

Creating Reusable React Components

CORE DECISIONS



Cory House

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Core decisions

Dev environment

Documentation

Reusable component design

Atoms

Molecules

Organisms

Styling and theming

Testing

Distribution decisions

Publishing



The Plan



Why reusable components?

What about web components?

Why React?

Core design decisions

- Audience
- Rigid vs. flexible
- Link, wrap, or fork third parties?
- When to add a component





Why reusable components?

1. Consistency
2. Efficiency
3. Collaboration
4. Cross-platform
5. Enforced architecture
6. Future-friendly
7. Self-contained
8. Scalable
9. Faster development
10. Fewer bugs



“Components help hundreds of engineers work on the same codebase, move between teams, quickly ramp up, and focus on products.”

Dan Abramov



“A ship, a building, and a car are merely collections of components.”


Federico Holgado



“A web application is merely
collections of components.”

Cory House



A close-up photograph of a person's hand resting on the steering wheel of a Mercedes-Benz vehicle. The steering wheel is made of light-colored leather with a wood-grain trim and features the Mercedes-Benz logo in the center. The dashboard behind the wheel shows two analog gauges (speedometer and tachometer) and a central digital display showing '0'. To the right, a large infotainment screen displays a navigation map. The interior is finished with leather and wood trim, and several circular air vents are visible on the dashboard. A semi-transparent dark grey box with white text is overlaid at the bottom of the image.

Cut costs, speed development,
increase economies of scale,
reduce parts inventory



“The modern automobile factory has been effectively reduced to an assembler of finished components.”

Federico Holgado



“The modern development shop is becoming an assembler of finished components.”

Guy yammering on right now



</SalesPitch>



What About Web Components?



HTML5 Web Component Fundamentals

by Cory House

Learn how to use the Shadow DOM, Custom Elements, Templates, and Imports to create reusable web components.

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Course author



Cory House

Cory is an independent consultant with over 15 years of experience in software development. He is a Microsoft MVP, ASP Insider, and a member of the Telerik developer experts program.

Course info

Level Beginner

Rating ★★★★★ (371)

My rating ★★★★★

Duration 5h 3m

Released 9 Jan 2015

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Table of contents

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This course is part of: HTML5 Path

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23m 52s

[Templates](#)

27m 50s

[Custom Elements](#)

43m 34s

[Shadow DOM Fundamentals](#)

34m 19s

[Shadow DOM Insertion Points & Events](#)

53m 34s

[Shadow DOM Styling](#)

51m 34s



Why Not Web Components?



JS libraries keep innovating

Spotty browser support

They don't enable anything new



Can I use

[?](#)  Settings

2 results found

HTML templates - LS

Global

78.66%

Method of declaring a portion of reusable markup that is parsed but not rendered until cloned.

Current aligned

Usage relative

Date relative

[Show all](#)

IE	Edge [*]	Firefox	Chrome	Safari	Opera	iOS Safari [*]	Opera Mini [*]	Android Browser [*]	Chrome for Android
			49					4.3	
			54					4.4	
		50	55			9.3		4.4.4	
11	14	51	56	10	42	10.2	all	53	55
	15	52	57	10.1	43				
		53	58	TP	44				
		54	59						

Notes

Known issues (0)

Resources (7)

Feedback

No notes



Can I use html imports

[?](#)  Settings

1 result found

HTML Imports 📄 - WD

Global

56.46%

Method of including and reusing HTML documents in other HTML documents.

Current aligned

Usage relative

Date relative

[Show all](#)

IE	Edge *	Firefox	Chrome	Safari	Opera	iOS Safari *	Opera Mini *	Android Browser *	Chrome for Android
			49					4.3	
			54					4.4	
		1 50	55			9.3		4.4.4	
11	14	1 51	56	10	42	10.2	all	53	55
	15	1 52	57	10.1	43				
		1 53	58	TP	44				
		1 54	59						

Notes

Known issues (0)

Resources (10)

Feedback

MS Edge status: **Under Consideration**Firefox status: **not-planned**

Can I use

custom elements

?



Settings

2 results found

Custom Elements v0 - WD

Global

57.28%

Method of defining new HTML tags.

Current aligned

Usage relative

Date relative

Show all

IE	Edge [*]	Firefox	Chrome	Safari	Opera	iOS Safari [*]	Opera Mini [*]	Android Browser [*]	Chrome for Android
			49					4.3	
			54					4.4	
		¹ 50	55			9.3		4.4.4	
11	14	¹ 51	56	10	42	10.2	all	53	55
	15	¹ 52	57	10.1	43				
		¹ 53	58	TP	44				
		¹ 54	59						

Notes

Known issues (0)

Resources (14)

Feedback

MS Edge status: Under Consideration

Firefox status: in-development

WebKit status: Done



Can I use shadow dom

[?](#)  Settings

2 results found

Shadow DOM v0 - WD

Global 58.71%

unprefixed: 52.92%








Method of establishing and maintaining functional boundaries between DOM trees and how these trees interact with each other within a document, thus enabling better functional encapsulation within the DOM.

Current aligned

Usage relative

Date relative

[Show all](#)

IE	Edge *	Firefox	Chrome	Safari	Opera	iOS Safari *	Opera Mini *	Android Browser *	Chrome for Android
			49					4.3	
			54					4.4 	
		1 50 	55			9.3		4.4.4 	
11	14	1 51 	56	10	42	10.2	all	53	55
	15	1 52 	57	10.1	43				
		1 53 	58	TP	44				
		1 54 	59						

[Notes](#)[Known issues \(0\)](#)[Resources \(10\)](#)[Feedback](#)

Why Not Web Components?



JS libraries keep innovating

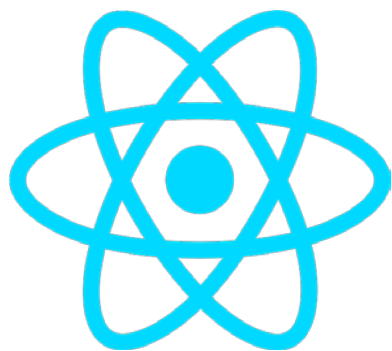
Spotty browser support

They don't enable anything new

A foundation for libraries

Why Reusable Components in React?

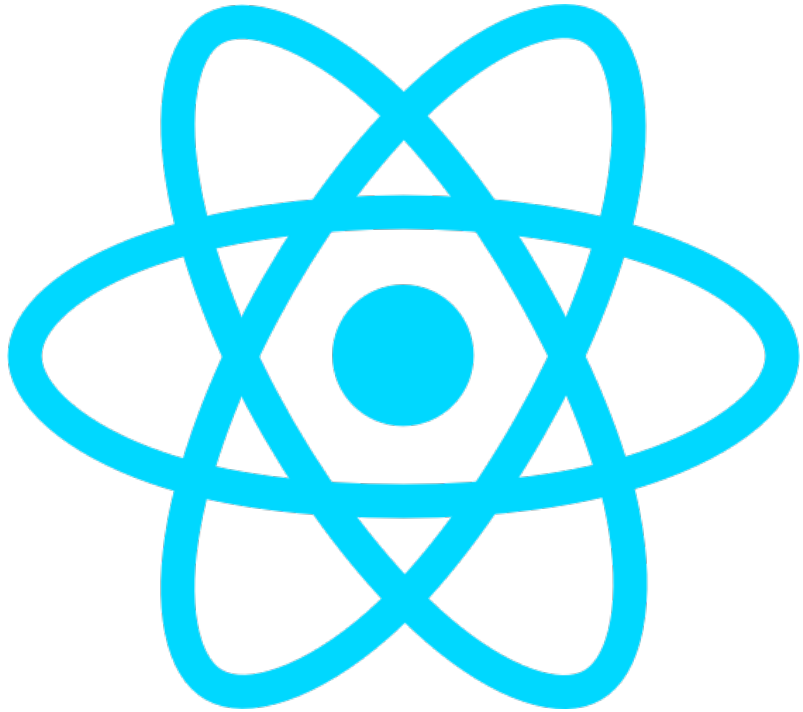




ember



React Components Aren't Perfect



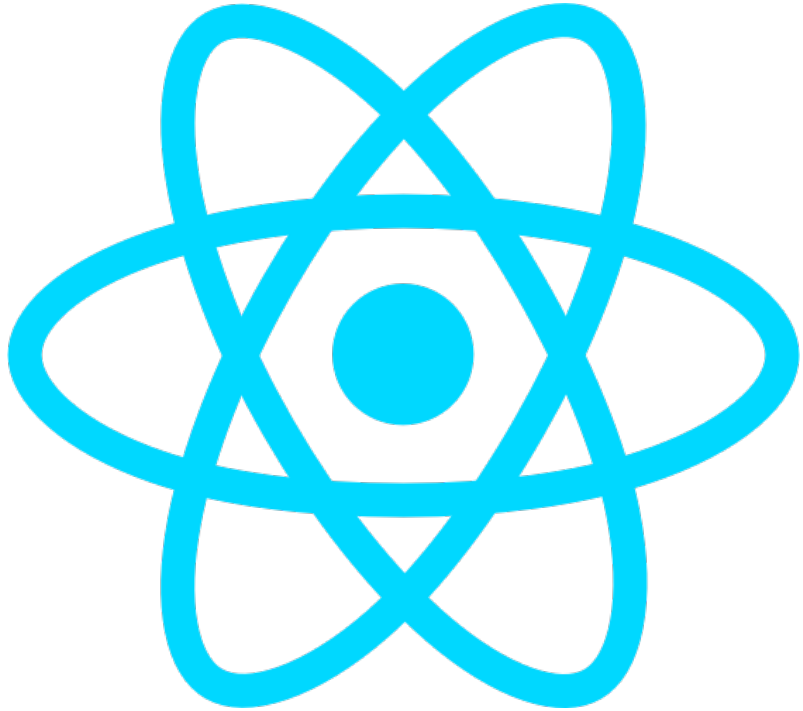
Require React

Potential version conflicts

Multiple simultaneous versions impractical



Why Components in React?



Lightweight

- Just a component library
- Can “sprinkle” on legacy apps
- 43K, Inferno is 9K, Preact is 3K!

Community

- Over a dozen mature component libs
- Over 20,000 components at Facebook
- Used by Walmart, Netflix, AirBnB, Reddit

Stability



React is the most attractive
component platform
available today.



Core Design Decisions



React Reusable Component Decisions

Core Decisions

- Core technology
- Audience
- Rigid or flexible
- Link, wrap, or fork

Dev Environment

- Boilerplate, doc lib, or custom
- Library or standalone
- Monorepo or separate

Documentation

- Off-the-shelf or custom
- Generating documentation
- Search
- Syntax highlighting
- Interactive playground
- Hosting
- Automated deployment

Design

- Wrap HTML primitives?
- Folder structure
- Declare propTypes?
- Apply custom props?
- Defaults?
- Accessibility
- Server rendering
- Config object vs primitives
- Atoms
- Molecules
- Organisms

Styling

- CSS Technology
- Inline vs external
- Namespace
- Naming scheme
- Offer unstyled components?
- Theming

Testing

- Framework
- Assertions
- Helpers
- Unit
- Interaction
- Structural
- Style
- When to run
- Where to place tests
- Continuous Integration

Deployment

- Dependency declarations
- Hosting
- Versioning
- Import approach
- Declaring package files
- Output formats
- Pre-publish testing
- Build process

50 Decisions



Decision: Audience





Decision 1: Audience

Project

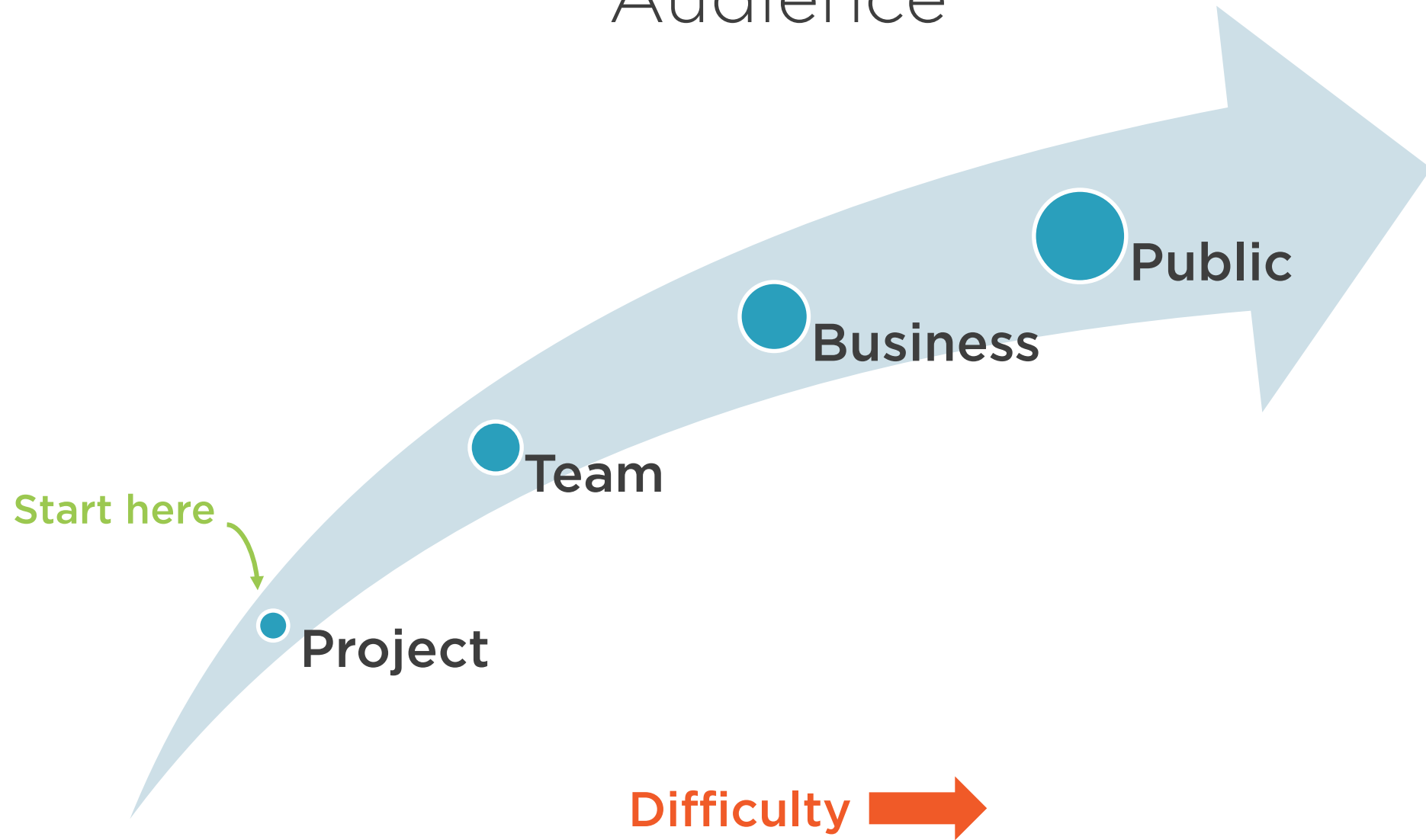
Team

Business

Public



Audience



Start small.
Start specific.



Decision:
Rigid or flexible?





Style

- Colors
- Padding
- Size
- Font

Layout

- Horizontal vs vertical
- Media query cutoff points

Data display

Logic



Rigid

Flexible

Simpler to create and implement

Reusable in more contexts

Easier to understand

Easier to test

Less work to maintain

More opinion = more consistency, less fatigue

Easy to add flexibility, hard to remove



The Tragedy of the Commons

Individuals behave contrary to the common good





Can't we just
make that
configurable?

Let's handle this
via a new
component
instead.

Props are easy
to add...but hard
to remove.



Consistency
Simplicity

Flexibility
Features



Start *rigid*.
Add flexibility as required.



Decision:
Link, wrap or fork third parties?



Link
Here's a suggestion

Wrap
Pretend we built it

Fork
Own it



Link

Documentation

Rely on third party

Changes

Watch repository

New Features

Free

Customization

None

Styling

Provide separate styles

Cohesion

Low

Commitment

Low

Ease

Very easy

Date Picker

Use the [Material UI](#) date picker.



Wrapping a Component

```
// DatePicker.js
```

```
import SuperDate from 'super-date';
```

```
class DatePicker extends React.Component {
```


```
  render() {
```

```
    return <SuperDate />
```

```
  }
```

```
}
```

Decide which props to pass
Change prop names
Decide which props to expose
Hard code in styles/config



Wrap

Documentation

Integrated

Changes

Choose when to upgrade

New features

Choose when to upgrade

Customization

Some. Enhance / abstract

Styling

Varies

Cohesion

Varies

Commitment

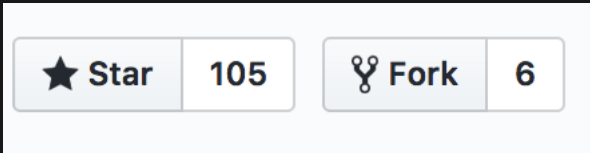
Low

Ease

Medium



Fork



Documentation

Integrated

Changes

Full control

New Features

Your responsibility

Customization

Full control

Styling

Built-in styles

Cohesion

High

Commitment

High

Ease

Hard



Link, Wrap, or Fork?

Is it good enough as is to simply link?

Does this fit our model?

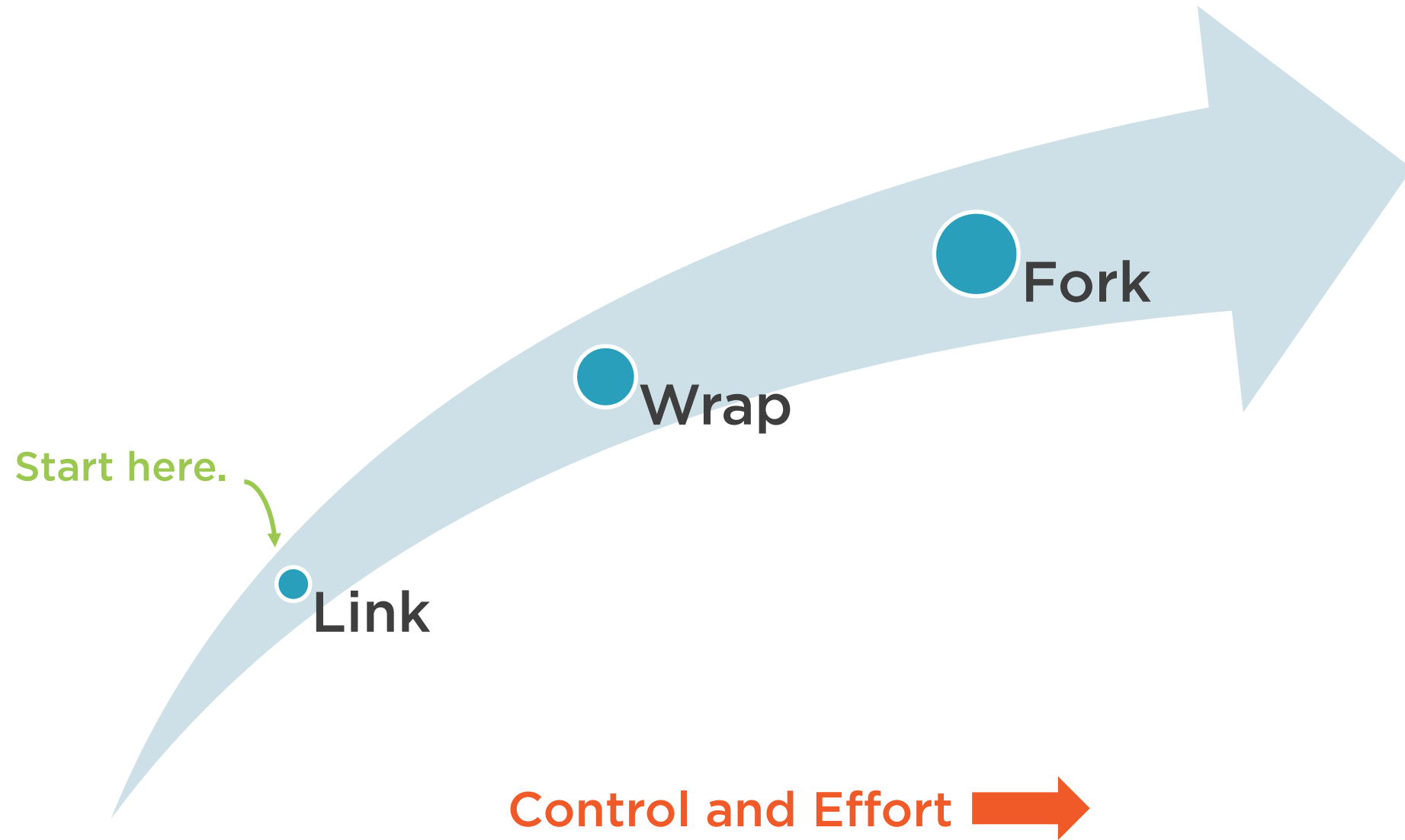
Are the styles overridable?

Is the project actively maintained?

Will wrapping give us enough power?

Are we committed to this component?





Decision:
When should I add a
component to the library?



“A reusable component should be tried out in three different applications before it will be sufficiently general to accept into a reuse library.”

Jeff Atwood



“To build something truly reusable, you must convince three different audiences to use it thoroughly first.”

Jeff Atwood





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javascript angularjs firebase

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0 answers

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asked 1 min ago Alan 484
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0 answers

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c# entity-framework model-view-controller lazy-loading eager-loading

asked 1 min ago Shibli 16
- 0 votes

1 answer

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javascript jquery

modified 3 mins ago Daniel 1,512
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plugin to edit BLOB fields in mysql

javascript php jquery mysql blob

modified 4 mins ago a_horse_with_no_name 197k
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1 answer

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jquery html

modified 5 mins ago Samar Rizvi 93
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Churchope Theme-Centering logo using HTML

php html wordpress

modified 7 mins ago Brian Tompsett - 汤莱恩 3,326
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2 answers

33 views

How to get the difference between two arrays?

javascript arrays lodash array-difference

modified 7 mins ago Barmar 286k
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0 answers

6 views

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c# mysql

asked 9 mins ago John Dayak 6
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1 answer

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c# mysql linq text-files

modified 9 mins ago shA.t 8,954
- 0 votes

0 answers

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php mysql arrays laravel-5.3

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- 0 votes

0 answers

0 views

Laravel return all the ids of descendants

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nginxfastcgi

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1 vote1 answer3k views

libpam-Idapd not looking for secondary groups

linuxubuntudebianldapbam

modified 8 mins agoCommunity ♦ 1

0 votes0 answers3 views

How to force postfix to deny all non TLS queries?

emailsslpostfixemail-serverstarttls

asked 36 mins agoj1088099.mvrht.com. 6

1 vote2 answers1k views

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haproxyaccess-control-list

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phptimeoutmod-fcgid

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Exchange 2010 send from multiple domains

windows-server-2008-r2exchange-2010email

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0 votes1 answer4k views

Linux to authenticate using MS AD using samba

windowsactive-directorywindows-server-2012samba

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1 vote1 answer1k views

UNC access to TFS SharePoint doesn't work

sharepointteam-foundation-serverunc

modified 3 hours agoCommunity ♦ 1

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Systems Engineer

Braintree Chicago, IL

RELOCATION

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What is the meaning of this poster for The Lobster?

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How expressive is a color-based language?

2016 The Year of ...?

Why is Lord Shiva called Pashupati? Who are the Pashus?

How can I get a PhD position to work on solving a particular mathematics problem that I have formulated independently?

Submitting to a journal as an undergrad but lying about academic status on bio

Effects of bullet's spin while in a barrel

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networking

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1 answer

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1 answer

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pdfadobe-reader

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ms-dossecure-erasewipewindows-3.1

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windows-10graphicstablet

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osxencryptionzipopenssl

modified 1 hour ago Xen2050 5,785

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libreoffice-calccells

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- How do I become motivated after unfairness in research?
- What were some major mathematical breakthroughs in 2016?
- A bit, a nibble or byte?
- Java program runs slower when code that is never executed is commented out
- Are there "free actions" in D&D 5e?
- Help with a prime number spiral which turns 90 degrees at each prime
- Why Is Inverse of a Polynomial Still a Polynomial?
- Bigger boundaries in an equation using a macro
- Does heavy water taste sweet?
- Applications of abstract algebra in CS
- Can I access the originating \$USER variable from within a script run with `sudo`?
- Public key chunked encryption with C# method to decrypt
- 2017 is the 1st prime satisfying three conditions. What is the 2nd?
- How can I figure the number of trials until success?
- How can I get a PhD position to work on solving a



“Once we proved that the Stack Overflow engine could scale to these *three distinct communities*, I was comfortable pursuing Stack Exchange, which is now a network of over 100 community-driven Q&A sites.”

Jeff Atwood



Rule of Three:

Try a component in three different spots before placing it in a reuse library.

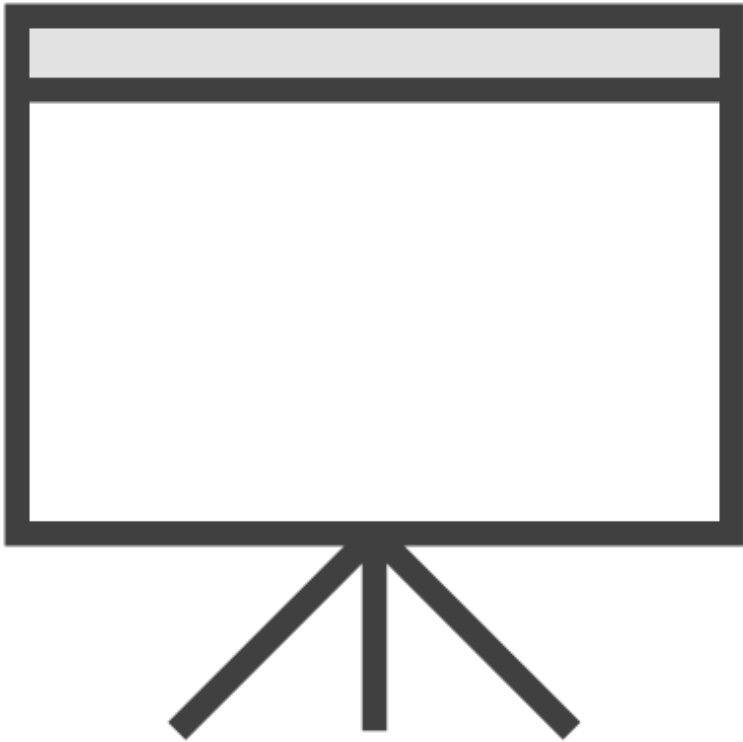


Create a “reusable” folder

Central place to store app-specific reusable components



Demos in This Course



I assume you know React

I'll paste code, then explain highlights

Save typing: Get code in course exercise

I'm using React's inline styles

Not centralizing styles to keep simple





What do you want to learn?

Cory
housecor@gmail.com



...



Creating Reusable React Components

by Cory House

Learn how to design, create, and publish reusable React components that you can share with your team, your company, or the world.



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Course author



Cory House

Cory is an independent consultant with over 15 years of experience in software development. He is a Microsoft MVP, ASP Insider, and a member of the Telerik developer experts program.

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This course is part of:  React Path

Save typing!

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Course Overview



1m 36s



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Pluralsight React Components

A library of React components created in "Creating Reusable React Components" on Pluralsight.

Install

```
npm install ps-react
```

Issues

I'll add tips for common problems and address any known course issues here.

Docs

[Component documentation](#)

Component Hall of Fame 🎉

Here's a list of components built by your fellow viewers!

Submit a pull request to add your link here... :)



What do you want to learn?

Cory
housecor@gmail.com



...



Creating Reusable React Components

by Cory House

Learn how to design, create, and publish reusable React components that you can share with your team, your company, or the world.



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Course Overview



1m 36s



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Wrap Up



Why reusable components?

- Speed, consistency, performance...

Think automotive parts

React alternatives

Core decisions

- Audience: Start small
- Rigid or flexible: Start rigid
- Link, wrap, or fork?
- When to add? Use rule of three

Next Up: Development Environment

