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First Component

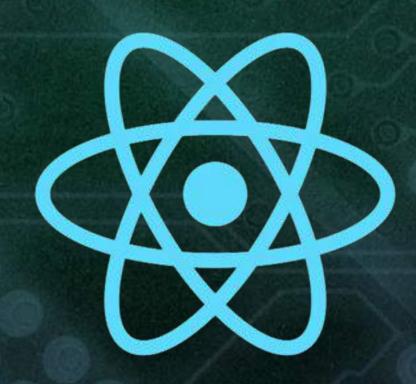
Writing Your First React Component



React is a JavaScript library for building user interfaces (UIs). Some people use it as the V in MVC.

Why React?

React was built to solve one problem: building large applications with data that changes over time.



Conceived at Facebook

Heavily used on products made by Facebook and Instagram. Built to simplify the process of building complex Uls.









All these companies use React!







Prerequisites

JavaScript Basics

- Declaring variables
- Creating and invoking functions

ES2015

- Class syntax
- Arrow functions
- Spread operator

New to JavaScript? Go here first!

http://javascript-roadtrip.codeschool.com



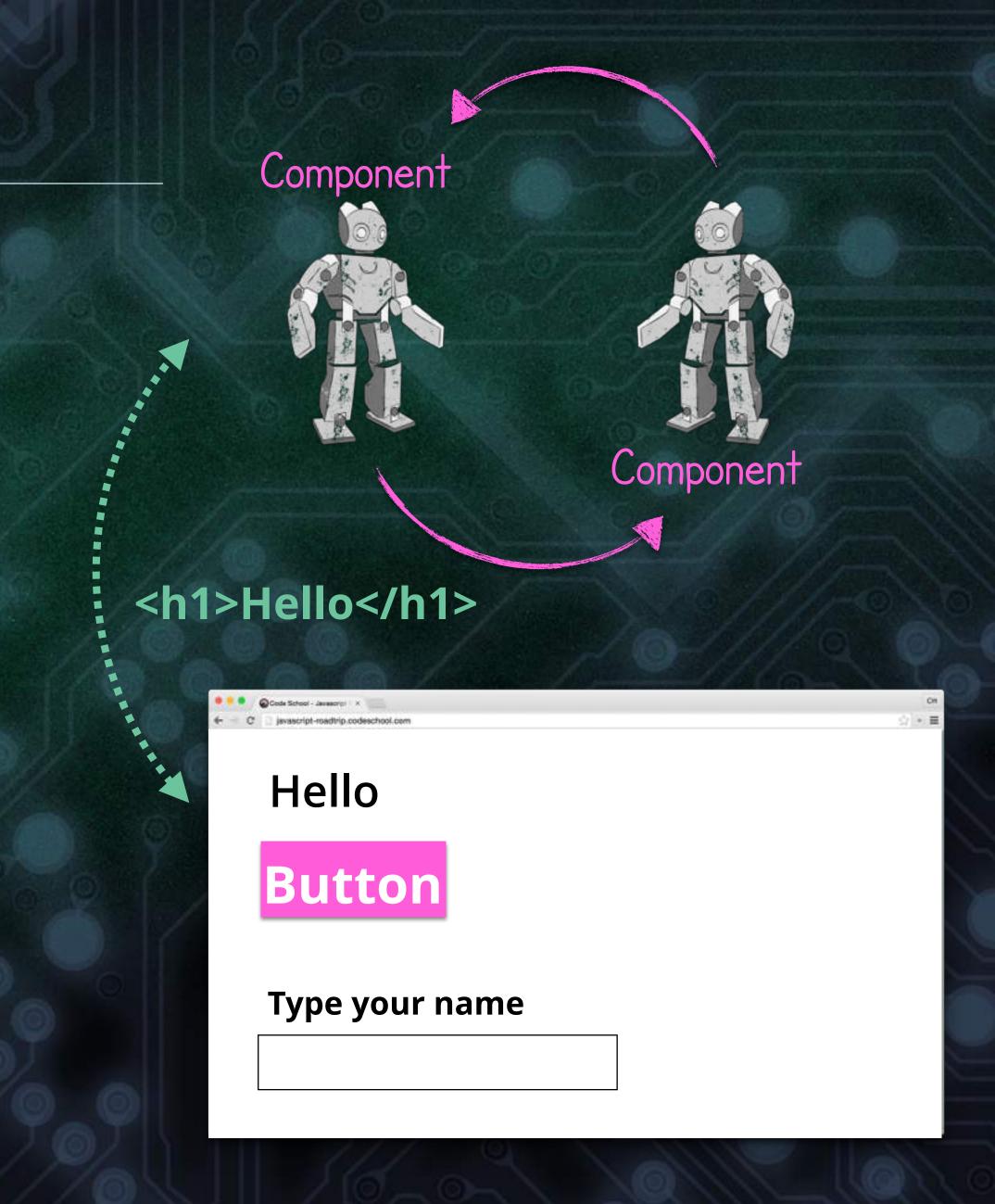
Not familiar with ES2015? Go here! http://es2015.codeschool.com



What We'll Learn

We'll cover some of the features React offers, including how to:

- Write React components
- Render data to the page
- Make components communicate
- Handle user events
- Capture user input
- Talk to remote servers



Component-based Architecture

In React, we solve problems by creating components. If a component gets too complex, we break it into smaller, simpler components.

StoryBox NAME: COMMENT: adds new stories to the feed 3 COMMENT CLUE A machine's ability strength over hum information about each story in our feed Just say no to love! ANNE DROID I wanna know what love is... DELETE COMMENT

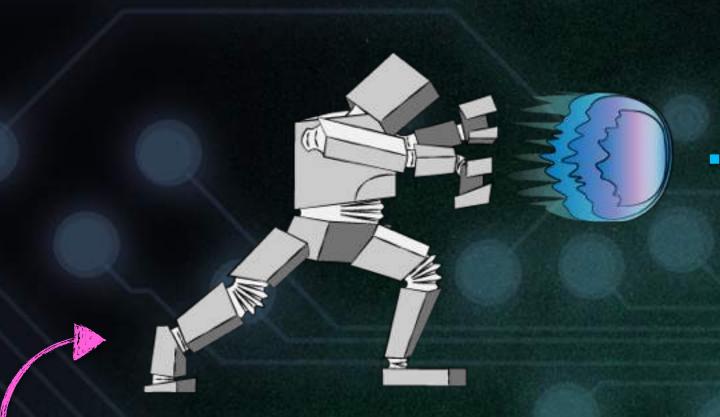
Story component is reused





What Is a React Component?

A component in React works similarly to JavaScript functions: It generates an output every time it is invoked.

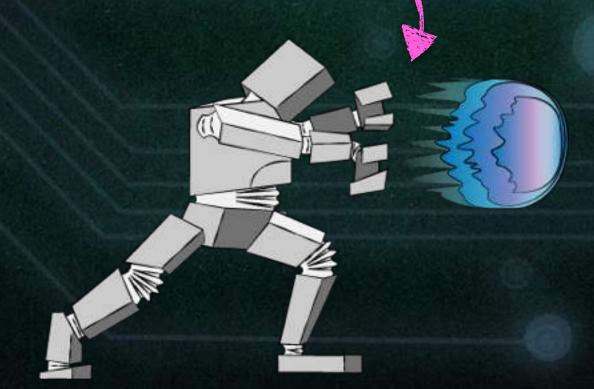


Calling render() generates this

Output #1

```
<div>
Good Morning
 10:45AM 
</div>
```

A React component



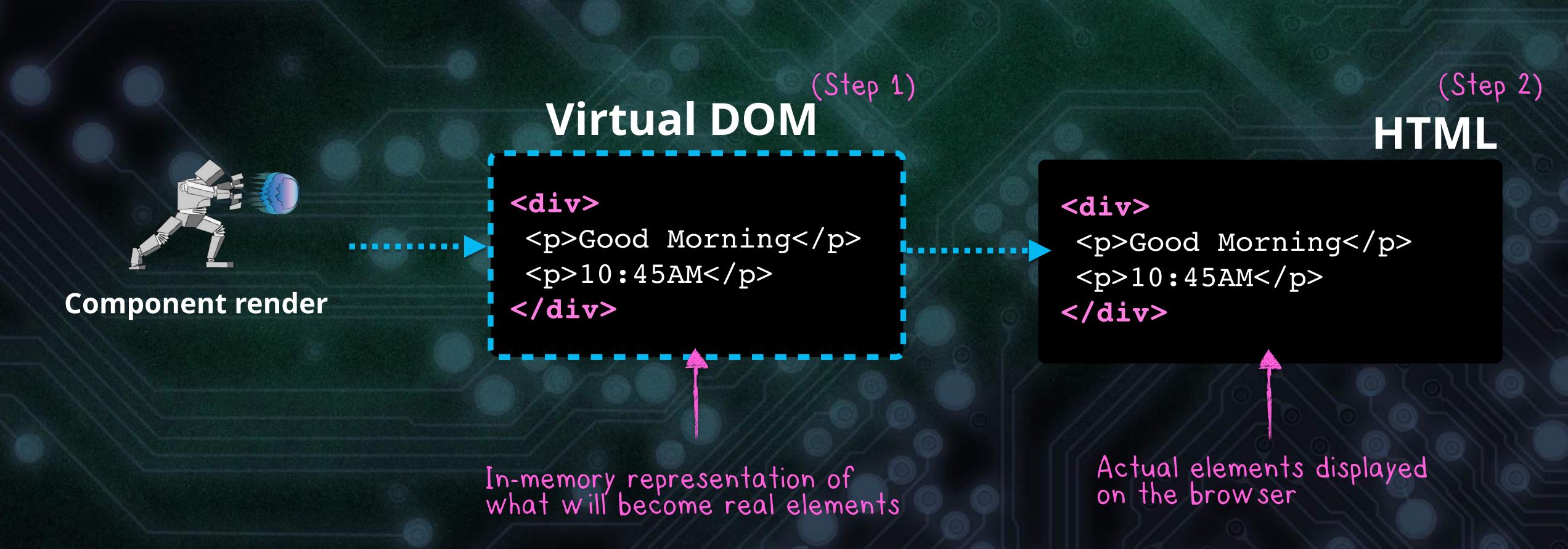
Calling render() generates this

Output #2

```
<div>
Good Morning
10:55AM
</div>
```

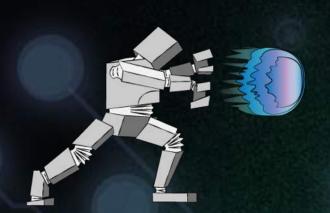
The Virtual DOM Explained

The virtual DOM is an **in-memory representation** of real DOM elements generated by React components before any changes are made to the page.



The Virtual DOM in Action

Virtual DOM diffing allows React to minimize changes to the DOM as a result of user actions — therefore, increasing browser performance.



Component rendering for the *first* time

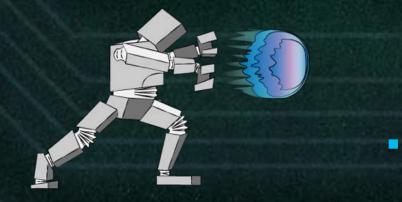
Virtual DOM

<div>
 Good Morning
 10:45AM
</div>

HTML

```
<div>
  Good Morning
  10:45AM
  </div>
```

Virtual DOM



Component rendering for the **second** time

```
<div>
Good Morning
10:55AM
</div>
```

Only this paragraph has changed...

is replaced.

Creating Our First React Application

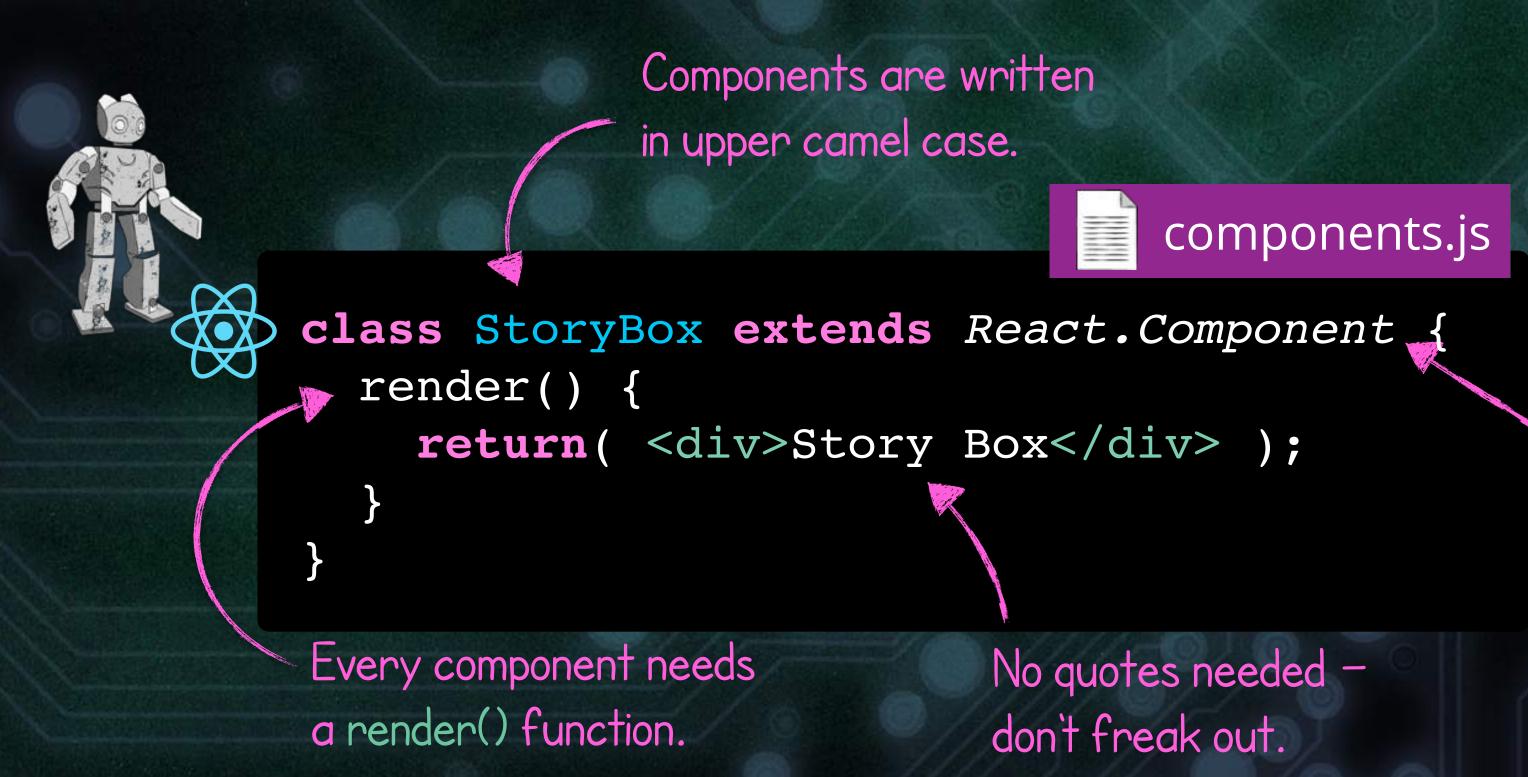
We want to simply print a message to the screen using a React component.





Writing Our First React Component

Components in React are JavaScript classes that inherit from the React.Component base class.



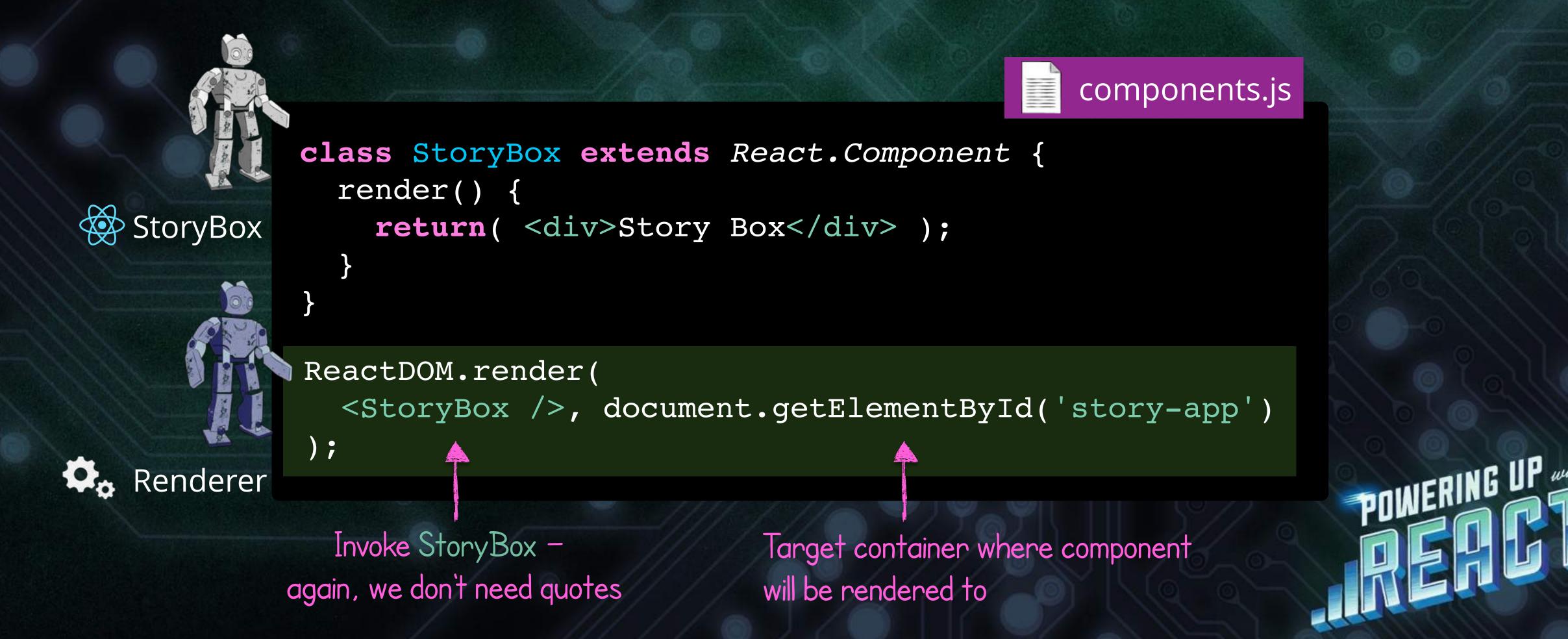
Component class inherits from a React base class.

Now we need to tell our application where to put the result into our web page.



Rendering Our First React Component

We use **ReactDOM** to render components to our HTML page as it reads output from a supplied React component and adds it to the DOM.



Referencing the Component

Every time we create a new React component, we use it by writing an element named after the class.



```
components.js
```

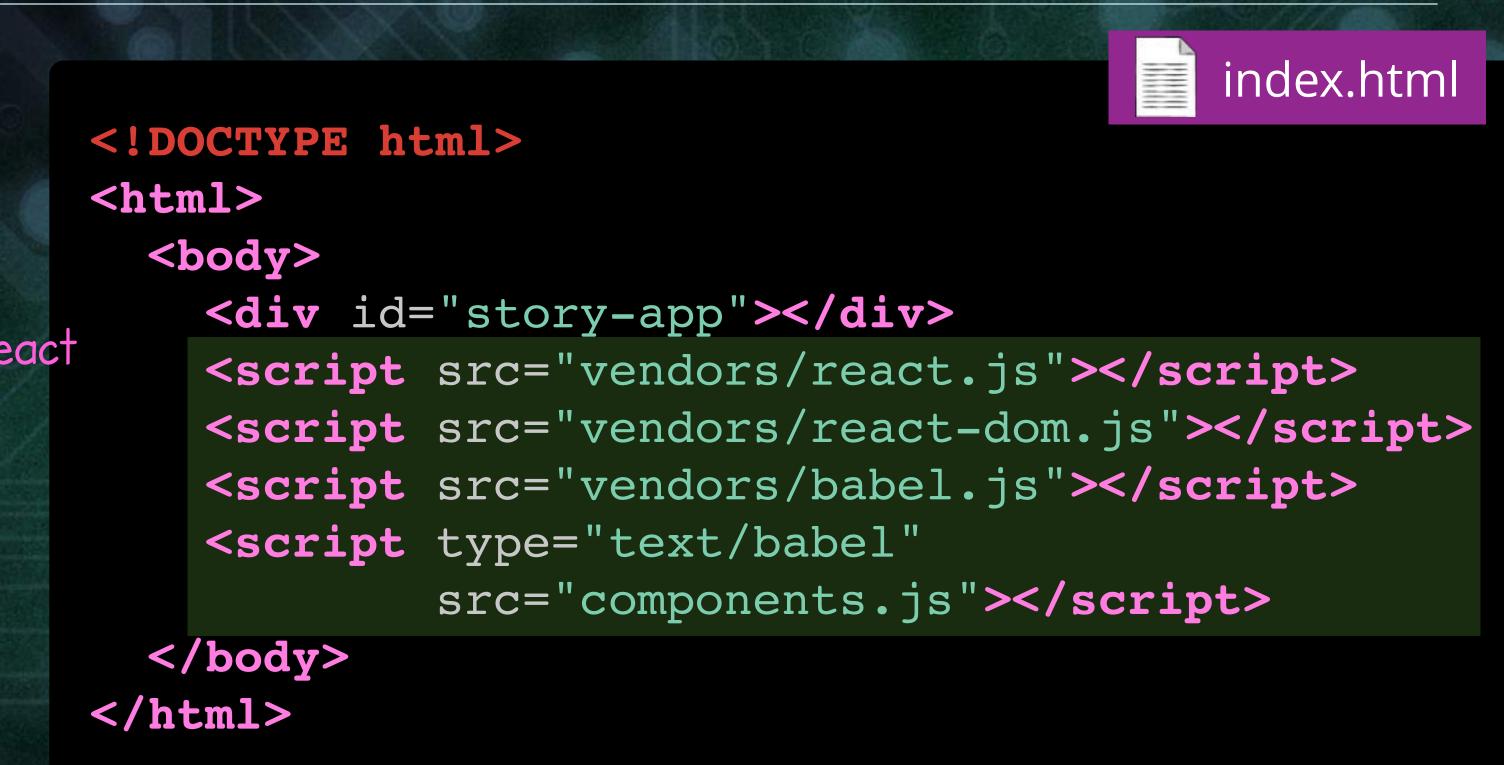


Application Structure

```
components.js
• • •
ReactDOM.render(
  <StoryBox />, document.getElementById('story-app')
);
                                         index.html
<!DOCTYPE html>
                             Target container
<html>
  <body>
    <div id="story-app"></div>
  </body>
</html>
```

That's all there is to creating a component. Now we just need to add libraries.

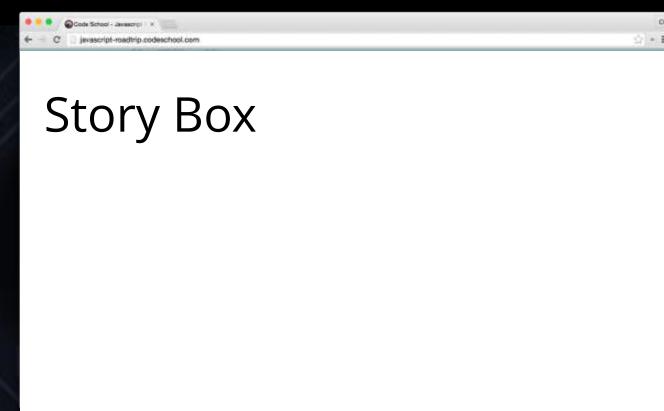
Application Structure



```
Project Folder
                   Holds all our React
                   components
  index.html
  components.js
  vendors
      react.js
  react-dom.js
      babel.js
```

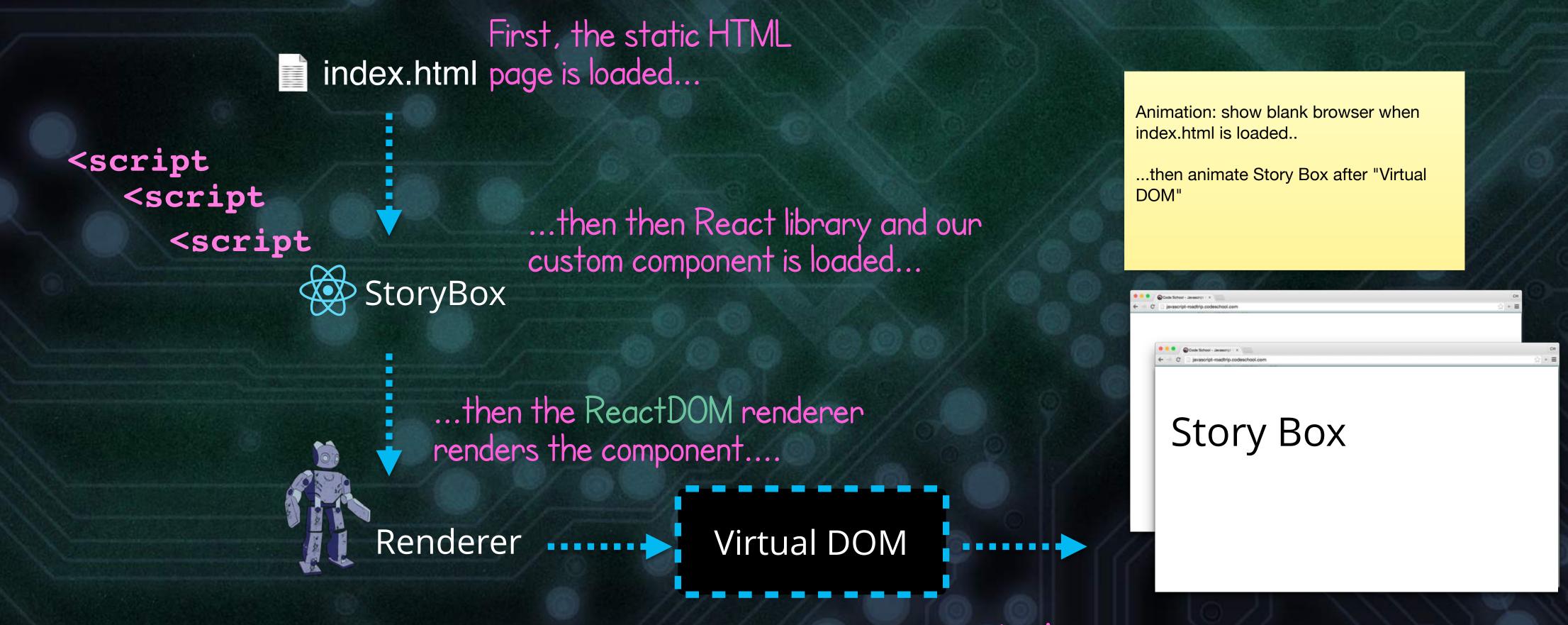
Allows using latest features of JavaScript (class syntax, fat arrow, etc.)

React libraries



Our React Application Flow

To clarify, here is what takes place when we load a page with a React component:



...returning a virtual representation of the DOM, which is turned into real DOM elements.

Quick Recap on React

React was built to solve one problem: building large applications with data that changes over time.

In React, we write apps in terms of components.

We use JavaScript classes when declaring React components.

Components must extend the React.Component class and must contain a render() method.

We call the **ReactDOM.render()** function to render components to a web page.



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