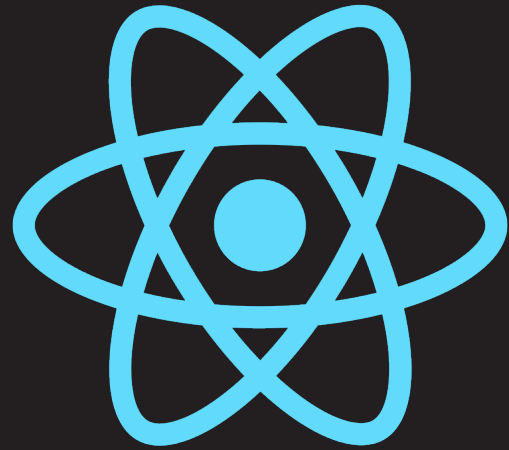


Introduction to React

What is React?



LEARNING OBJECTIVES



- Discover what React is and the problems it solves when designing UIs and web applications
- Get your first hands-on experience with React
- Discover the create-react-app utility that generates a React development toolchain for an incredible developer experience



What is React?

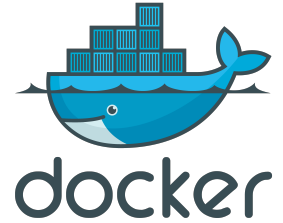
React

- React is a JavaScript library by Facebook.
- A JavaScript library is a collection of functions that you can use to simplify development and to introduce powerful features and functionality to your project.
- React is used to design highly performant user interfaces and applications.



Facebook designed React to solve common design and performance roadblocks.

React: Corporates using React



NETFLIX

React



React

A slow interface

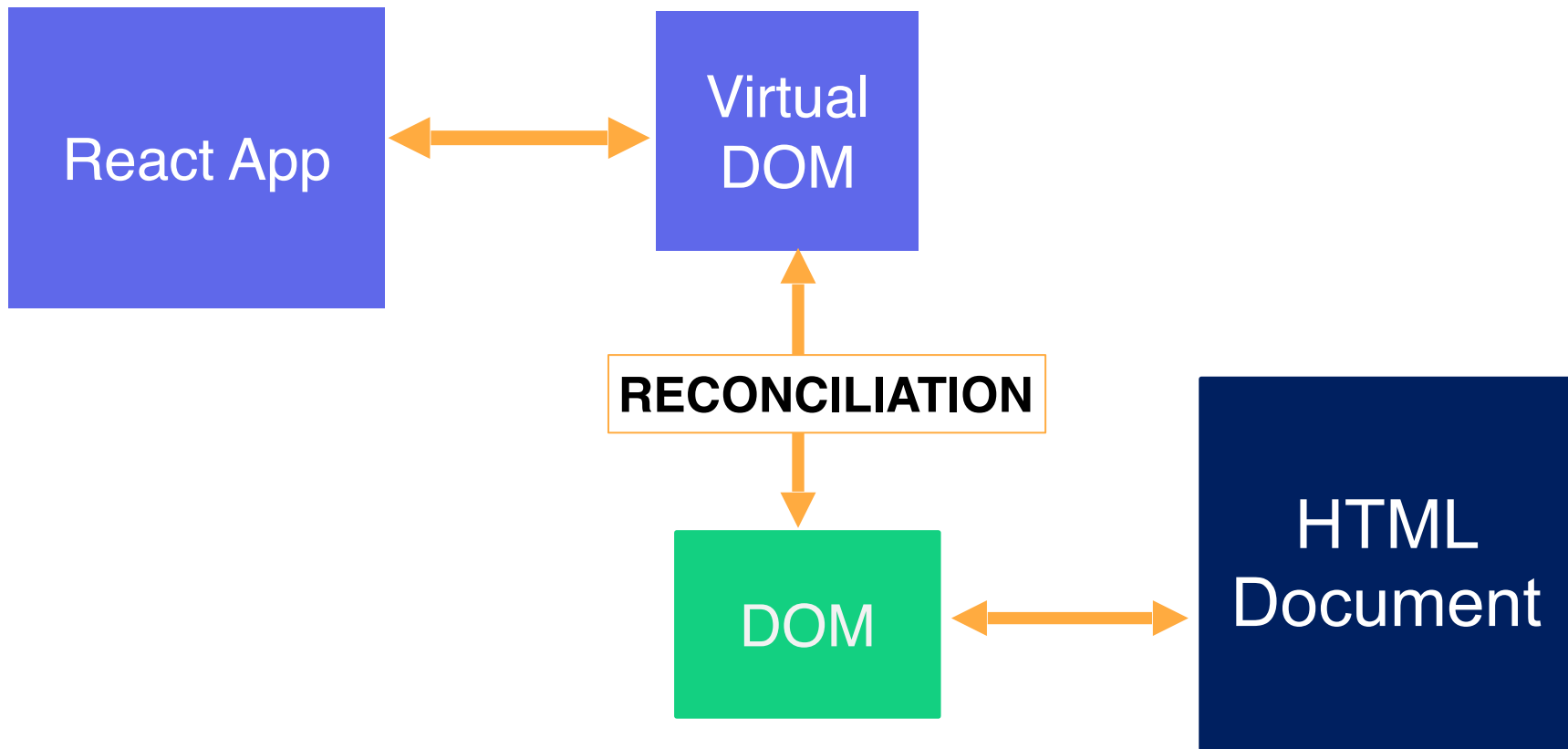
JavaScript

Document Object
Model (DOM)

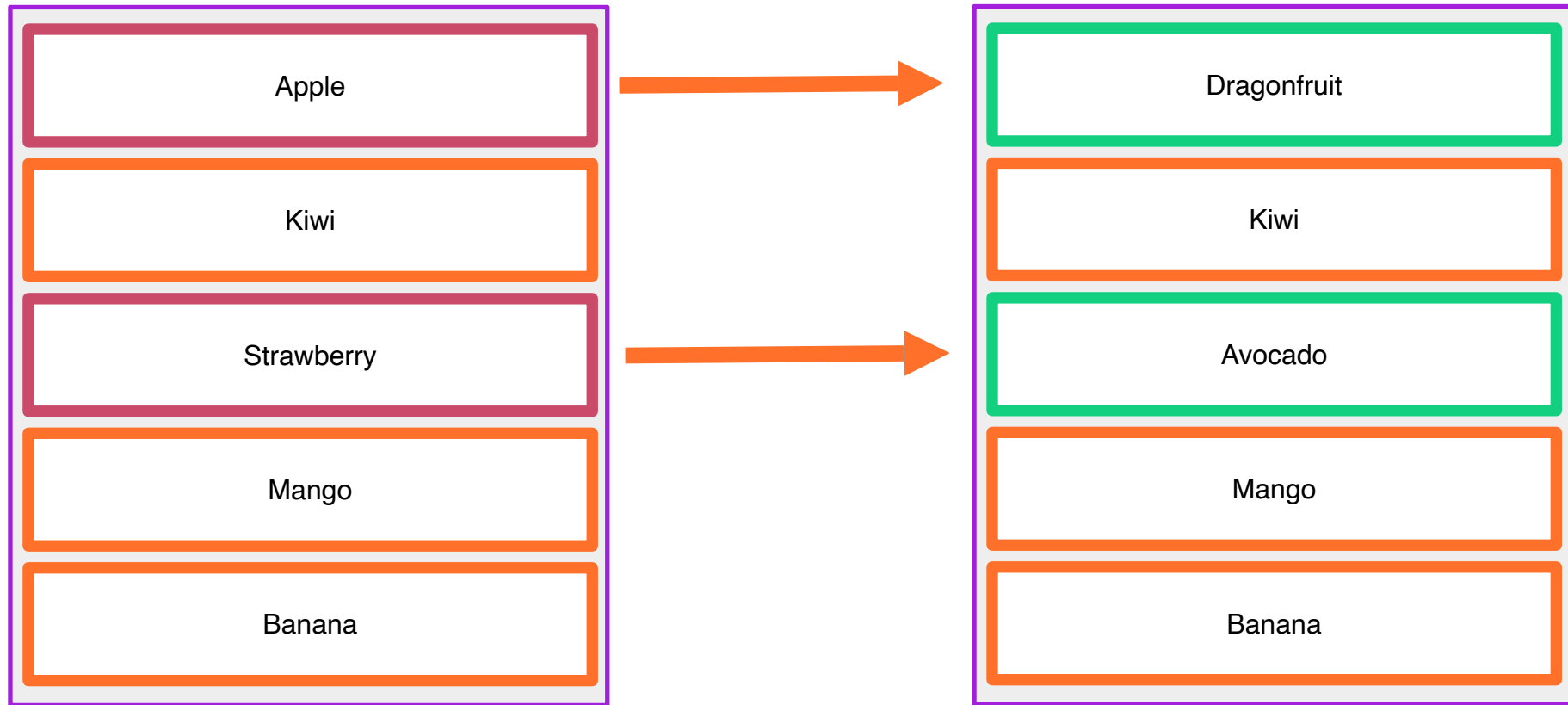
HTML
Document



React



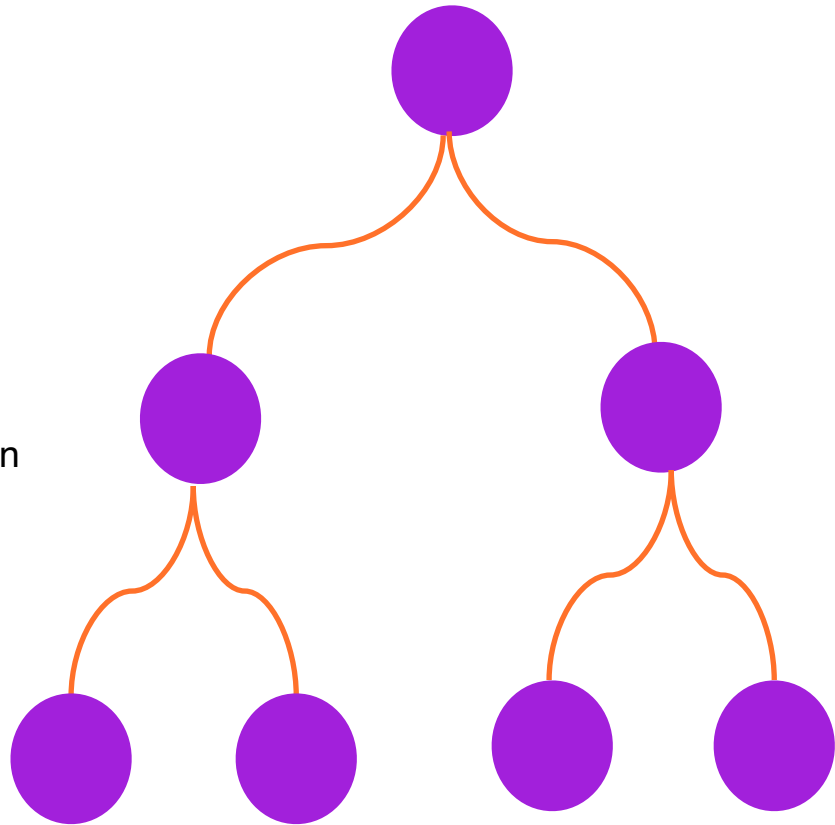
React



React Fiber



React's reconciliation algorithm is known as **React Fiber** which generates a virtual tree of DOM nodes internally when the app starts. This is then rendered into the page.



Declarative Rendering

1. Tracing Sheets A3 for Artists	<div>1</div>	<div>X</div>	\$ 4.55
2. Water Colour Pencils	<div>1</div>	<div>X</div>	\$ 2.90
3. Oil Pastel – 50 Shades	<div>1</div>	<div>X</div>	\$ 3.00

Continue to Payment

Total

\$ 10.45

Declarative Rendering

cart

product: "Tracing Sheets A3 for Artists",
quantity: 1,
cost: 4.55

product: "Water Colour Pencils",
quantity: 1,
cost: 2.9

product: "Oil Pastels – 50 Shades",
quantity: 1,
cost: 3.0

1. Tracing Sheets A3 for Artists	<input type="text" value="1"/>	<input type="checkbox"/>	\$ 4.55
2. Water Colour Pencils	<input type="text" value="1"/>	<input type="checkbox"/>	\$ 2.90
3. Oil Pastel – 50 Shades	<input type="text" value="1"/>	<input type="checkbox"/>	\$ 3.00

[Continue to Payment](#)

Total \$ 10.45

Declarative Rendering

State



```
cart = [  
  {  
    product: Tracing Sheets A3 for Artists  
    quantity: 1  
    4.55  
  
    {  
      product: Water Colour Pencils  
      quantity: 1  
      cost: 2.9  
  
      product: Oil Pastels – 50 Shades  
      quantity: 1  
      cost: 3.0  
  
      product: "Acrylic Colour Set (16 Colours) 50  
      ML  
      quantity: 1  
      cost: 8.5
```

1.	Tracing Sheets A3 for Artists	<input type="text" value="1"/>	<input type="button" value="X"/>	\$ 4.55
2.	Water Colour Pencils	<input type="text" value="1"/>	<input type="button" value="X"/>	\$ 2.90
3.	Oil Pastel – 50 Shades	<input type="text" value="1"/>	<input type="button" value="X"/>	\$ 3.00
4.	Acrylic Colour Set (16 Colours) 50 ML	<input type="text" value="1"/>	<input type="button" value="X"/>	\$ 8.50

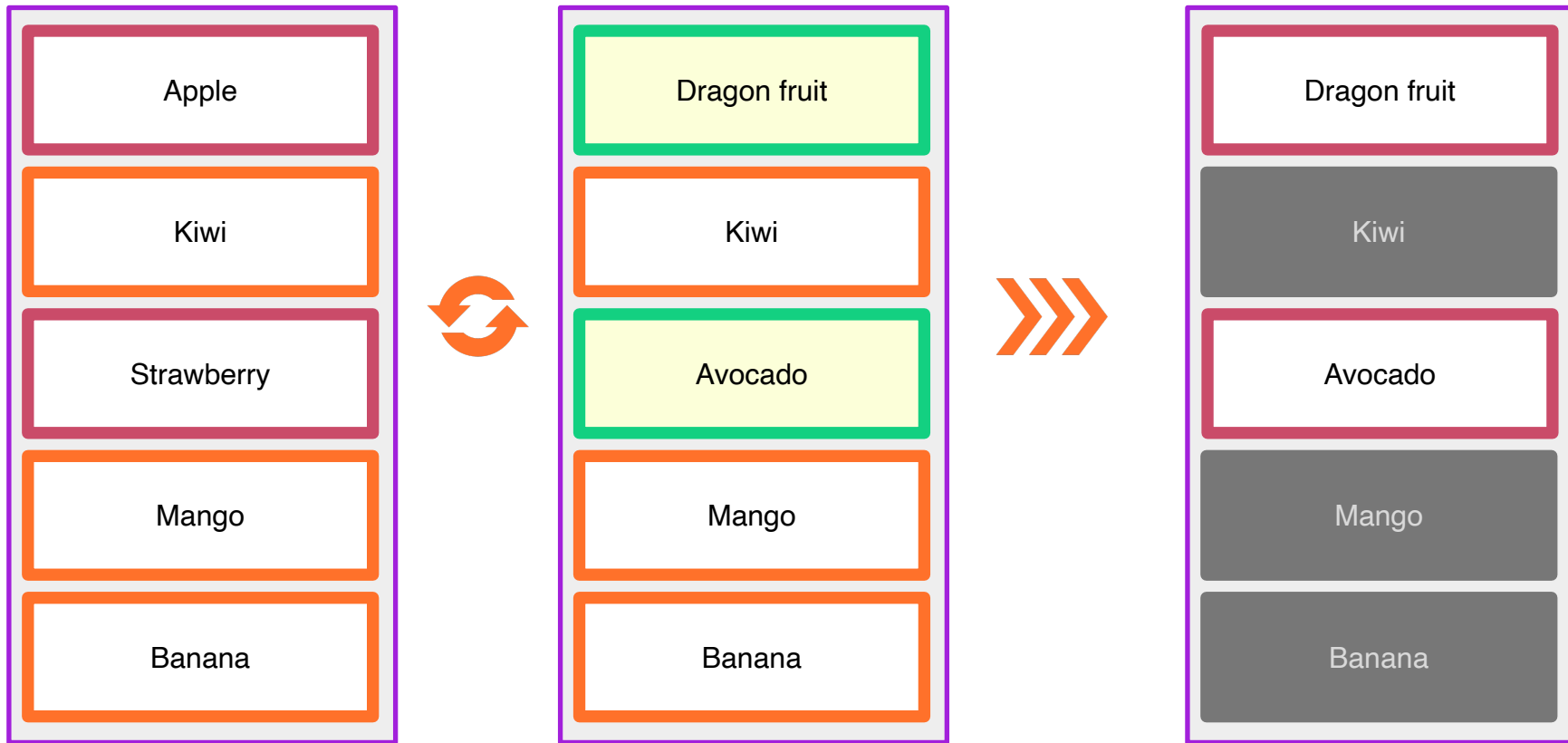
[Continue to Payment](#)

Total \$ 18.95

Concept of State

- React uses the concept of **state**, which essentially describes the **contents of the interface**. Whenever the state is **changed**, the interface automatically **updates** to reflect the change.
- You declaratively **update the interface** by simply updating the **underlying state**. Everything else is managed seamlessly by React.
- It is easy to imagine your application in terms of data

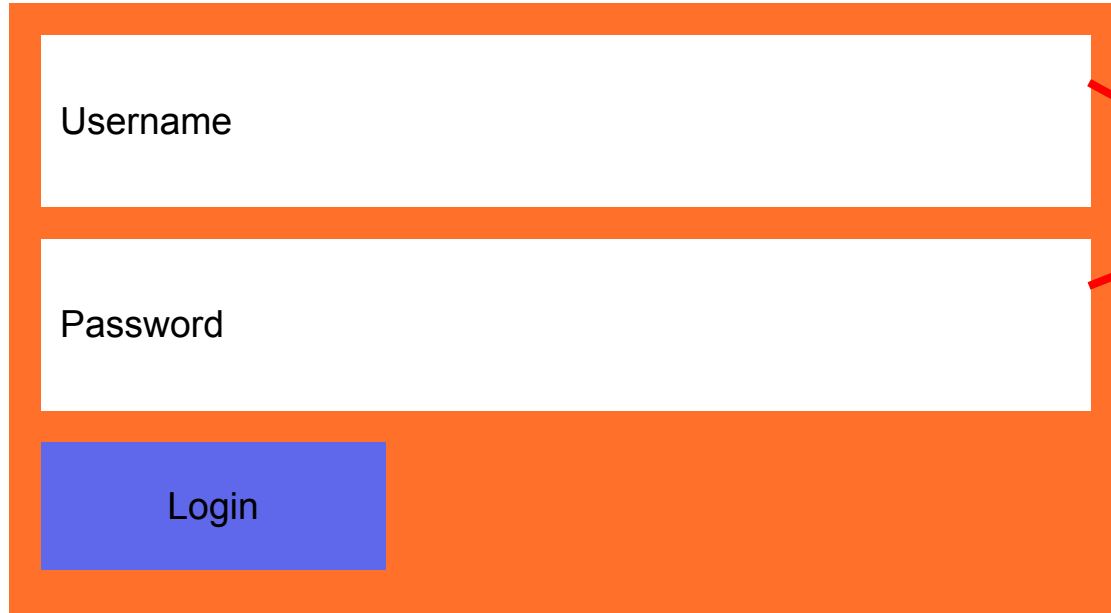
React Fiber: Diffing



Everything that you build with
React is a component

Components

LoginComponent



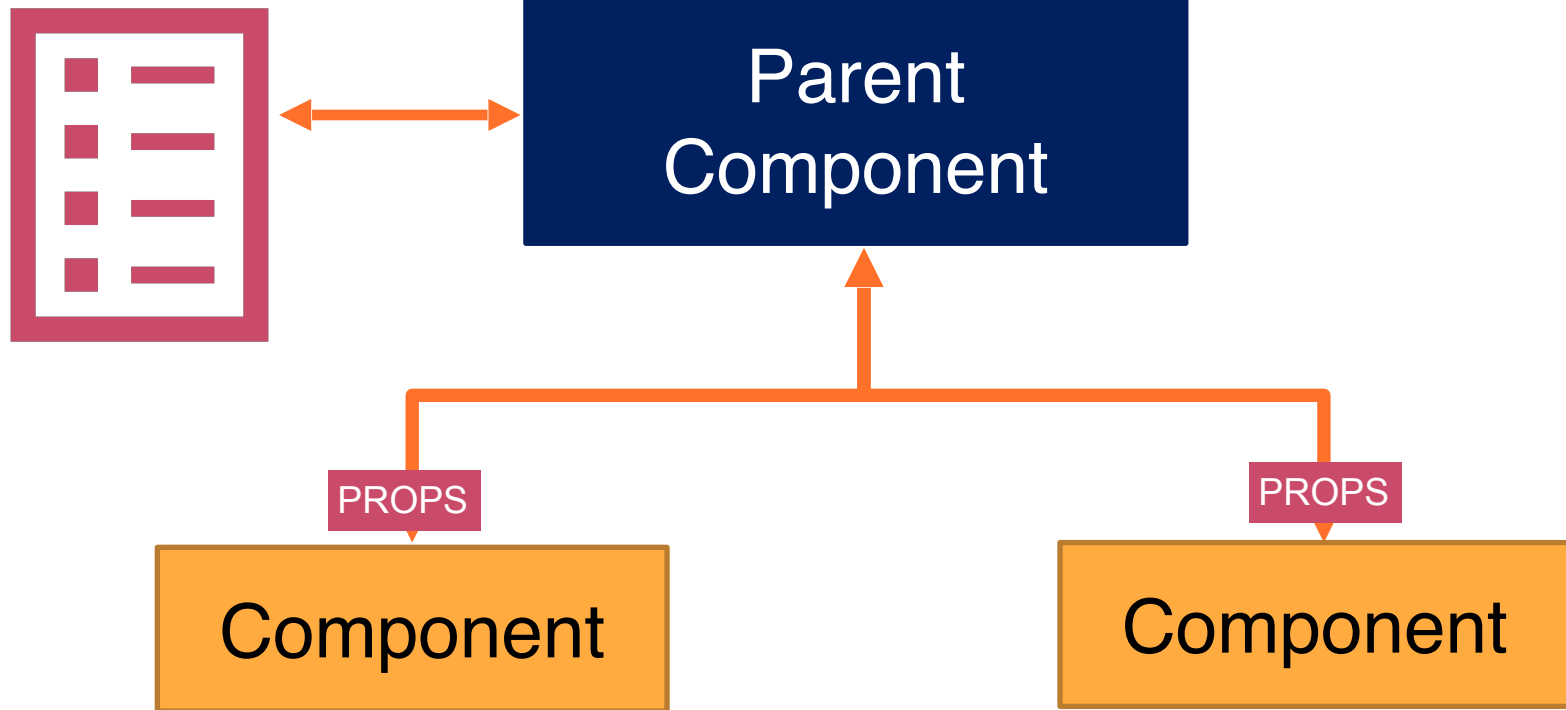
A diagram of a login component. It consists of an orange rectangular container. Inside the container, there are two white rectangular input fields stacked vertically. The top field is labeled "Username" and the bottom field is labeled "Password". Below these fields, there is a blue rectangular button labeled "Login".

InputComponent

ButtonComponent

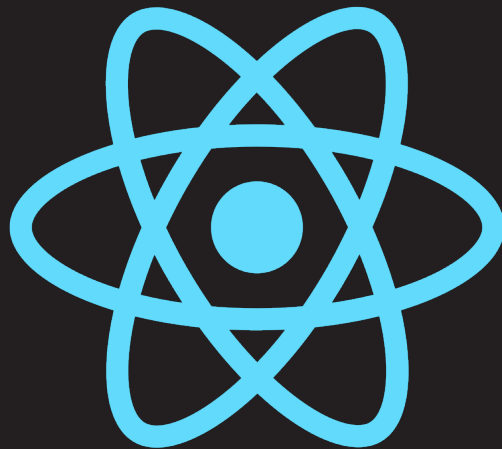
React Components

STATE



Introduction to React

Hello React





React is a JavaScript library

JavaScript Library

```
<link rel="stylesheet" href="https://  
cdn.com/jslibrary.js">
```

JavaScript library uses a script tag to bring the library in from a CDN source

JavaScript Library

```
<link rel="stylesheet" href="https://code.jquery.com/  
jquery-3.4.1.min.js">
```

jQuery library being brought in using a script tag from its CDN



```
<script src="https://unpkg.com/react@16/umd/  
react.development.js"></script>
```



<https://nodejs.org/en/>

React Applications

This string is reversed

desrever si gnirts sihT

HANDS ON

Hello React project

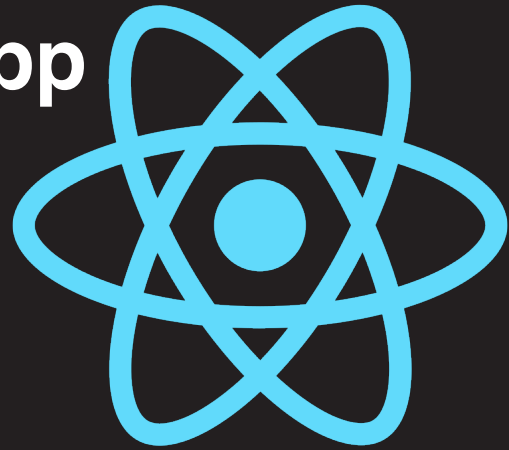
Download the start and end files
for the Hello React project



<http://bit.ly/0112helloreact>

Introduction to React

Using the create-react-app



React

We imported the React and the React Dom libraries directly in index.html page using script tags. It is not the best strategy when building production grade applications.

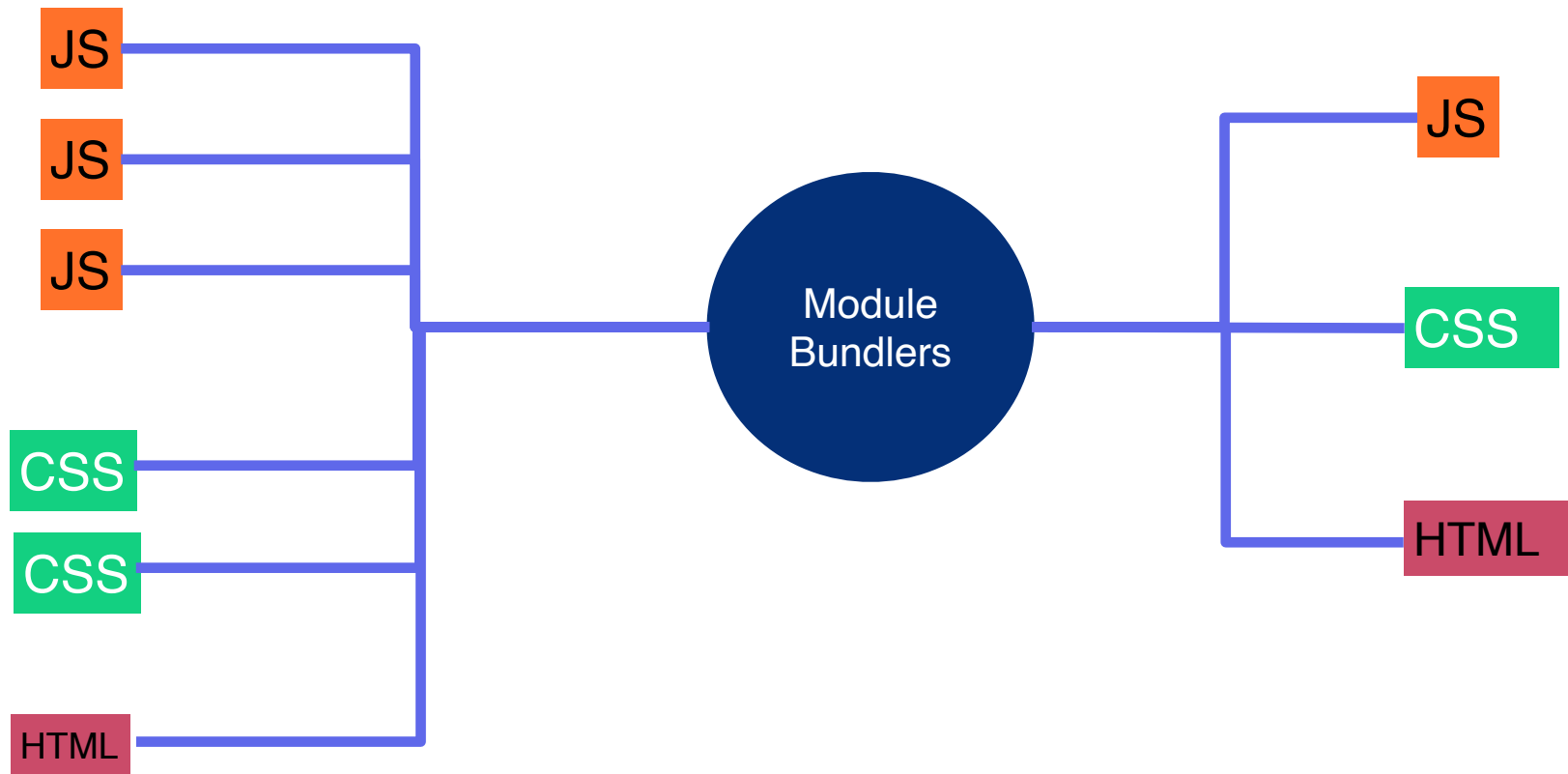
Modern JavaScript apps are modular. This means they're made up of several files including code which is broken down into easy to consume modules. But this isn't what you finally upload on the server.

What goes online instead, is a compacted and minimal bundle of files that are optimised for the browser, consuming minimal round trips and bandwidth.

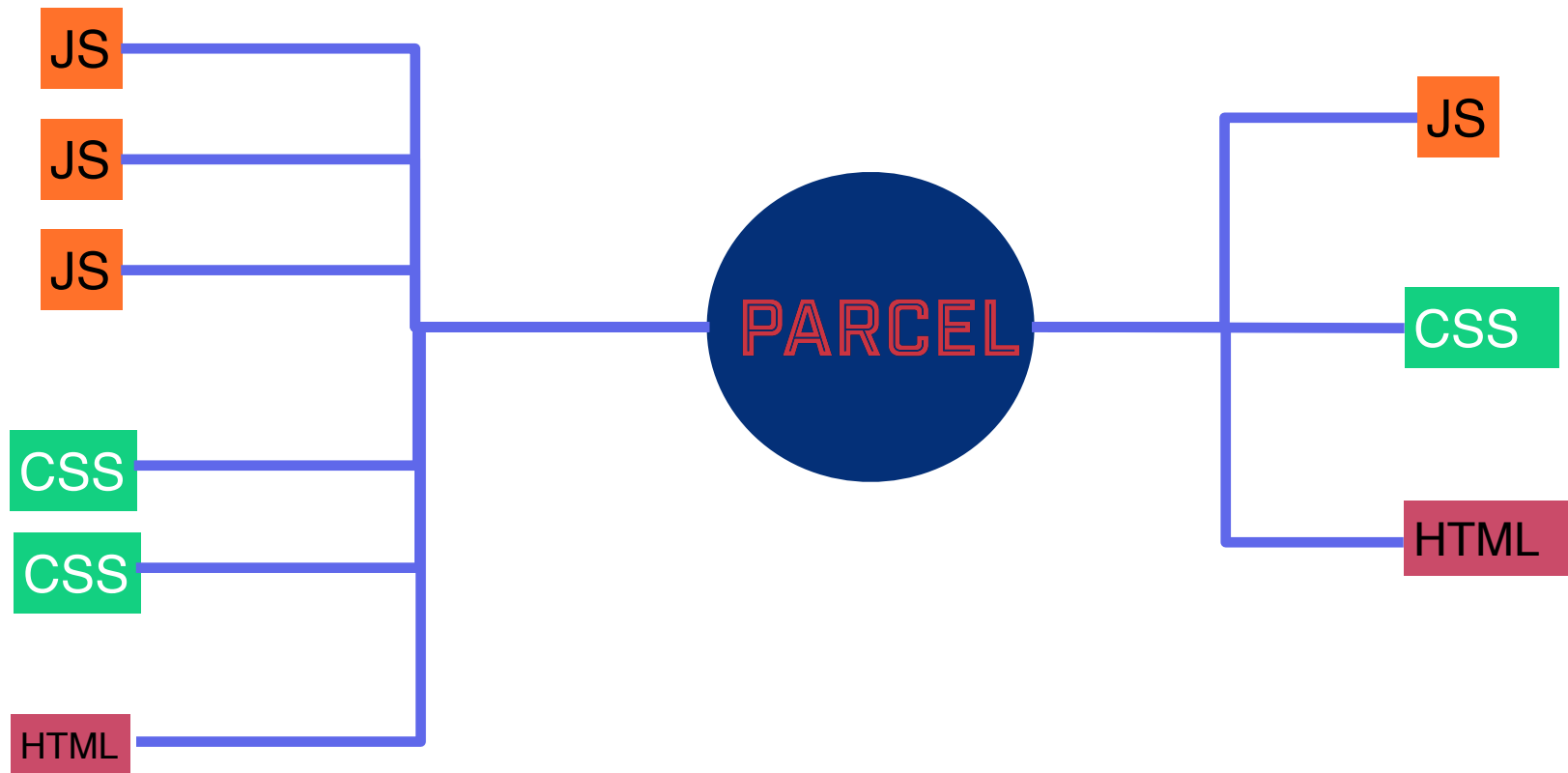
This is where a module bundler comes into the picture.

Modular Bundler

Modular Bundler



Modular Bundler



PARCEL



BABEL



webpack

- Compilers for Stylesheets & more
- Hot reloading local server

Webpack



webpack

- Webpack is one of the most **popular module bundlers** and is used extensively by the JavaScript developer community.
- **Features**
 - Easy configuration
 - Offers an array of plugins that extend the base capabilities of the module bundler to compile all kinds of files, formats and language specifications.



Create-react-app

A utility that bootstraps a React project for you!

Create-react-app

- Under the hood, the pipeline uses Webpack and Babel to compile modular React code and comes with all the bells and whistles pre configured such as a hot reloading web server.
- What's even better is that webpack, babel and their configuration is all tucked away and hidden from view.
- This means you can concentrate on your code instead of worrying about an exposed and fragile build pipeline.



Create-react-app

- Bootstrap a React project
- Tools to work with APIs
- Run tests
- Produce a production build

Create-react-app

This string is reversed

desrever si gnirts sihT

Hands On

Download the stylesheet from
the link given below



<http://bit.ly/revstringcss>



thank you!

