React

Getting Started

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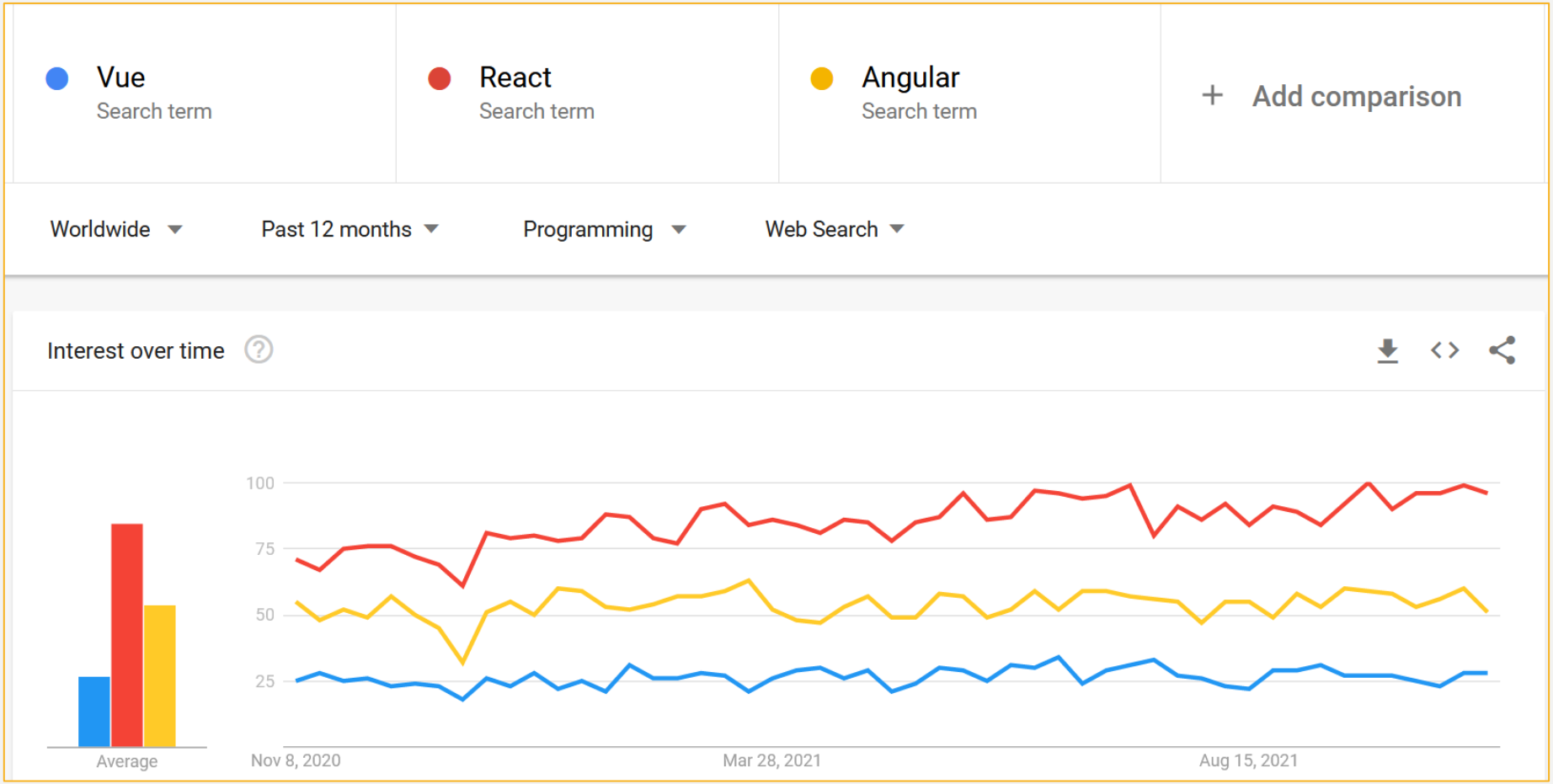
1. What is React?

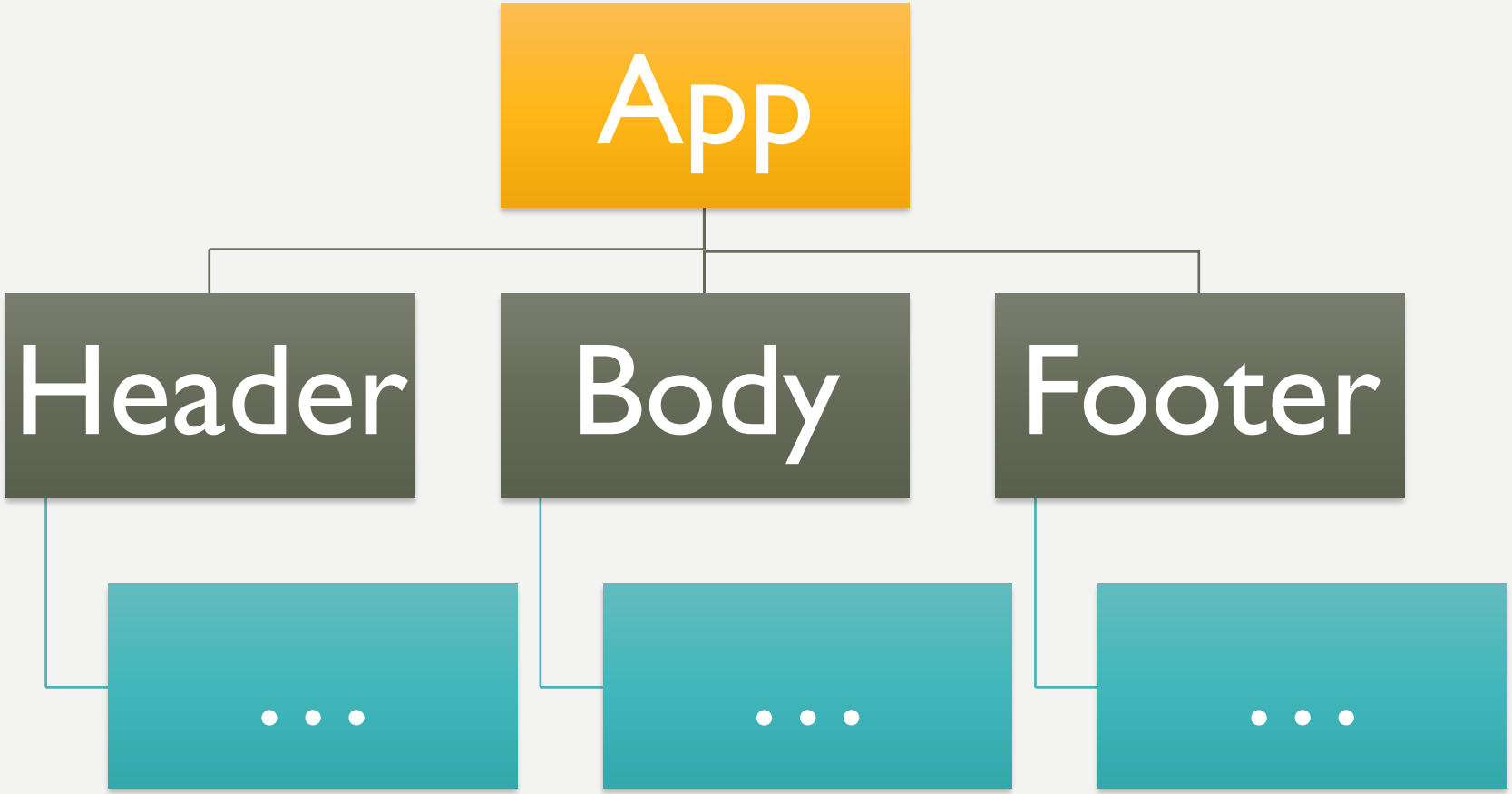
- React is a JavaScript library for building user interfaces
- It is maintained by Facebook and a community of individual developers and companies.
- React can be used as a base in the development of single-page or mobile applications.
- Author: Jordan Walke
- Initial release: May 29, 2013

Google Trends

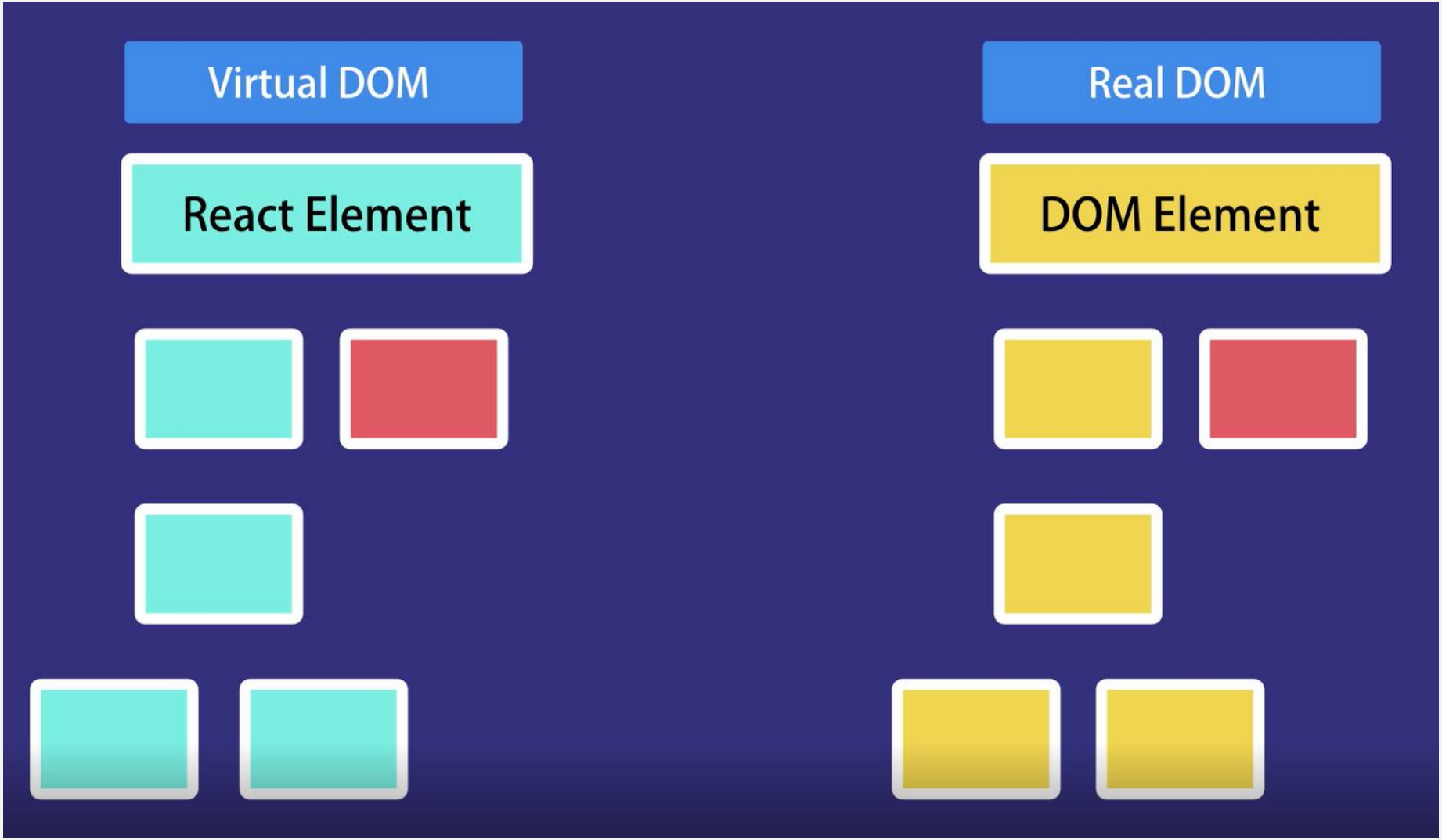
URL: https://trends.google.com/trends/explore?cat=31&q=Vue,React,Angular



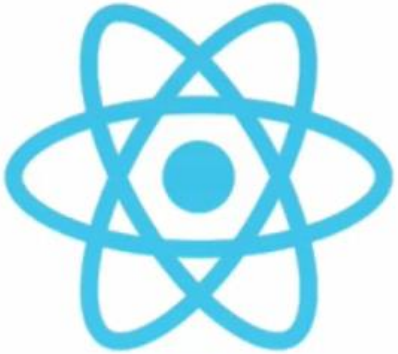
- The heart of all React Operations are components, a component is essentially a piece of a user interface.
- When building react projects, we will build a bunch of independent, isolated, and reusable components, and then compose them to build complex user interfaces.
- Every React application has at least one component, which we refer to as the root component.


App
Header
Body
Footer
. . .
. . .
. . .

```
class aComponent {
    state = {};
    render() {
    }
}
```


Virtual DOM
Real DOM
React Element
DOM Element

Angular



React

Vue

Google (Sep 14, 2016)

TypeScript
Framework

Facebook (May 29, 2013)

JavaScript, TypeScript
Library

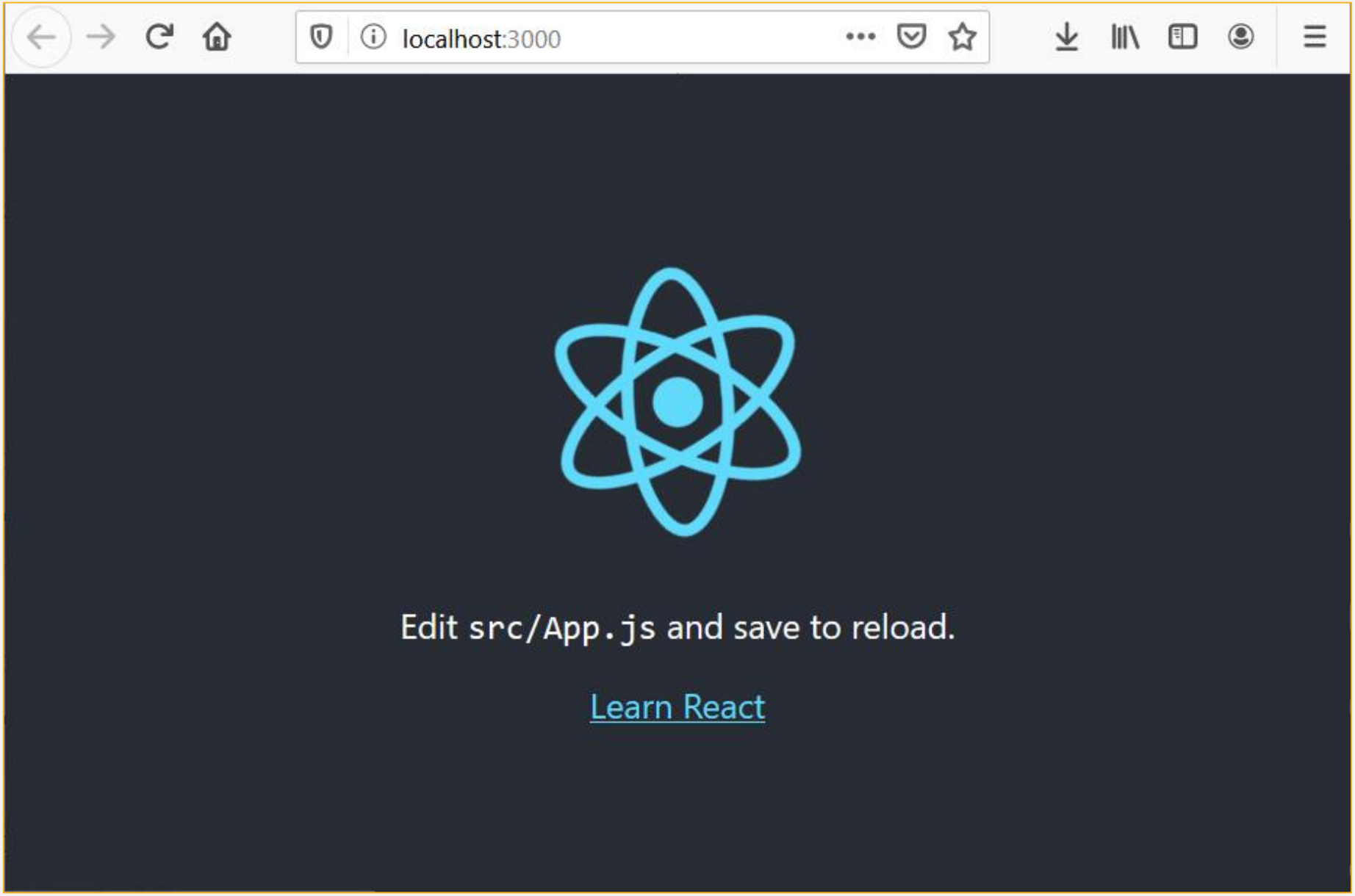
Evan You (Feb, 2014)

JavaScript, TypeScript
Framework

2. Your First React App

- Create a new project folder to store react apps.
- Use command prompt, jump to created folder.
- To create a new project, run command:

  npx create-react-app react-demo --template typescript --use-npm
- Open Visual Studio Code, select File → Open Folder…
- Browse to project folder.
- Open “Terminal” panel:
  - Select View → Terminal
  - Press: Ctrl+`
- Type
  - npm start


localhost:3000
Edit src/App.js and save to reload.
Learn React

3. Basic Folder Structure Explained

- package.json: This File has the list of node dependencies which are needed.
- public/index.html: When the application starts this is the first page that is loaded. This will be the only html file in the entire application since React is generally written using JSX which I will cover later. Also, this file has a line of code . This line is very significant since all the application components are loaded into this div.
- src/index.tsx: This is the JavaScript file corresponding to index.html. This file has the following line of code which is very significant.

```
const root = ReactDOM.createRoot(
   document.getElementById('root') as HTMLElement
);
root.render(<App />);
```

- src/index.css: The CSS file corresponding to index.js.
- src/App.tsx: This is the file for App Component. App Component is the main component in React which acts as a container for all other components (root component).
- src/App.css: This is the CSS file corresponding to App Component.
- build: This is the folder where the built files are stored. React Apps can be developed using either JSX, or normal JavaScript itself, but using JSX definitely makes things easier to code for the developer. But browsers do not understand JSX. So JSX needs to be converted into JavaScript before deploying. These converted files are stored in the build folder after bundling and minification. In order to see the build folder Run the following command: npm run build

4. Hello World Example

- Modify App.jsx file with below source code

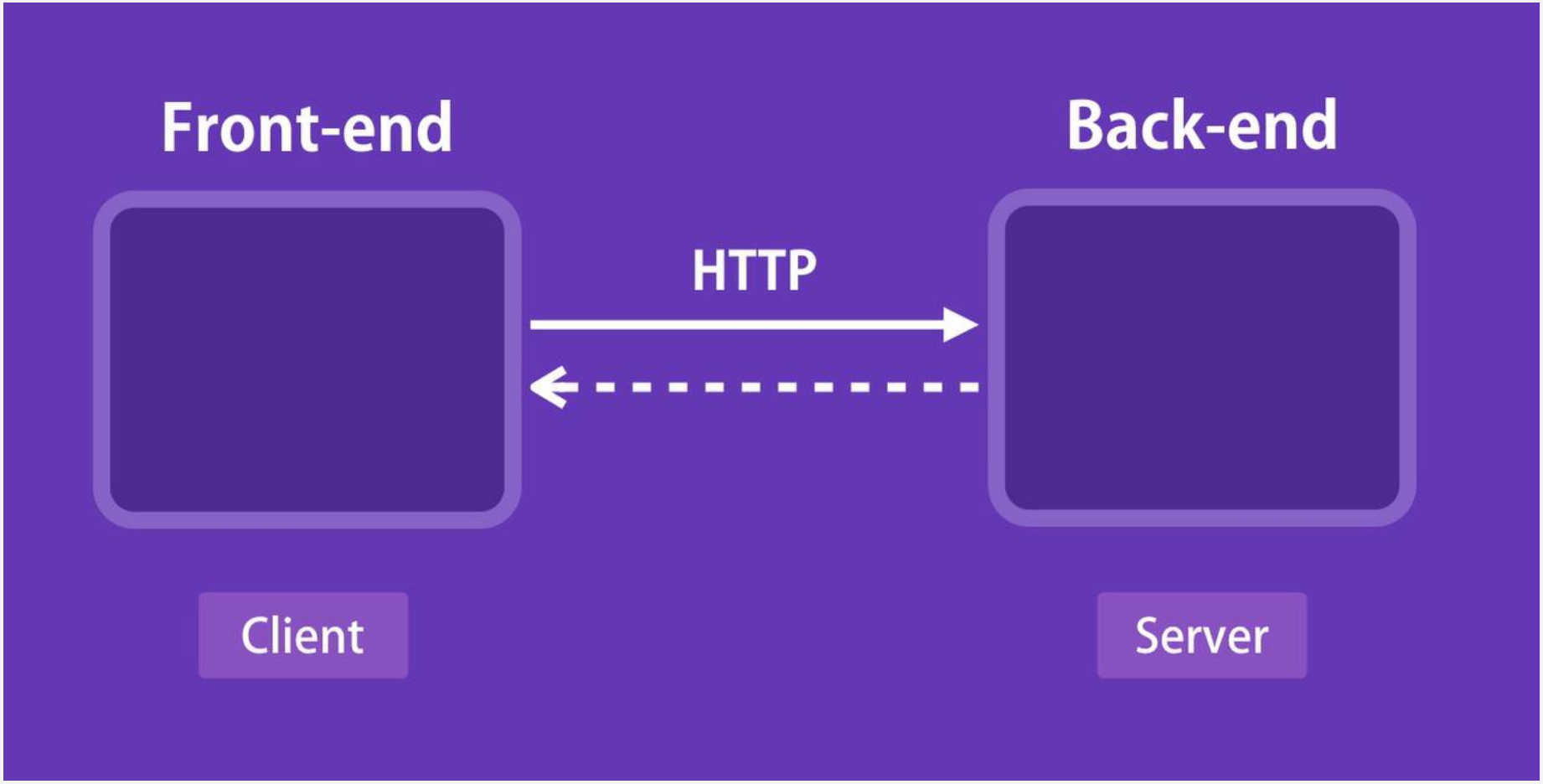
```jsx
import logo from './logo.svg';
import './App.css';

function App() {
  return (
    <h1>Hello world!</h1>
  );
}

export default App;
```

- Save the file, then back to browser to see the changes.
- To stop React app, press "**Control+C**" in the terminal.

5. Full-stack Architecture



Back-end

- C# (ASP.NET)
- Java/Kotlin (Spring Boot)
- PHP (Laravel)
- NodeJS (Express)
- Python (Django/Flask)
- Cloud services: Amazon, Google, Azure, …
- …

THE END