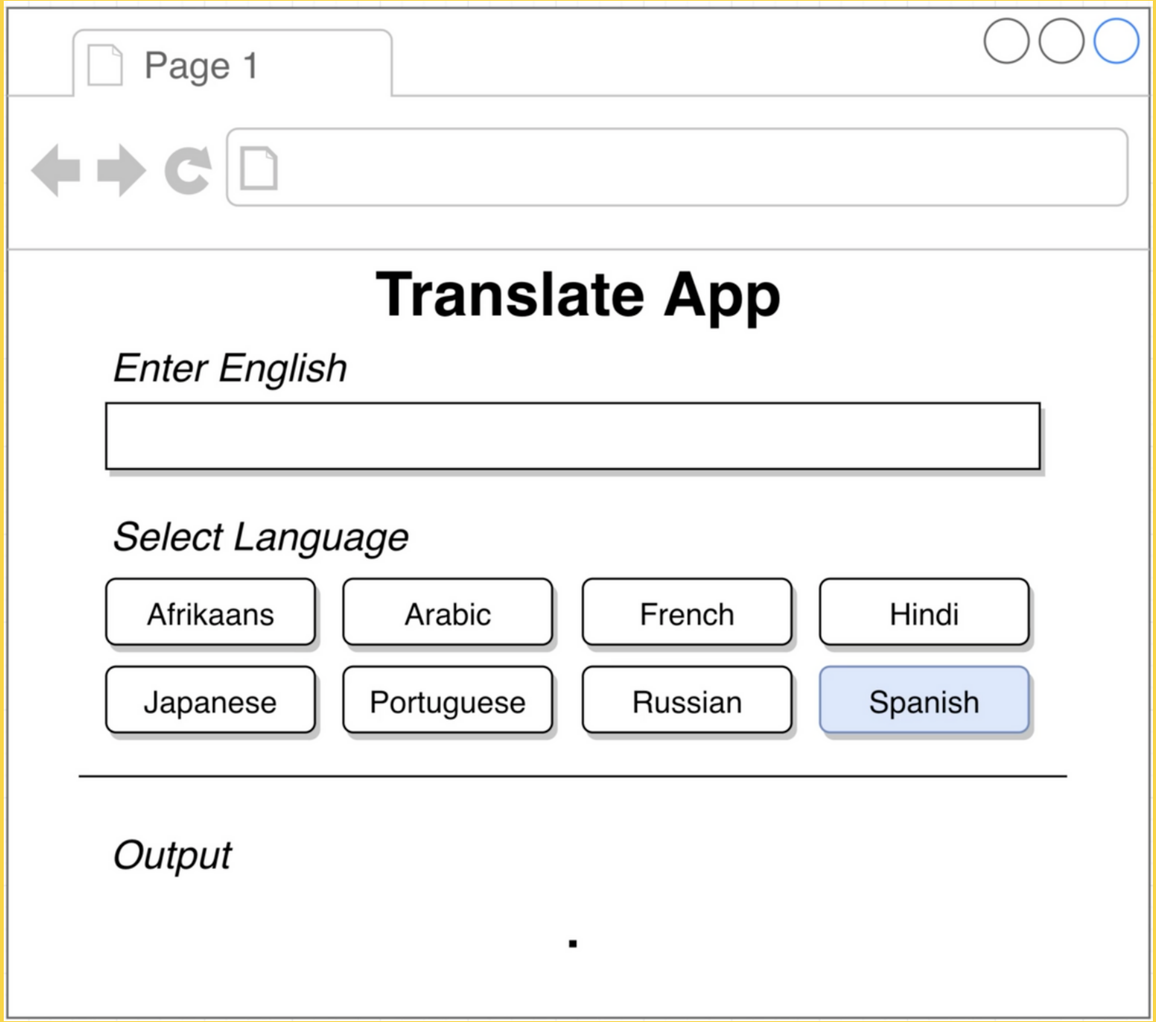
# Learning React

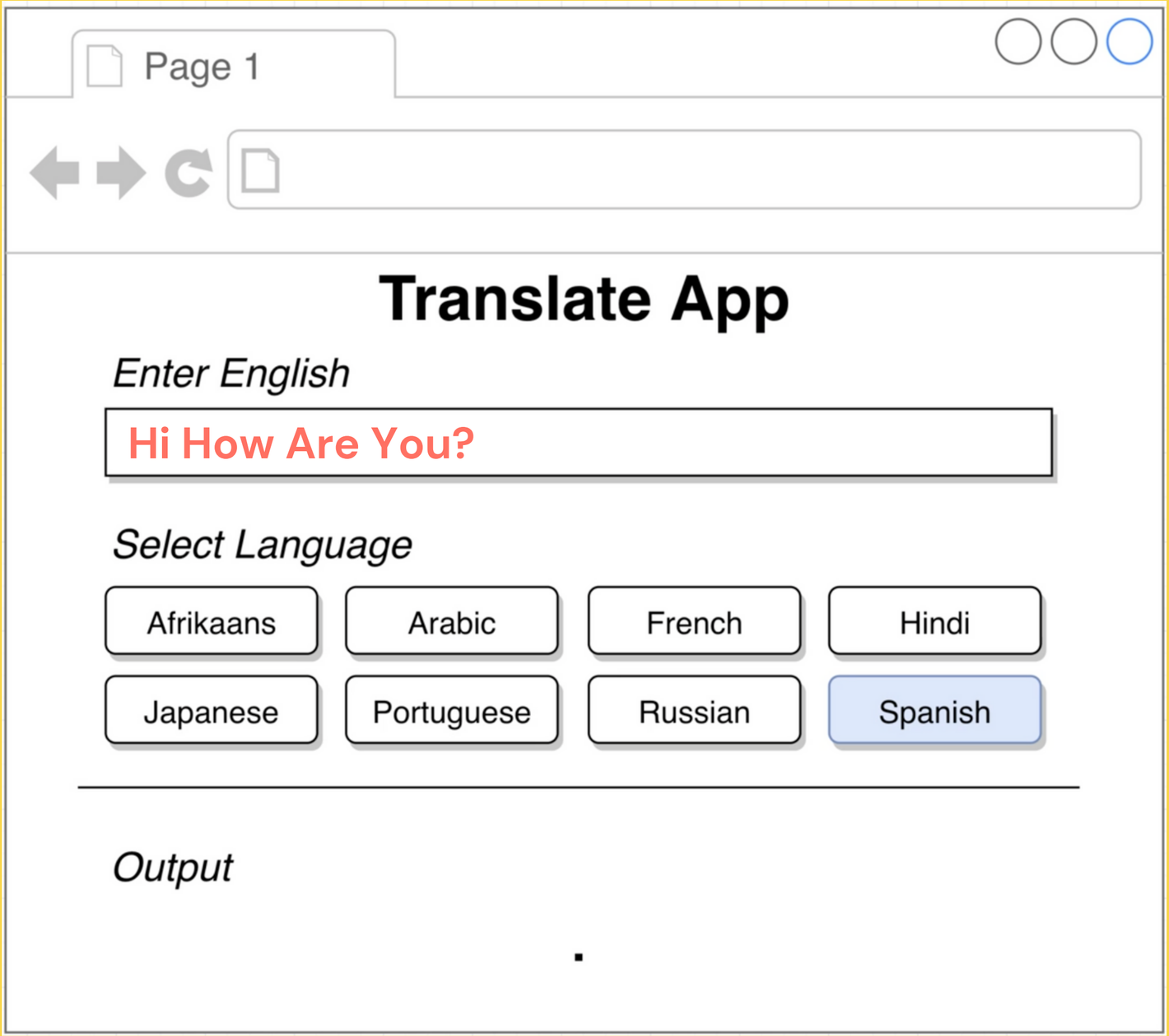
# Best Way to Learn React?

Write Code!

and Practice!

# We are going to build...




Page 1
Translate App
Enter English
Hi How Are You?
Select Language
Afrikaans
Arabic
French
Hindi
Japanese
Portuguese
Russian
Spanish
Output

Page 1
Translate App
Enter English
Hi How Are You?
Select Language
Afrikaans
Arabic
French
Hindi
Japanese
Portuguese
Russian
Spanish
Output
hola, cómo estás

codesandbox.io/s/
react-pibc94

# Important Questions

01

What is React all about?

02

How does a React app startup?

03

What were the ‘use State’ functions?

04

How did the text get translated into another language

# What is React all about?

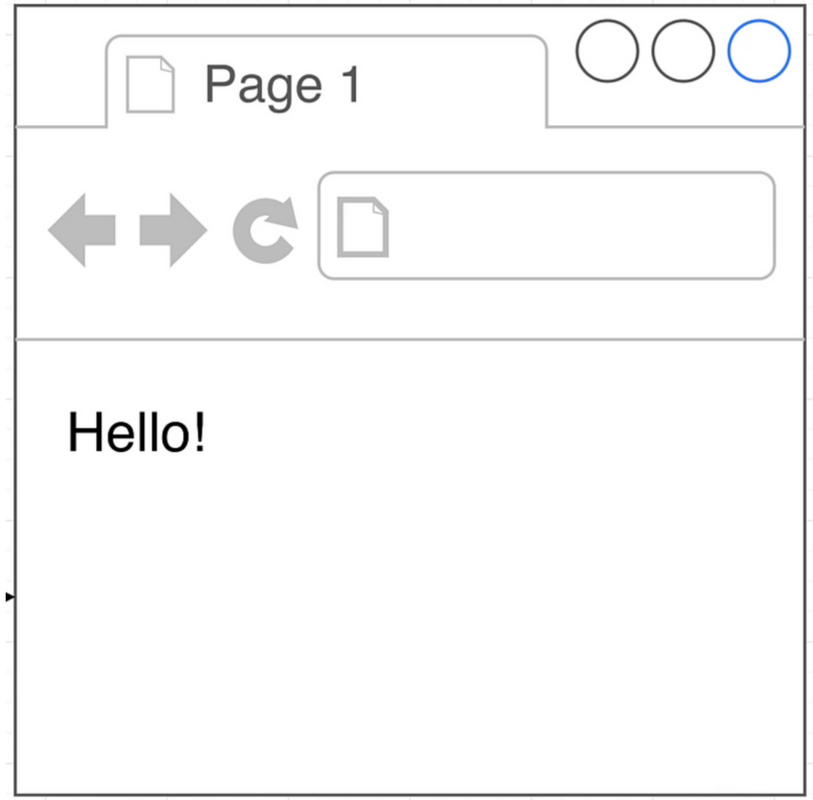
**React (1) displays HTML and (2) changes that HTML when the user does something.**

# How do we tell React to show HTML?

JSX

```
function App() {
  return (
    <div>
      <h3>Hello!</h3>
    </div>
  );
}
```

React



# React Components

- Functions that return JSX (stuff that looks like HTML)
- Tells React what to show on the screen
- A project can have many components that work together

```
function App() {
  return (
    <div>
      <h3>Hello!</h3>
    </div>
  );
}
```

**React Component**

## App.js

```
function App() {
  const [language, setLanguage] = useState("es");
  const [text, setText] = useState("");

  return (
    <div>
      <Field onChange={setText} />
      <Languages language={language} onLanguageChange={setLanguage} />
      <hr />
      <Translate text={text} language={language} />
    </div>
  );
}
```

## languages.js

```
function Languages({ language, onLanguageChange }) {
  return (
    <div>
      <label className="label">
        Select Language
      </label>
      <div className="opts" />
    </div>
  );
}
```

## flower.js

```
function Flower({ fill, className }) {
  return (
    <svg
      className={className}
      style={{ fill: "rgb(0, 0, 0)", display: "none" }}
    />
  );
}
```

## translate.js

```
function Translate({ language, text }) {
  const [translated] = useTranslation(text, language);

  return (
    <div className="translate">
      <label className="label">Output</label>
      <h1 className="title">{translated}</h1>
    </div>
  );
}
```

## field.js

```
function Flower({ fill, className }) {
  return (
    <svg
      className={className}
      style={{ fill: "rgb(0, 0, 0)", display: "none" }}
    />
  );
}
```

## App component

```
export default function App() {
  return (
    <div>
      <Field />
      <Languages />
      <hr />
      <Translate />
    </div>
  );
}
```

# JSX

*Stuff that looks like HTML*

tells react to **create normal HTML element**

- 
- <button>Click</button>
- <input type="text" />

tells **react to show another component**

- <Field />
- <Languages />
- <Translate />

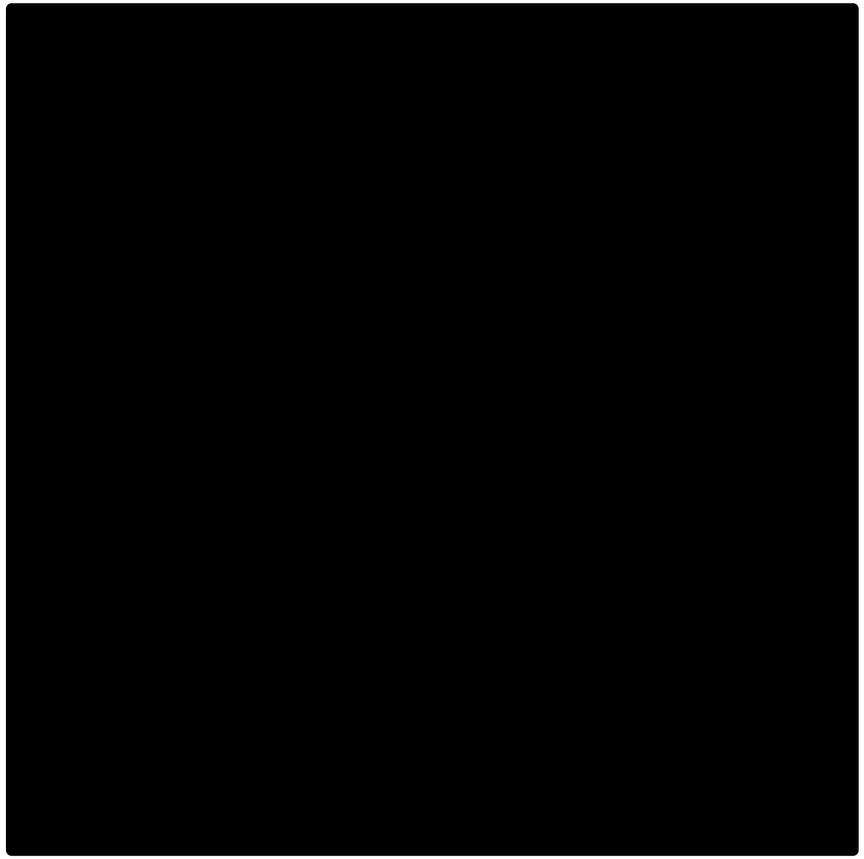
App component

```
function App() {
  return (
    <div>
      <h1>Your Friends</h1>
      <ContactList />
    </div>
  );
}
```

Contact List Component

```
function ContactList() {
  return (
    <ul>
      <li>Samantha</li>
      <li>Alex</li>
    </ul>
  );
}
```

Final HTML Output



## App component

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## Contact List Component

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## Final HTML Output

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## Contact List Component

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## Final HTML Output

```
<div>
  <h1>Your Friends</h1>
  <ul>
    <li>Samantha</li>
    <li>Alex</li>
  </ul>
</div>
```

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# How Does a React App Start Up?

**01**

All of your project's JS files are 'bundled' together in a single file, then placed into a server.

**02**

User makes a request to a server and gets an HTML file + the bundle

**03**

User's browser executes code

01

All of your project's JS files are 'bundled' together in a single file, then placed into a server.

App.js

index.js

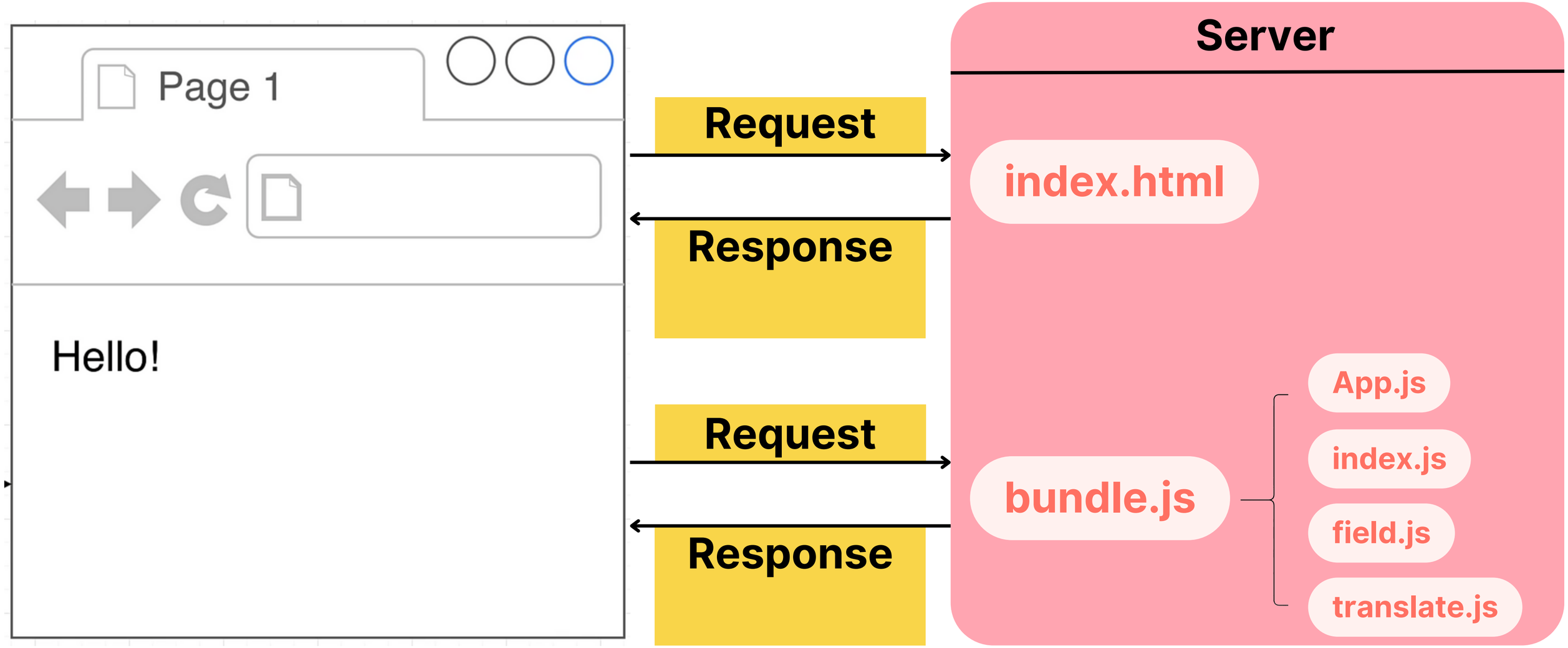
field.js

translate.js

App bundle

ikjik234k34i048.js

## 02 User makes a request to a server and gets an HTML file + the bundle



02 User's browser executes code

# React Startup Process

All inside the index.js file

1 Find the div with id of 'root' in the DOM

2 Tell React to take control of that element

3 Tell React to get JSX from the App component, turn it into HTML, and show it in the root

## index.html

```
<html>
 <head>
 </head>
 <body>
  <div id="root"></div>
 </body> </html>
```

## bundle.js

```
const rootElement = document.getElementById('root')
const root = createRoot(rootElement)

root.render(<App />)
```

# What were the ‘useState’ functions?

'useState' is a function that works with React's "state" system

State is like a variable in React

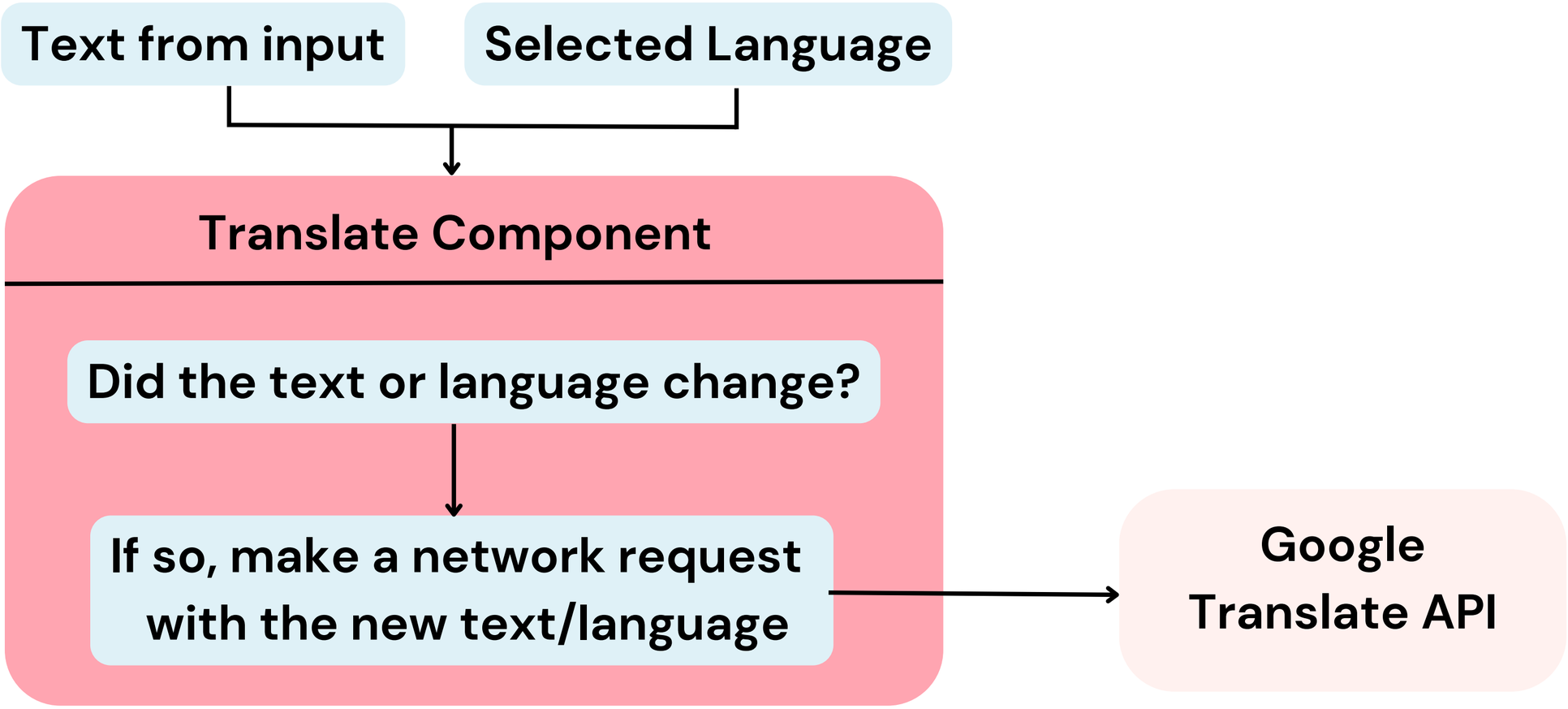
State is used to store data that changes over time

Whenever state changes, React automatically updates content on the screen

Our app had three pieces of data that changed

- The text the user typed into the text input
- Language the user wanted to translate text to
- The result of the translation

# How did the text get translated to another language?



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Let's learn more about JSX and components

↓

CodeSandBox is great, but not often used for professional projects

↓

Let's generate a new *local* React project!

# Goals

Install/Update Node JS

↓

Gemerate a new React project

↓

Build project!

*Generating a Project*

**npx create-react-app <project name>**

**To start your project up**

- Change into your project floder
- Run **npm start**

**To view your project** → Open your browser and navigate to **localhost:3000**

**To stop your project** → Press **Control+C**

Why are we running something at our terminal

What are all these files and folders?

**Files in Your Project**

- index.js
- App.js
- reportWebVitals.js

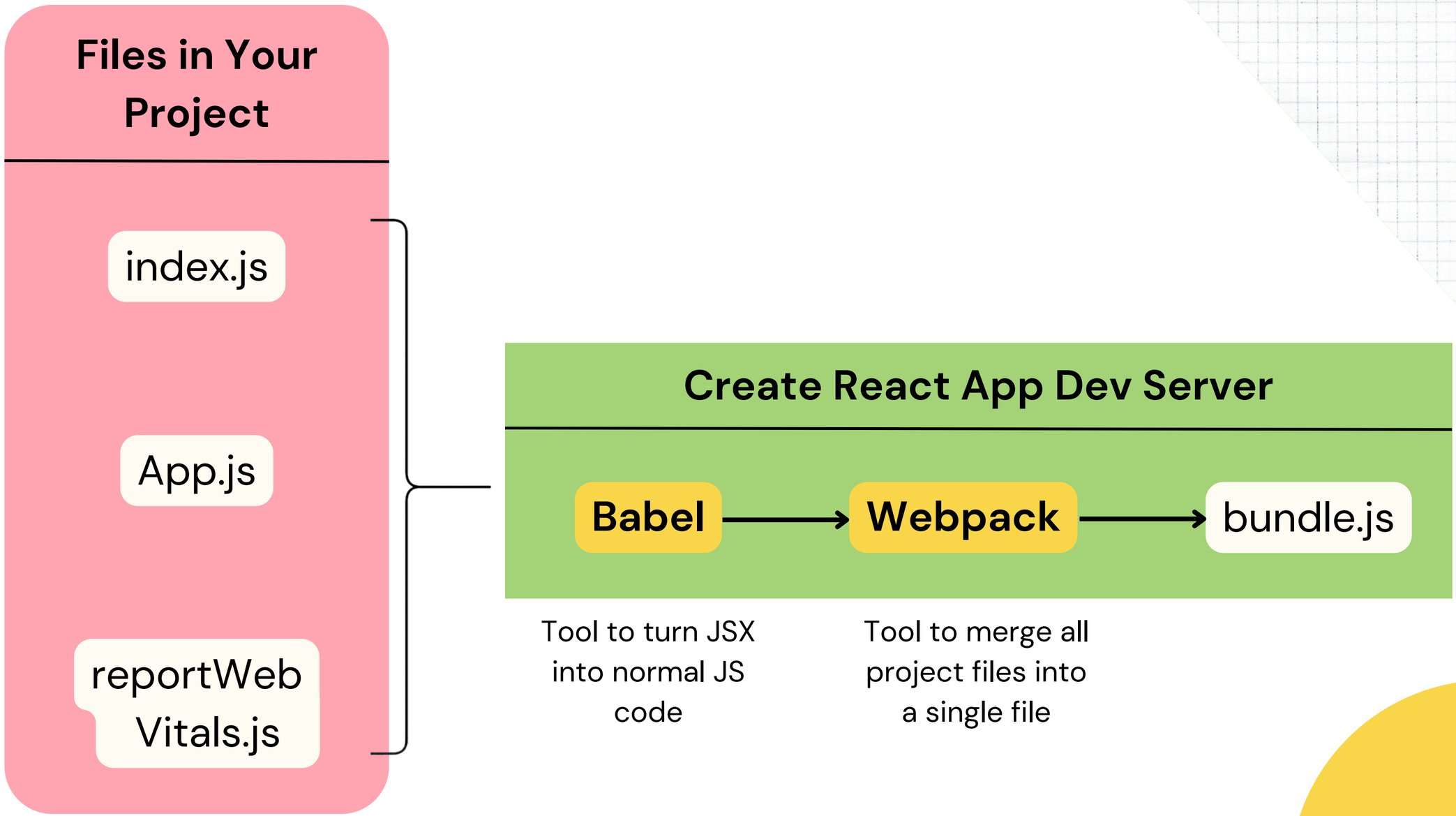
Files that contain code that browser doesn't know how to execute

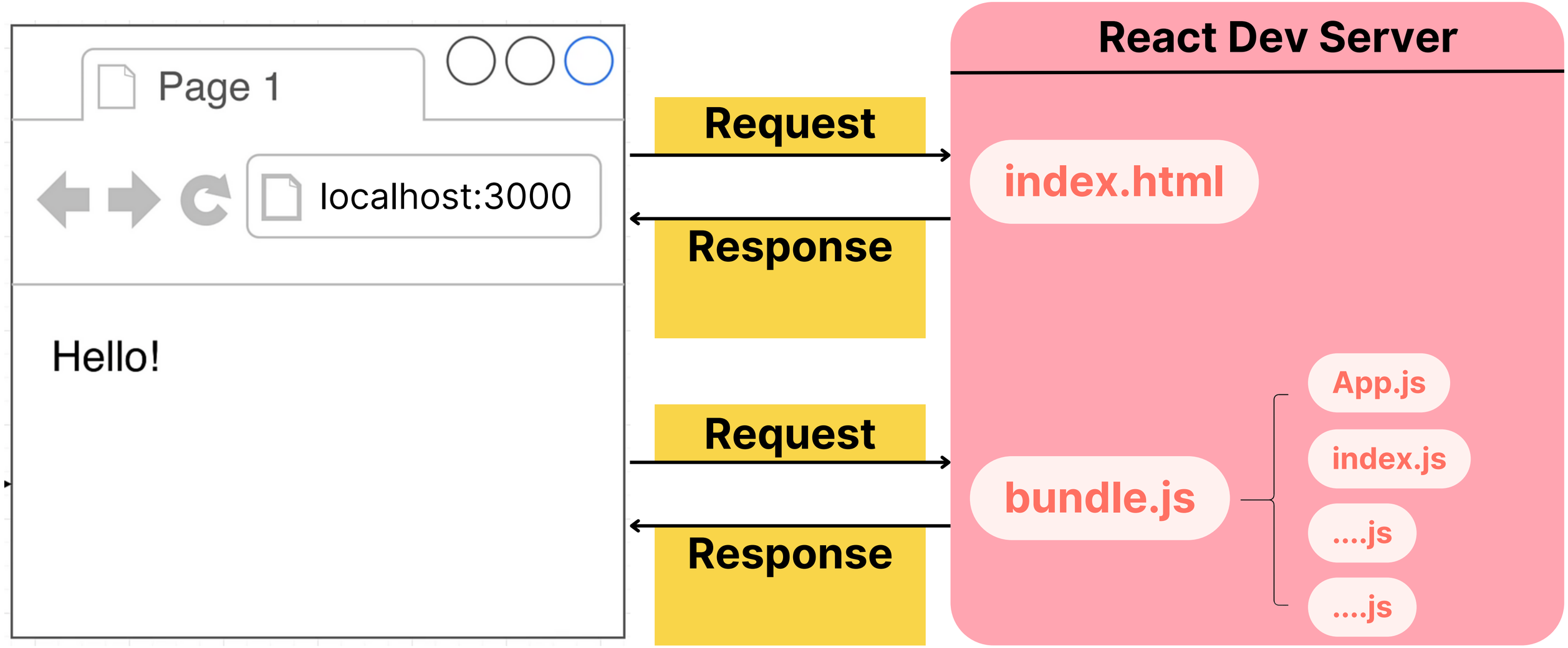
## Files in Your Project

App.js

```
function App() {
 return <div>
   <header />
 </div>
}
```

Browser don't know how to execute JSX! It isn't valid Javascript!


Files in Your Project
index.js
App.js
reportWeb Vitals.js
Create React App Dev Server
Babel
Webpack
bundle.js
Tool to turn JSX into normal JS code
Tool to merge all project files into a single file


Page 1
localhost:3000
Hello!
Request
Response
Request
Response
React Dev Server
index.html
bundle.js
App.js
index.js
....js
....js

| | |
|---|---|
| **index.js** | First file that gets executed when our app runs |
| **index.html** | Skeleton for the React app |
| **package.json** | Lists dependencies our app needs |
| **package-lock.json** | Lists dependencies our app needs |
| **node-modules** | Contains dependencies our app needs |