount] = useState(0);

  return (
    <div>
      <p>You clicked {count} times</p>
      <button onClick={() => setCount(count + 1)}>
        Click me
      </button>
    </div>
  );
}
```

Create React App
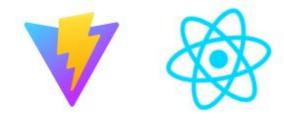
Official way to create your first application with React

Vite Tool

- Faster than Create React App

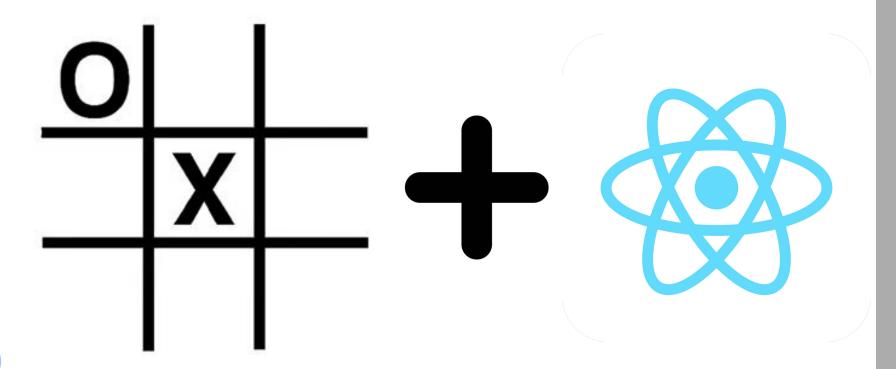- Compatible with other frameworks
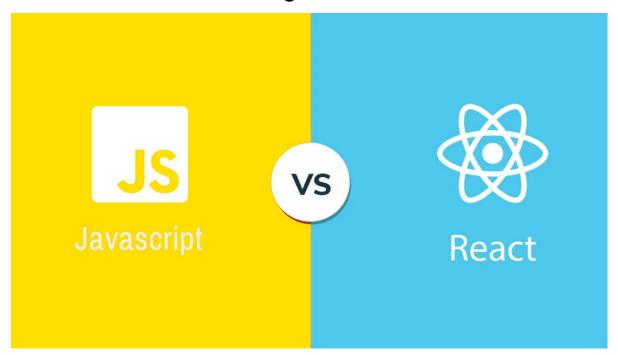
Let's create our first project with Vite!

Vite + React

Now Tic Tac Toe with React!

Conclusions

is react worth it against vanilla JS/TS?

Bibliography

- [Tutorial para aprender lo esencial de React](#)

- [Documentación oficial de React](#)

- [Página con preguntas típicas de React](#)

- [JSX documentación](#)

- [Props ejemplos](#)

Thanks

Do you have any questions?

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