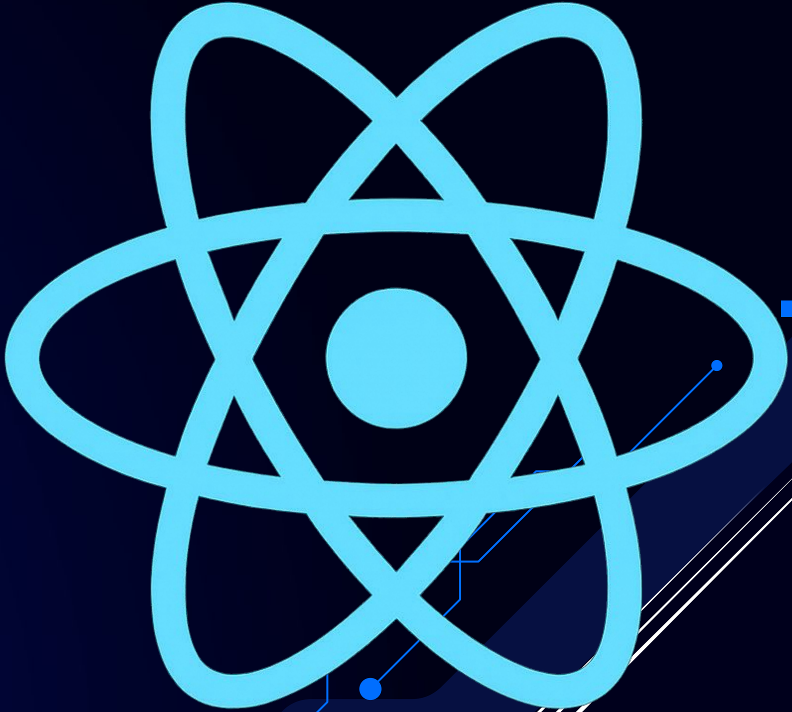
REACT



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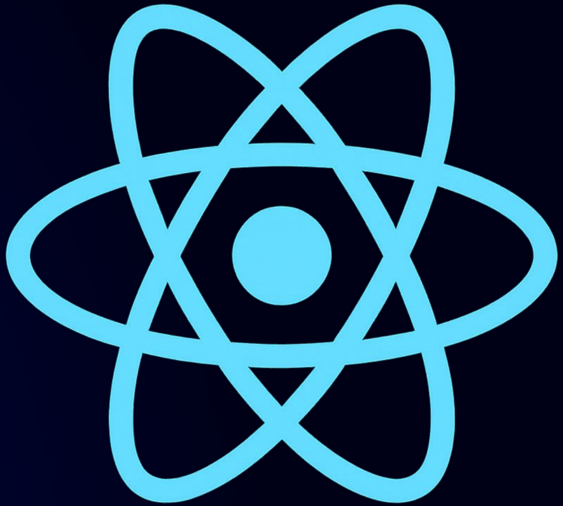
- Characteristics
- projects

01 WHAT IS REACT?

WHAT IS REACT?

React Open-source JavaScript library created by Facebook in 2013.

- Builds dynamic, interactive UIs.
- Based on reusable components.
- Responds efficiently to data changes.



WHY REACT?

- Makes it easier to build dynamic user interfaces
- Reusable components
- Virtual DOM for efficient updates
- Large community and ecosystem
- High job market demand
- Cross-platform compatibility

02 INSTALLATION

INSTALLATION

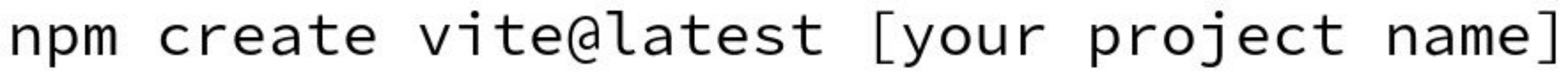
MERCURY

Mercury is the closest planet to the Sun and the smallest one in the Solar System—it's only a bit larger than the Moon

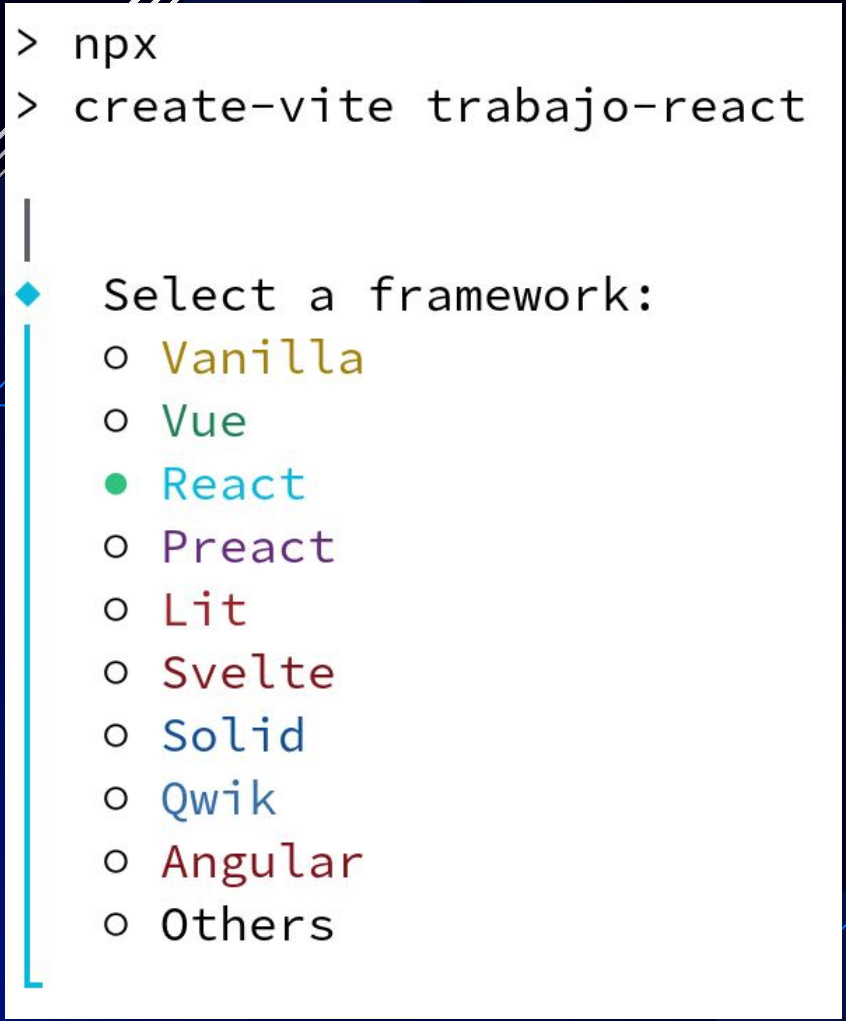
VITE

is a build tool that aims to provide a faster and leaner development

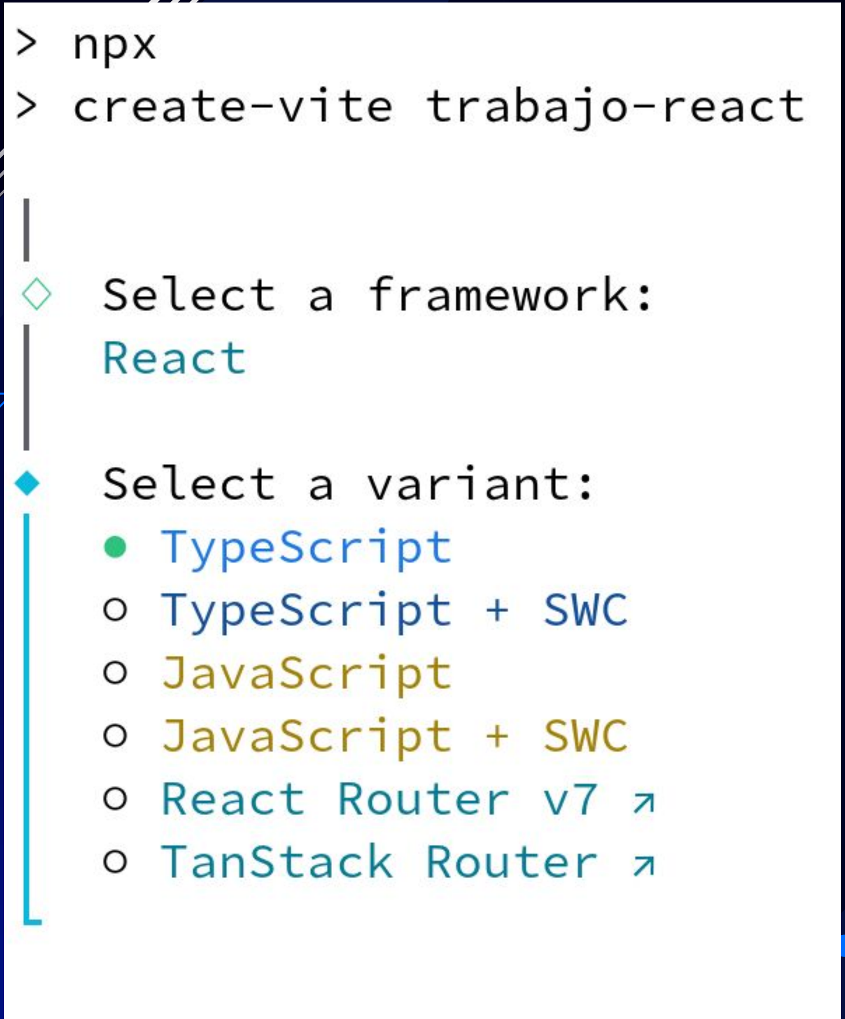
Installation with vite



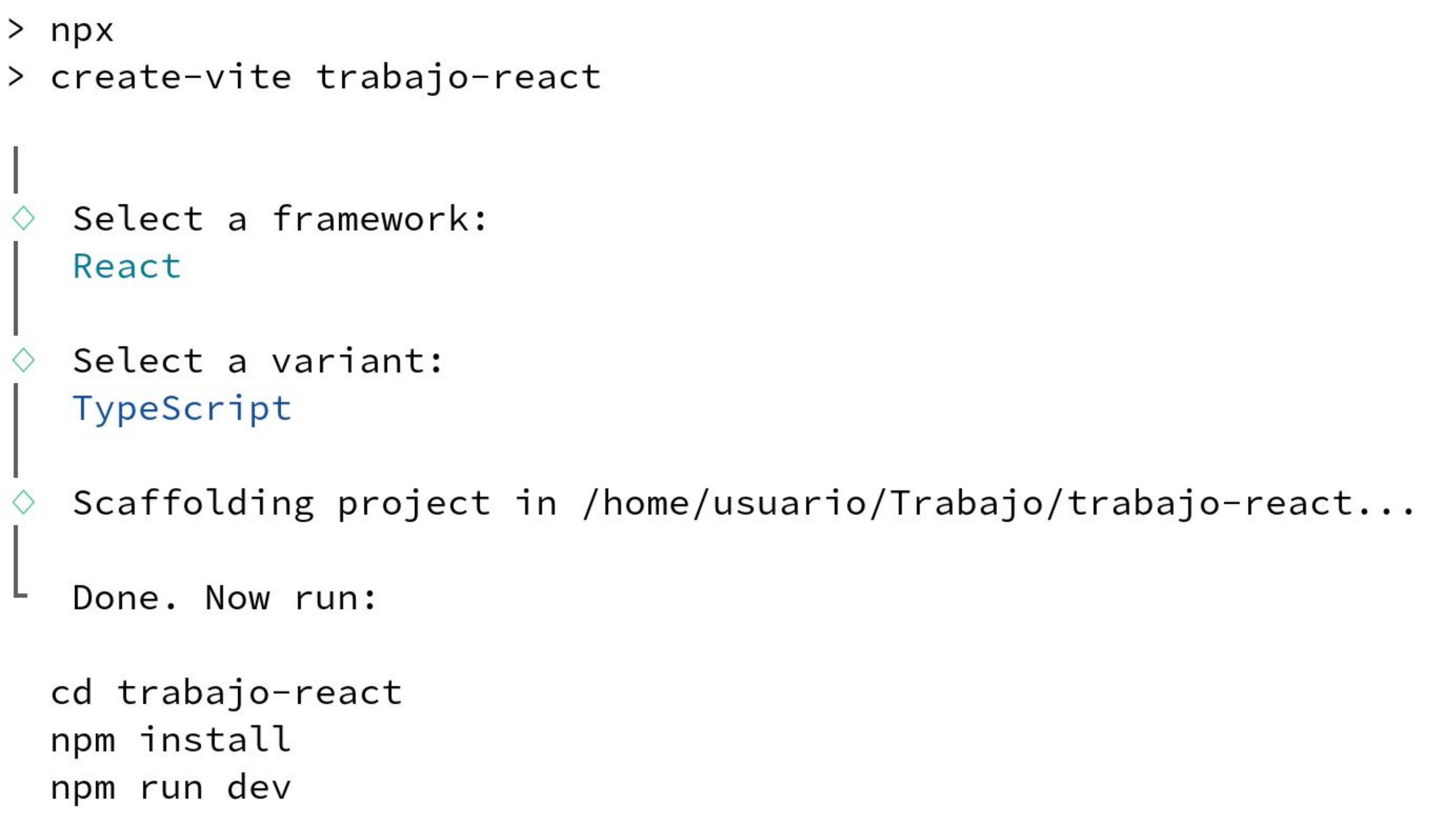
```
npm create vite@latest [your project name]
```



```
> npx
> create-vite trabajo-react

│
◆  Select a framework:
│  ○ Vanilla
│  ○ Vue
│  ● React
│  ○ Preact
│  ○ Lit
│  ○ Svelte
│  ○ Solid
│  ○ Qwik
│  ○ Angular
│  ○ Others
└
```



```
> npx
> create-vite trabajo-react

│
◇  Select a framework:
│  React
│
◆  Select a variant:
│  ● TypeScript
│  ○ TypeScript + SWC
│  ○ JavaScript
│  ○ JavaScript + SWC
│  ○ React Router v7 ↗
│  ○ TanStack Router ↗
└
```



```
> npx
> create-vite trabajo-react

│
◇  Select a framework:
│  React
│
◇  Select a variant:
│  TypeScript
│
◇  Scaffolding project in /home/usuario/Trabajo/trabajo-react...
│
└  Done. Now run:

  cd trabajo-react
  npm install
  npm run dev
```

03

Characteristics of React

VIRTUAL DOM

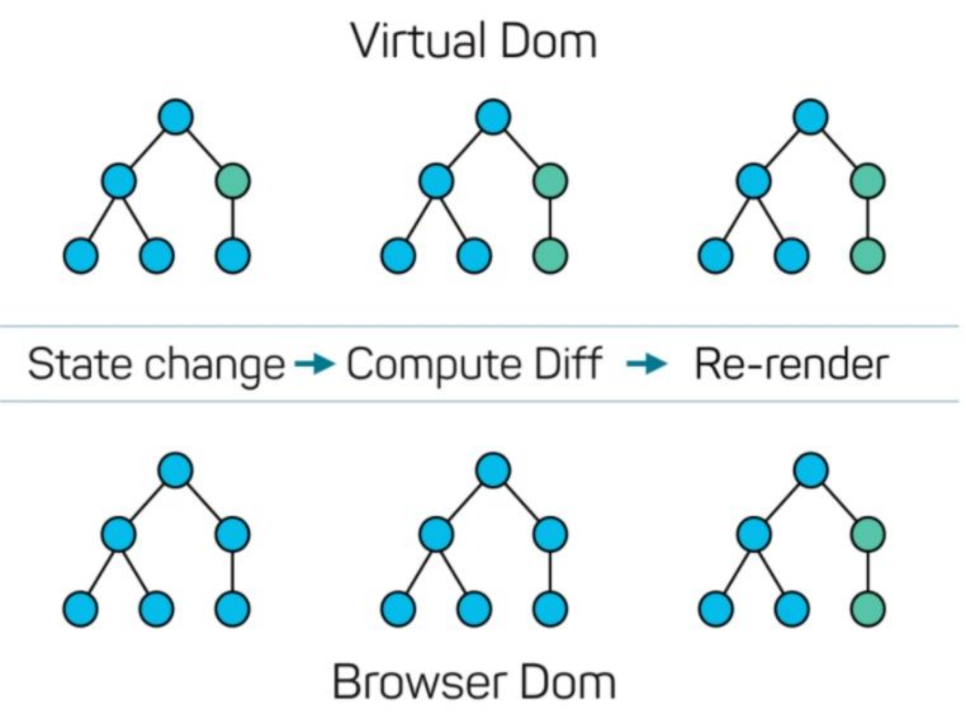
What is the virtual DOM?

- Is a programming concept where an virtual representation of a UI is kept in memory and synced with the “real” DOM by a library such as ReactDOM

- ReactDOM uses different phases to handle this purpose.

- Allows greater efficiency and performance in web applications by optimizing the user interface update process.

Phases of the Virtual DOM



JSX

What is JSX?

- JSX (JavaScript XML) is a **syntax extension** for JavaScript

Allows developers to write HTML-like code directly within their JavaScript files; however, this extension requires adding an extra step to the program's compilation process.

It requires a compiler that supports this extension, such as Bubble or SWC.

Bubble

SWC

TSX

Enlace al playground de SWC

Enlace a los ejemplos de código

STATES

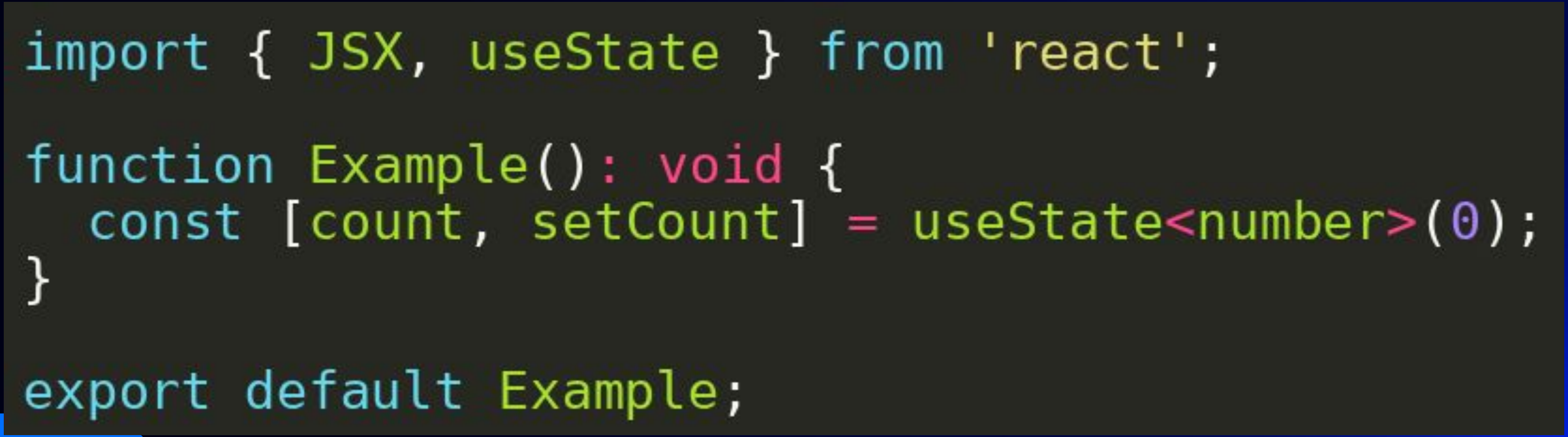
What is state in React?

- State is an object that holds dynamic data in a component.
- It allows the UI to react to changes (inputs, clicks, etc.).
- Managed using the useState hook in functional components.

State in React

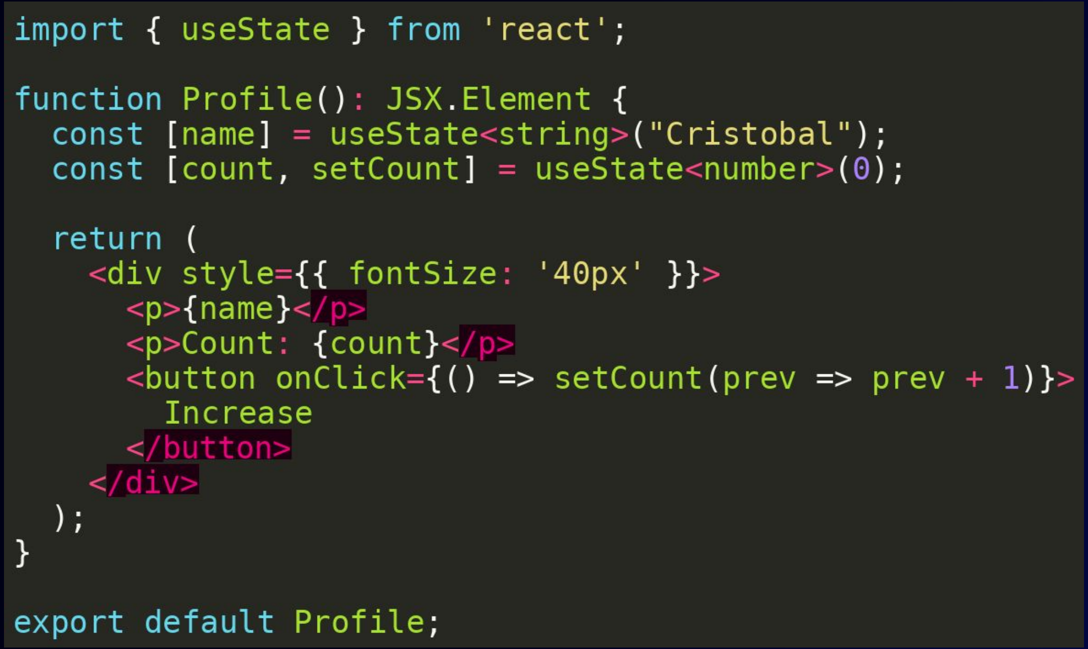
State can be initialized with the useState hook.

This example initializes a state variable count with the value 0.



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

function Example(): void {
  const [count, setCount] = useState<number>(0);
}

export default Example;
```

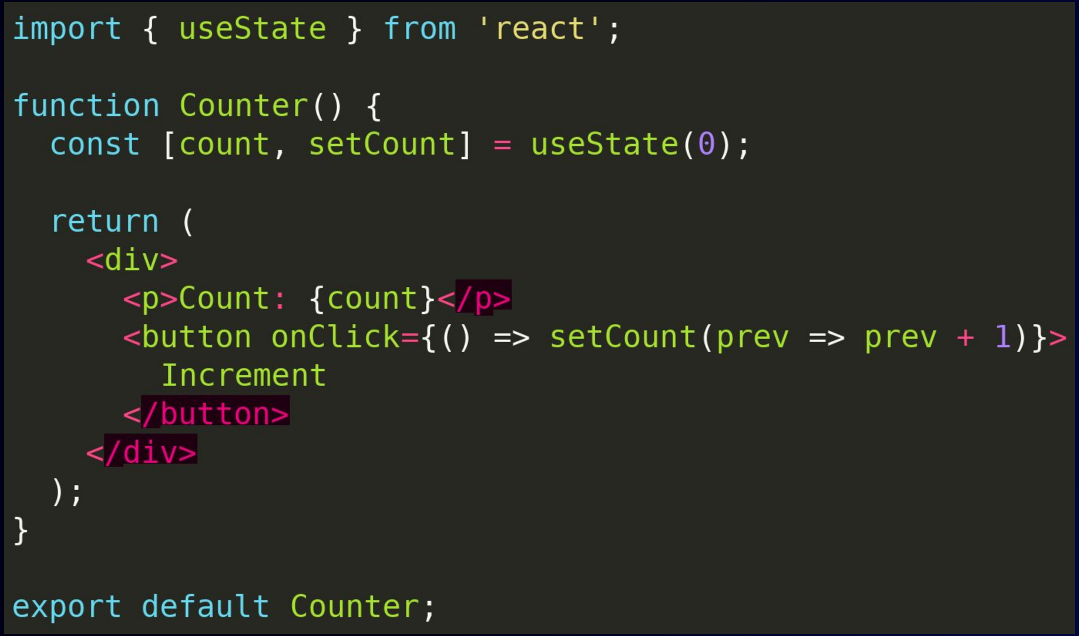
Multiple states



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

function Profile(): JSX.Element {
  const [name] = useState<string>("Cristobal");
  const [count, setCount] = useState<number>(0);

  return (
    <div style={{ fontSize: '40px' }}>
      <p>{name}</p>
      <p>Count: {count}</p>
      <button onClick={() => setCount(prev => prev + 1)}>
        Increase
      </button>
    </div>
  );
}

export default Profile;
```

- Separate state variables for independent pieces of state.
- State variables can be of any type.
- Multiple useState calls are allowed in a single component.

Best practices with useState



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

function Counter() {
  const [count, setCount] = useState(0);

  return (
    <div>
      <p>Count: {count}</p>
      <button onClick={() => setCount(prev => prev + 1)}>
        Increment
      </button>
    </div>
  );
}

export default Counter;
```

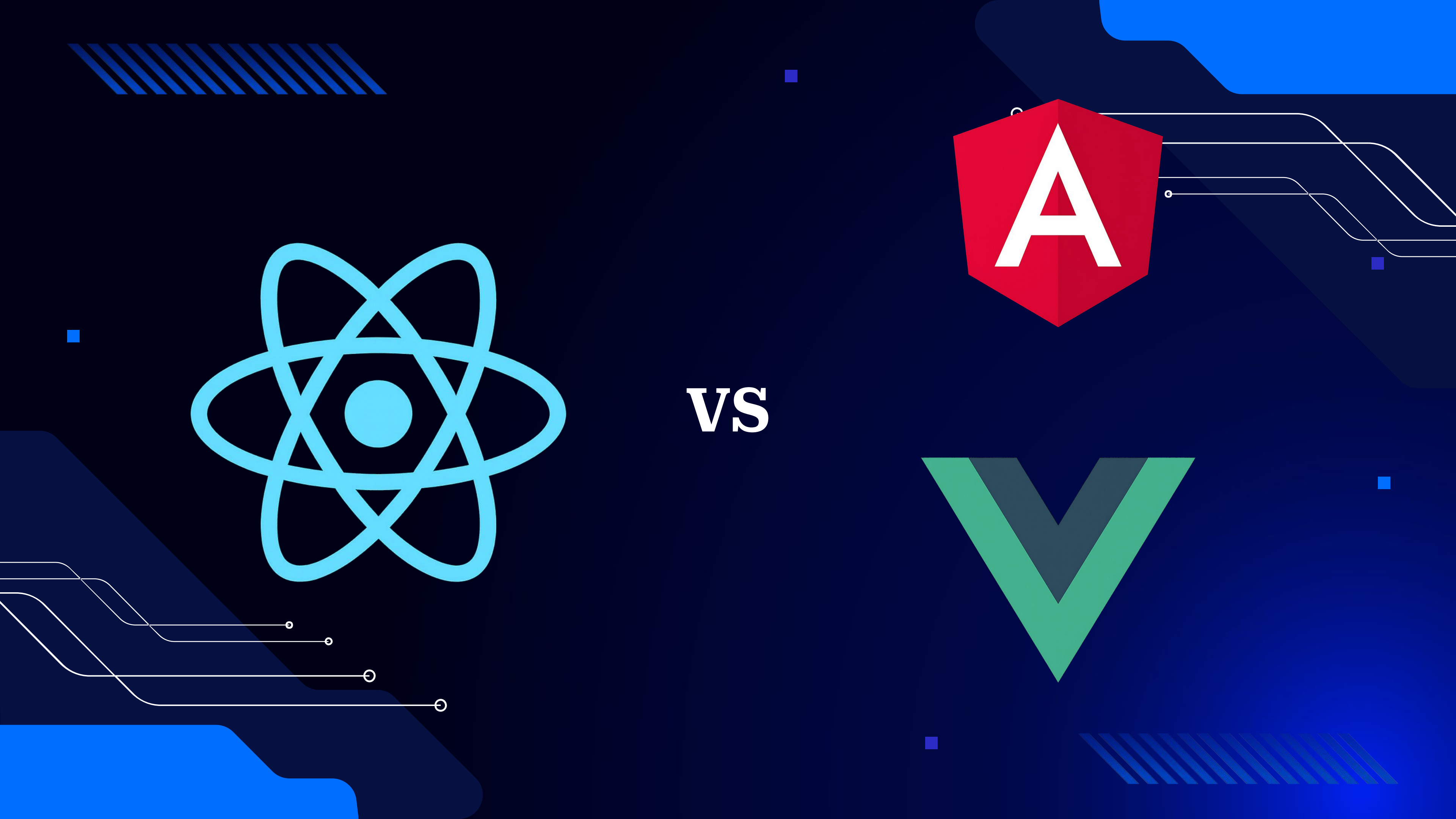
- Use functional updates when the new state is based on the previous state

- Keep state as small and simple as possible

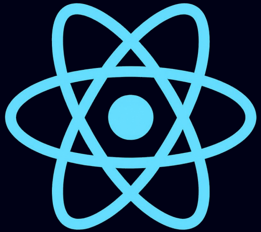
- Avoid derived state

components

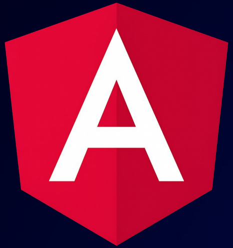
PROPS


VS

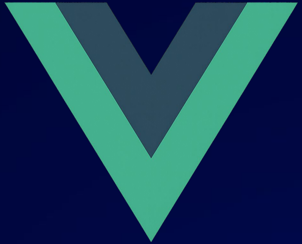
REACT VS OTHERS



- Flexible library
- TSX + JavaScript
- Moderate learning curve
- Very popular (Meta)



- Progressive framework
- HTML + JS
- Easy to learn
- Active community



Full-fledged framework
TypeScript required
Steep learning curve
Great for large projects

04 PROJECTS

Bibliography

React oficial documentation

React oficial installation

React course

React video tutorial

Explanation of the virtual DOM

SWC playground

Main concepts of React

Props and state Explained