Component-Driven User Interfaces

Building Interactive & Scalable UIs

Module Content

React Core Syntax & JSX

Working with Components

Working with Data

React App
localhost:3000
Incognito (2)
Add New Expense
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Dec

Filter by year 2021

March 2021 12	New TV	$ 799.49
March 2021 28	Car Insurance	$ 294.67
June 2021 12	New Desk (Wooden)	$ 450

React App
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Found no expenses.

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August 2020 14 — Toilet Paper — $ 94.12

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Some Books

39

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16.12.2020

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December 2020 16	Some Books	$ 39
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Filter by year 2020

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React is a JavaScript library for **building user interfaces**

HTML, CSS & JavaScript are about building user interfaces as well

React makes building complex, interactive and reactive user interfaces simpler

React is all about “Components”

What is a “Component”?

React is all about “Components”

Because all user interfaces in the end are made up of components

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Filter by year: 2020

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Filter by year

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December 2020 16	Some Books	$ 39
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localhost:3000
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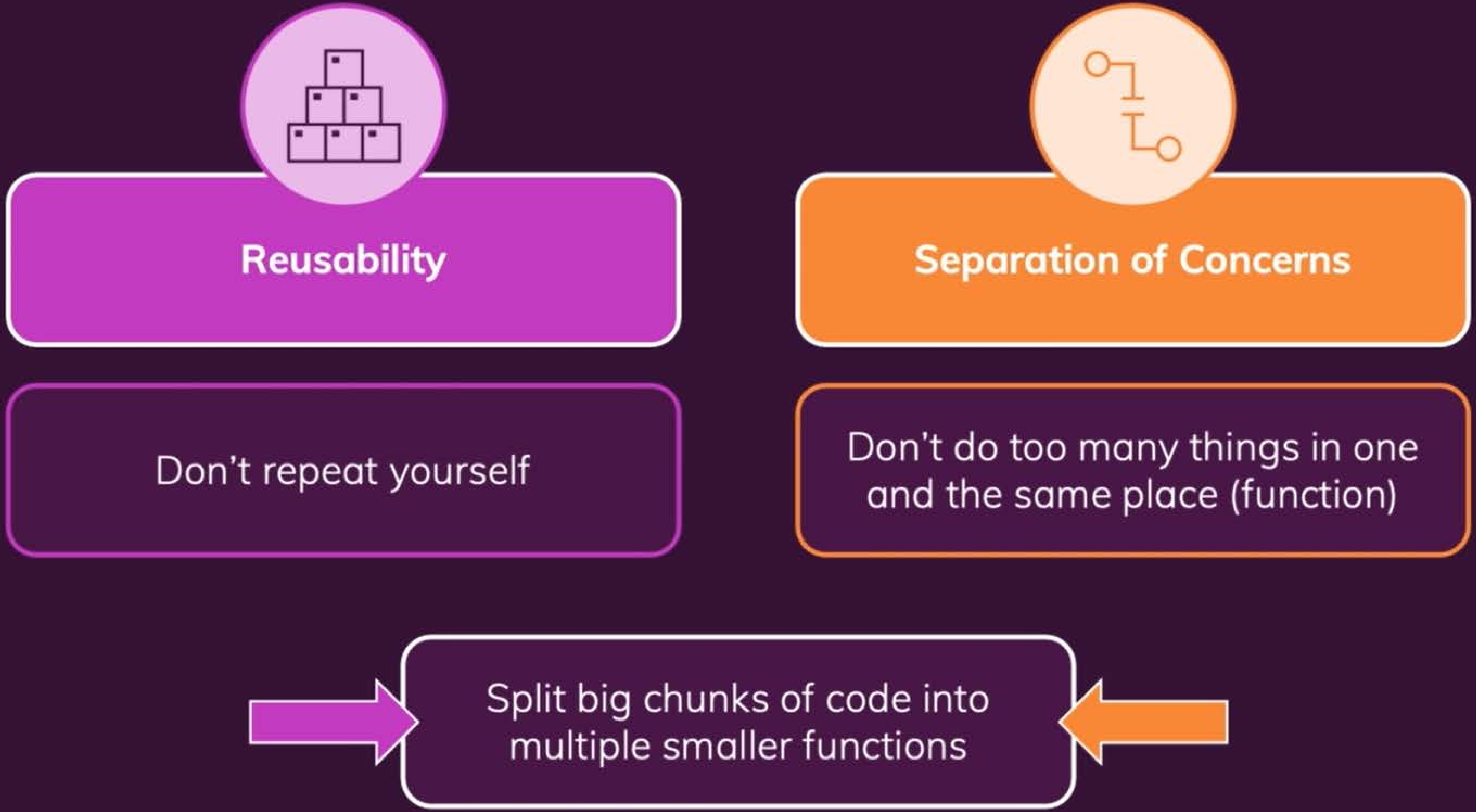
December
2020
16
Some Books
$ 39

August
2020
Toilet Paper
$ 94.12

Why Components?



Reusability

Don't repeat yourself

Separation of Concerns

Don't do too many things in one and the same place (function)

Split big chunks of code into multiple smaller functions

JS 09-dry.js
JS 09-dry.js > createSupportChannel
Udemy

Non-React Example!

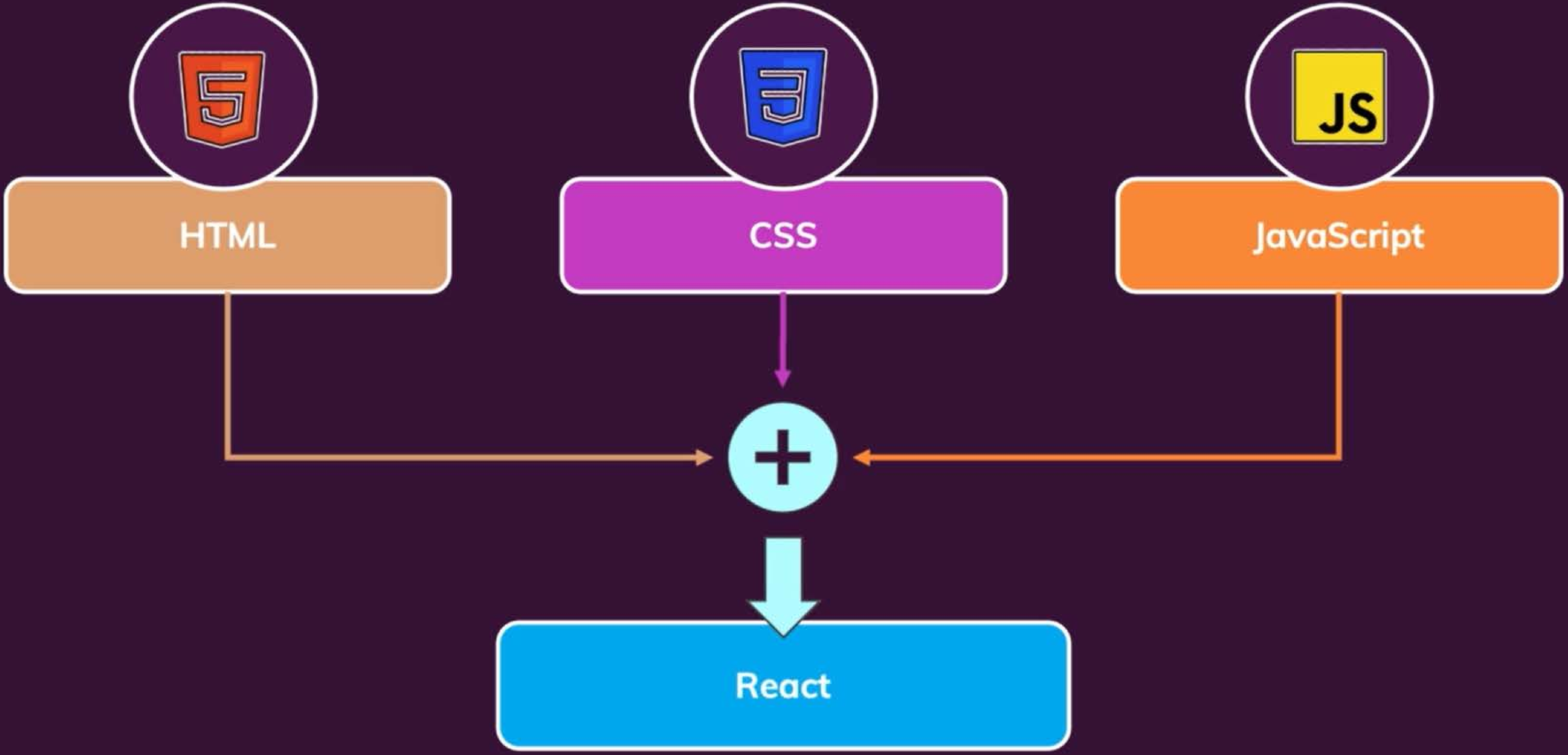
```
}

function createSupportChannel(email) {
  if (!email || !email.includes('@')) {
    showErrorMessage('Invalid email - could not create channel');
  }
  // ...
}

function inputIsValid(email, password) {
  return emailIsValid(email) && password && password.trim() !== '';
}

function emailIsValid(email) {
  return email && email.includes('@');
}

function showErrorMessage(message) {
  console.log(message);
```

JS 09-dry.js
JS 09-dry.js > emailIsValid

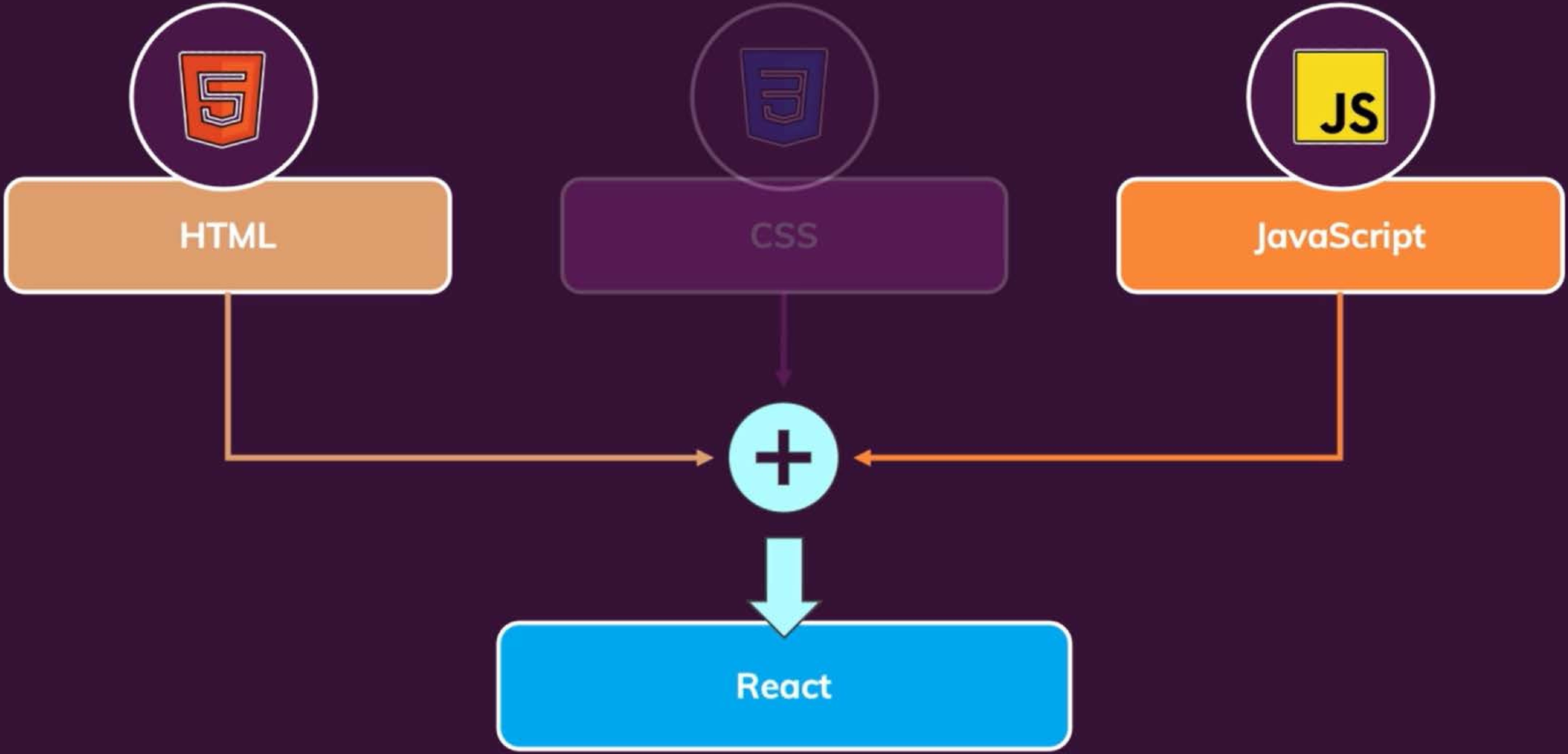
Non-React Example!

```javascript
}

function createSupportChannel(email) {
  if (!emailIsValid(email)) {
    showErrorMessage('Invalid email - could not create channel');
  }
  // ...
}

function inputIsValid(email, password) {
  return emailIsValid(email) && password && password.trim() !== '';
}

function emailIsValid(email) {
  return email && email.includes('@');
}

function showErrorMessage(message) {
  console.log(message);
```

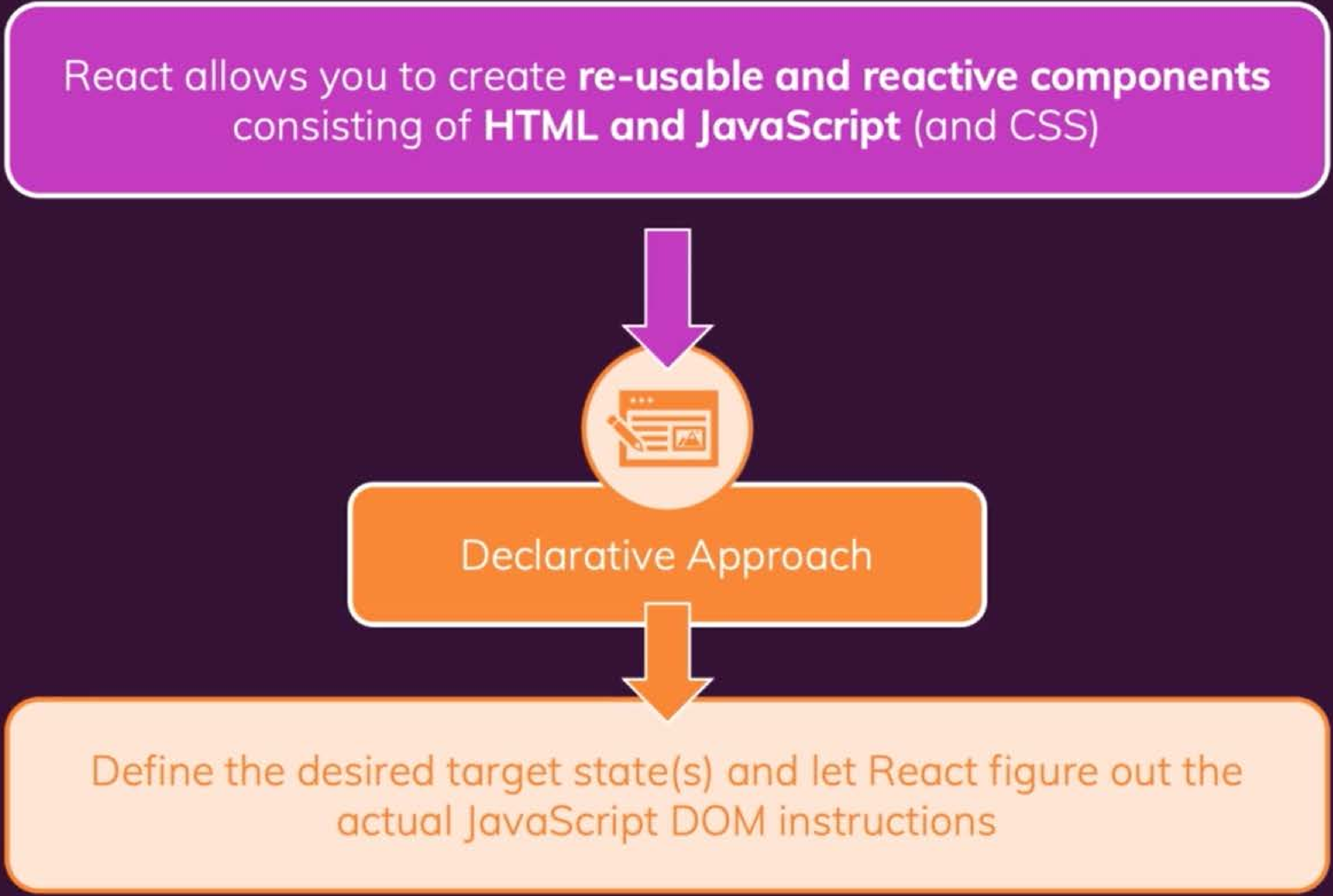
How Is A Component Built?



How Is A Component Built?



React & Components



React allows you to create **re-usable and reactive components** consisting of **HTML and JavaScript** (and CSS)

Declarative Approach

Define the desired target state(s) and let React figure out the actual JavaScript DOM instructions

Build your own, custom HTML Elements

React App
GitHub - facebook/create-rea
Node.js
nodejs.org/en/
Incognito (2)
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DOCS
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SECURITY
CERTIFICATION
NEWS
Waiting for nodejs.org...

Node.js® is a JavaScript runtime built on Chrome's V8 JavaScript engine.

#BlackLivesMatter

Node.js Certifications and Trainings are on sale, now until Dec. 8

Download for macOS (x64)

14.15.1 LTS
Recommended For Most Users

Other Downloads | Changelog | API Docs

15.3.0 Current
Latest Features

Other Downloads | Changelog | API Docs

Or have a look at the Long Term Support (LTS) schedule.

OpenJS Foundation

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Installer
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Install Node.js
Introduction
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Destination Select
Installation Type
Installation
Summary
Go Back
Continue
udemy

Welcome to the Node.js Installer

This package will install:

- Node.js v15.3.0 to `/usr/local/bin/node`
- npm v7.0.14 to `/usr/local/bin/npm`

React App
GitHub - facebook/create-rea
Node.js
github.com/facebook/create-react-app
Incognito (2)
AppleScript 0.1%
TypeScript 0.1%

screencast-error.svg	Add svg rendering for error example (#3825)	3 years ago
screencast.svg	[ImgBot] Optimize images (#9516)	last month

README.md

Create React App Azure Pipelines failed PRs welcome

Create React apps with no build configuration.

- Creating an App – How to create a new app.
- User Guide – How to develop apps bootstrapped with Create React App.

Create React App works on macOS, Windows, and Linux.
If something doesn't work, please file an issue.
If you have questions or need help, please ask in GitHub Discussions.

Quick Overview

```
npx create-react-app my-app
cd my-app
npm start
```

If you've previously installed `create-react-app` globally via `npm install -g create-react-app`, we recommend you uninstall the package using `npm uninstall -g create-react-app` or `yarn global remove create-react-app` to ensure that npx always uses the latest version.

(npx comes with npm 5.2+ and higher, see instructions for older npm versions)

Then open http://localhost:3000/ to see your app.
When you're ready to deploy to production, create a minified bundle with `npm run build`.

```
maximilianschwarzmuller $
maximilianschwarzmuller $
maximilianschwarzmuller $
maximilianschwarzmuller $ cd Desktop
Desktop $ npx create-react-app react-complete-guide

Creating a new React app in /Users/maximilianschwarzmuller/Desktop/react-complete-gui
de.

Installing packages. This might take a couple of minutes.
Installing react, react-dom, and react-scripts with cra-template...

(██████░░░░░░░░░░░░) ⠋ idealTree:postcss-value-parser: sill fetch manifest rgba-rege
```

```
Desktop $
Desktop $
Desktop $
Desktop $ cd react-complete-guide
react-complete-guide $ npm start
```

```
Success! Created react-complete-guide at /Users/maximilianschwarzmuller/Desktop/react
-complete-guide
Inside that directory, you can run several commands:

  npm start
    Starts the development server.

  npm run build
    Bundles the app into static files for production.

  npm test
    Starts the test runner.

  npm run eject
    Removes this tool and copies build dependencies, configuration files
    and scripts into the app directory. If you do this, you can’t go back!

We suggest that you begin by typing:

  cd react-complete-guide
  npm start

Happy hacking!
Desktop $ █
```

React App
localhost:3000
Incognito (2)

Edit `src/App.js` and save to reload.

Learn React

React App
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blog-post.js — gatsby-graphql-app
EXTENSIONS: MARKETPLACE
@sort:installs
blog-post.js
index.js
utils.js
src > components > blog-post.js > <function> > blogPost

Extension	Version	Downloads	Rating	Description	Publisher	
Python	2019.6.24221	54.9M	4.5	Linting, Debugging (multi-threaded...	Microsoft	Install
GitLens — Git su...	9.8.5	23.1M	5	Supercharge the Git capabilities bui...	Eric Amodio	Install
C/C++	0.24.0	23M	3.5	C/C++ IntelliSense, debugging, and...	Microsoft	Install
ESLint	1.9.0	21.9M	4.5	Integrates ESLint JavaScript into V...	Dirk Baeumer	Install
Debugger for C...	4.11.6	20.6M	4	Debug your JavaScript code in the ...	Microsoft	Install
Language Sup...	0.47.0	18.6M	4.5	Java Linting, Intellisense, formattin...	Red Hat	Install
vscode-icons	8.8.0	17.2M	5	Icons for Visual Studio Code	VSCode Icons Team	Install
Vetur	0.21.1	17M	4.5	Vue tooling for VS Code	Pine Wu	Install

```
import { graphql } from "gatsby"
import React from "react"
import Image from "gatsby-image"

export default ({ data }) => {
  const blogPost = data.cms.blogPost
  return (
    <div>
      {blogPost
        blogPos
        blogPos
          <Imag
        )}
      <h1>{blog
      <div>Post
      <div dang
      </div>
  )
}

export const query = graphql`
```

```
[ø] data                 var data: any
[ø] dateFormat
[ø] debug
    debugger
    decodeURI
    decodeURIComponent
    default
[ø] defaultStatus
    delete
    departFocus
[ø] devicePixelRatio
    dispatchEvent
```

```
info ｢wdm｣: Compiling...
DONE  Compiled successfully in 26ms                    3:57:58 PM

info ｢wdm｣:
info ｢wdm｣: Compiled successfully.
>
```

EXPLORER
REACT...
.vscode
public
src
.eslintcache M
.gitignore
package-lock.json
package.json
README.md
OUTLINE
TIMELINE
NPM SCRIPTS
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EXPLORER
package.json
src
.eslintcache M
.gitignore
package-lock.json
package.json
README.md
OUTLINE
TIMELINE
NPM SCRIPTS
Debug
udemy

The exact package names and versions will change over time - this won't impact how React works though!

```
  "version": "0.1.0",
  "private": true,
  "dependencies": {
    "@testing-library/jest-dom": "^5.11.6",
    "@testing-library/react": "^11.2.2",
    "@testing-library/user-event": "^12.5.0",
    "react": "^17.0.1",
    "react-dom": "^17.0.1",
    "react-scripts": "4.0.1",
    "web-vitals": "^0.2.4"
  },
  "scripts": {
    "start": "react-scripts start",
    "build": "react-scripts build",
    "test": "react-scripts test",
    "eject": "react-scripts eject"
  },
  "eslintConfig": {
    "extends": [
      "react-app",
      "react-app/jest"
```

EXPLORER
package.json
src
.eslintcache M
.gitignore
package-lock.json
package.json
README.md
OUTLINE
TIMELINE
NPM SCRIPTS
TERMINAL
PROBLEMS
OUTPUT
1: zsh
Debug
Udemy

This terminal will automatically navigate into your project folder!
So you don’t need to “cd” manually first.

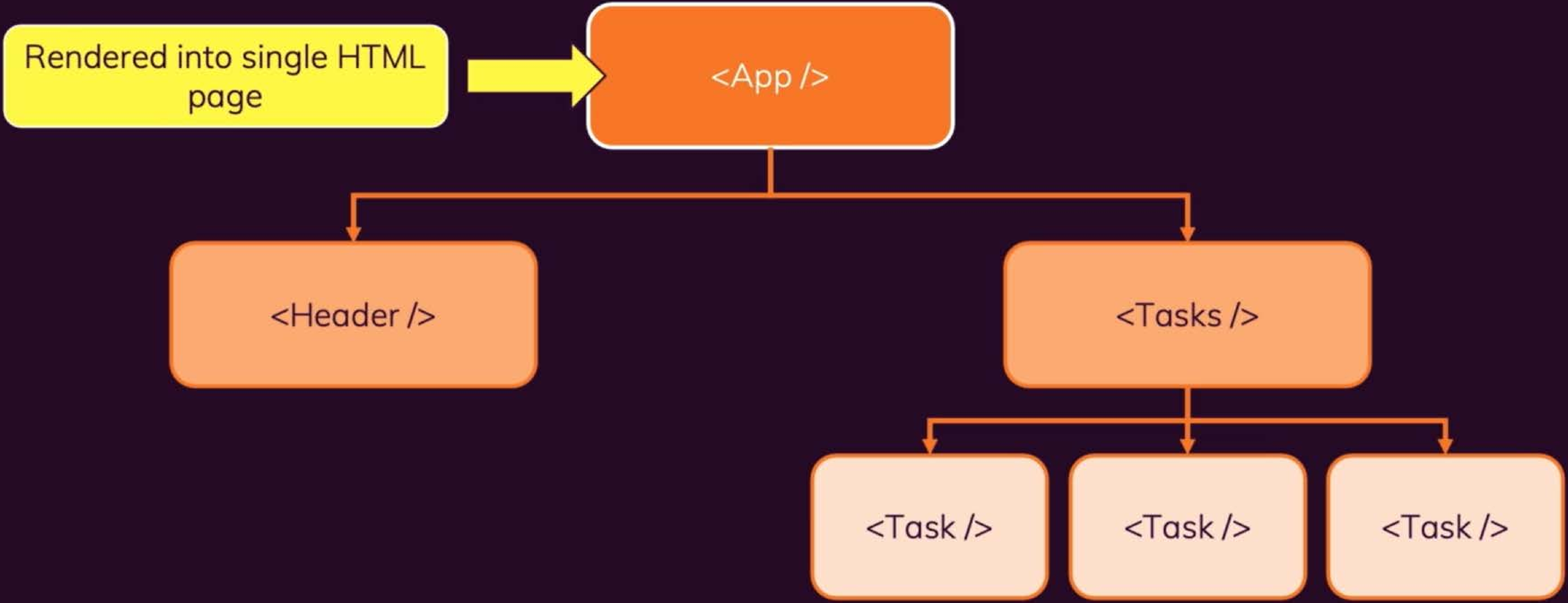
```json
  "version": "0.1.0",
  "private": true,
  "dependencies": {
    "@testing-library/jest-dom": "^5.11.6",
    "@testing-library/react": "^11.2.2",
    "@testing-library/user-event": "^12.5.0",
    "react": "^17.0.1",
    "react-dom": "^17.0.1",
    "react-scripts": "4.0.1",
    "web-vitals": "^0.2.4"
  },
  "scripts": {
    "start": "react-scripts start",
    "build": "react-scripts build",
```

```
react-complete-guide $ npm install
```

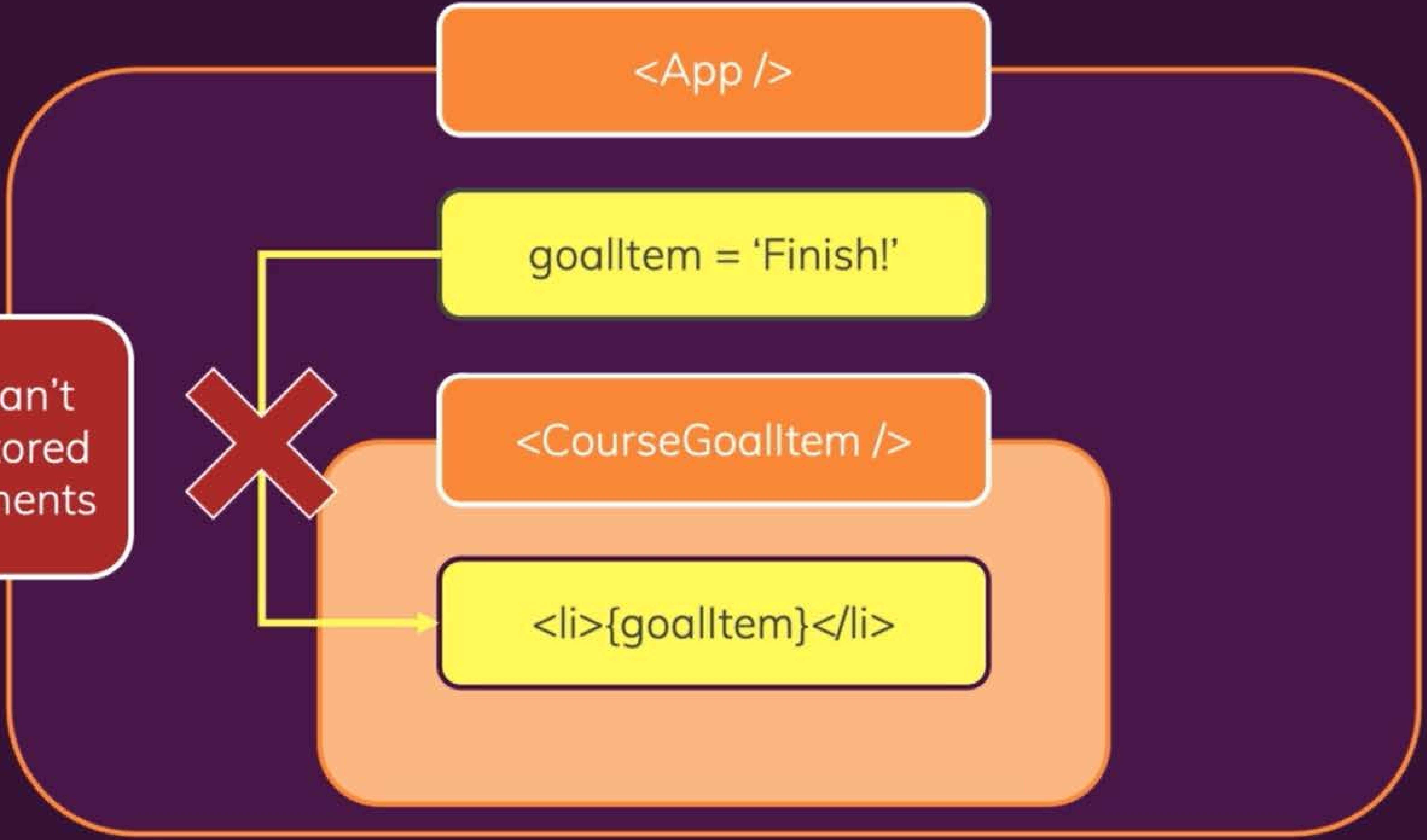
React App
localhost:3000
Incognito (2)

Let's get started!

You Build A Component Tree



Passing Data via “Props”



Components can’t just use data stored in other components

React App
Number.prototype.toLocaleSt
developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global_Objects/Number/toLocaleString

MDN will be in maintenance mode, Monday December 14, from 7:00 AM until no later than 5:00 PM Pacific Time (in UTC, Monday December 14, 3:00 PM until Tuesday December 15, 1:00 AM). We are using this time to move to our new platform (https://hacks.mozilla.org/2020/10/mdn-web-docs-evolves-lowdown-on-the-upcoming-new-platform/).

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Number.prototype.toLocaleString()

Web technology for developers > JavaScript > JavaScript reference > Standard built-in objects > Number > Number.prototype.toLocaleString()
English ▾

The `toLocaleString()` method returns a string with a language-sensitive representation of this number.

JavaScript Demo: Number.toLocaleString()

```
function eArabic(x){
  return x.toLocaleString('ar-EG');
}

console.log(eArabic(123456.789));
// expected output: "١٢٣٬٤٥٦٫٧٨٩"

console.log(eArabic('123456.789'));
// expected output: "123456.789"

console.log(eArabic(NaN));
// expected output: "ليس رقم"

```

React App
Number.prototype.toLocaleSt
developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global_Objects/Number/toLocaleString
Incognito (2)

Number.prototype.toPrecision()

~~Number.prototype.toSource()~~

Number.prototype.toString()

Number.prototype.valueOf()

Inheritance:

Function

Properties

Function.arguments

Function.caller

Function.displayName

Function.length

Function.name

Methods

Function.prototype.apply()

Function.prototype.bind()

Function.prototype.call()

~~Function.prototype.toSource()~~

Function.prototype.toString()

Object

Properties

Object.prototype.__proto__

Object.prototype.constructor

See the `Intl.NumberFormat()` constructor for details on these parameters and how to use them.

Return value

A string with a language-sensitive representation of the given number.

Performance

When formatting large numbers of numbers, it is better to create a `NumberFormat` object and use the function provided by its `NumberFormat.format` property.

Examples

Using `toLocaleString`

In basic use without specifying a locale, a formatted string in the default locale and with default options is returned.

```
var number = 3500;

console.log(number.toLocaleString()); // Displays "3,500" if in U.S. English locale
```

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