Reusable Component Design

Cory House

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The Plan

Reusable component design tips

Atomic Design

- What?
- Why?

Reusable Component Design Tips

Tip 1

Avoid weak wrapper elements

```
// Avoid
<p>
    {children}
</p>
```

```
// Prefer
<div>
    {children}
</div>
```

Tip 2

Specify PropTypes

Why PropTypes

```
YourMom.propTypes = {
  /** Importance, on a 1 - 10 scale */
  importance: PropTypes.number.isRequired,

  /** Cookie deliciousness, on 1 - 10 scale */
  cookies: PropTypes.number.isRequired,
};
```

Clarify API

Warn consumers

Specify object shape

Enhanced autocompletion

FLOW IS A STATIC TYPE CHECKER FOR JAVASCRIPT.

GET STARTED INSTALL FLOW Star 11,297

Current Version: v0.44.1

CODE FASTER.

Tip 3

Don’t hard code HTML IDs

Don’t Hard Code HTML IDs

May conflict with other markup

Rules out multiple instances

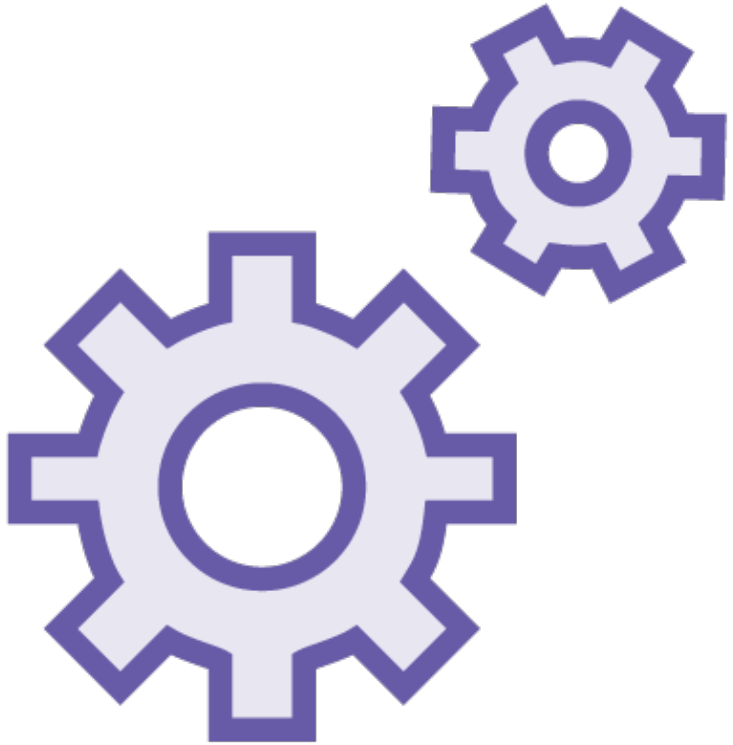
Accept HTML ID via prop

```
MyComponent.propTypes = {
    htmlId: React.PropTypes.string.isRequired
}
```

Tip 4

Set Logical Defaults

Set Logical Defaults



Save users typing

Help assure useful behavior

Convey common use case

Default Props

```
// Below MyCounter class
MyCounter.defaultProps = { initialCount: 0 };


// Using static property
class MyCounter extends React.Component {
  static defaultProps = { initialCount: 0 };


// Stateless component
const myCounter = ({initialCount = 0}) => {
```

Tip 5

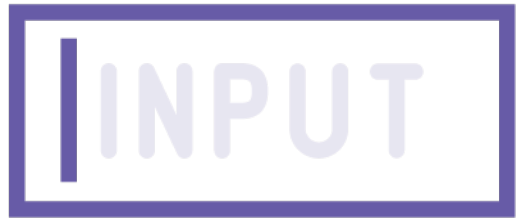
Accessibility Matters

Accessibility Concerns

Keyboard Input

Tab Indexes

Semantic HTML



ARIA

Tip 6

Consider Configuration Objects

```
<CustomerDetail
  firstName="Cory"
  lastName="House"
  title="Developer"
  office="Home"
/>
```

```
<CustomerDetail customer={{
  firstName:"Cory",
  lastName:"House"
  title: "Developer”,
  office: "Home"
}}/>
```

Why a Config Object?

Consistent component API

Less typing

Less error prone

Avoid if your component has few props

Tip 7

Consider Server Rendering

Why Support Server Rendering?

SEO

Static site generation

- Gatsby
- Phenomic

Performance

The public will expect it

To Support Server Rendering

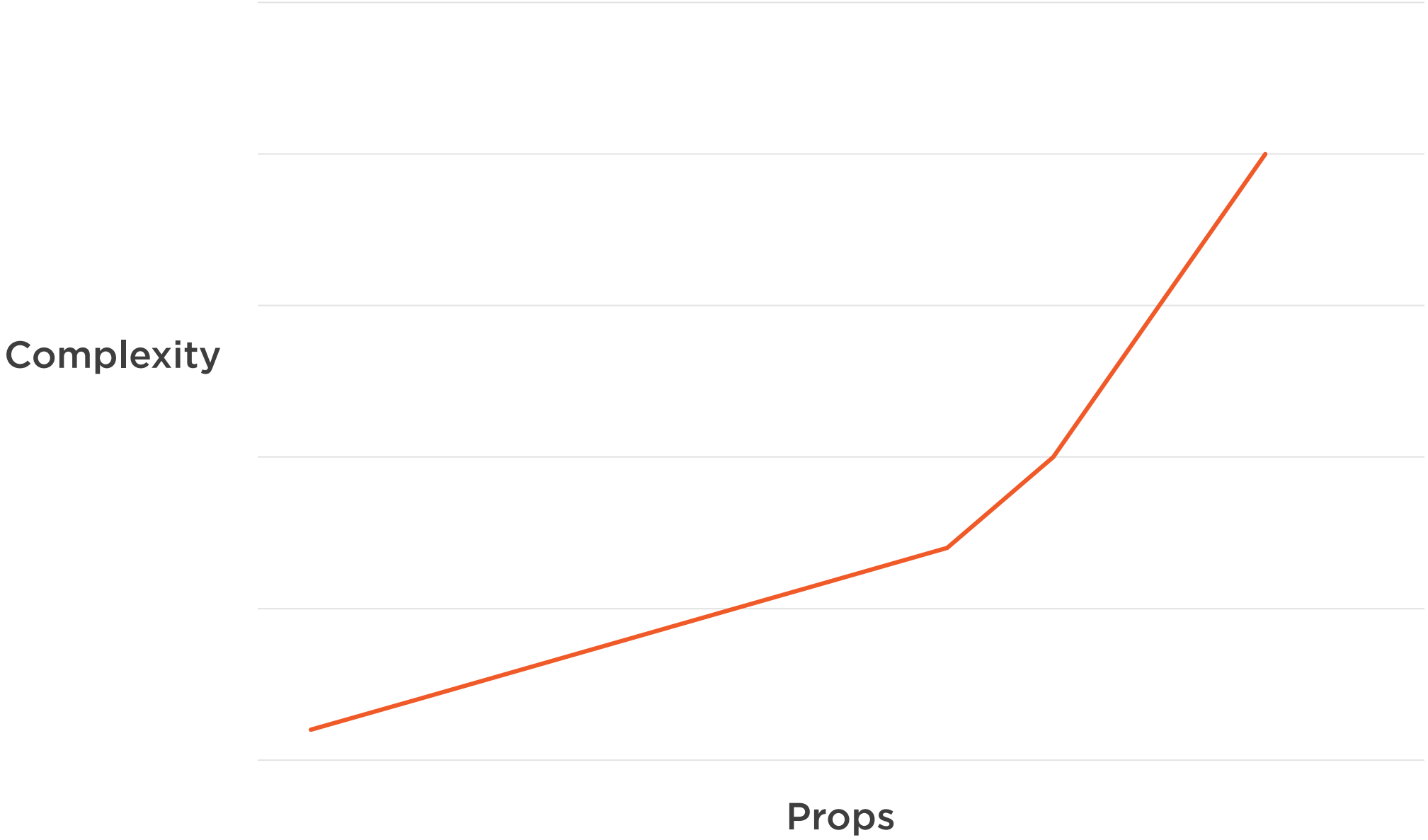
Don’t assume your component is in a browser

- **Avoid document or window calls**
- **Avoid using setTimeout**

Tip 8

Remember the Single Responsibility Principle

The single responsibility principle applies to component design too.


Complexity
Props

Prefer separate, simple components to one complicated and highly customizable component.

8 Quick Tips

1. Avoid weak wrapper elements
2. Specify PropTypes
3. Don’t hard code HTML IDs
4. Set logical defaults
5. Accessibility matters
6. Consider configuration objects
7. Consider server rendering
8. Remember the single responsibility principle

What Is Atomic Design?

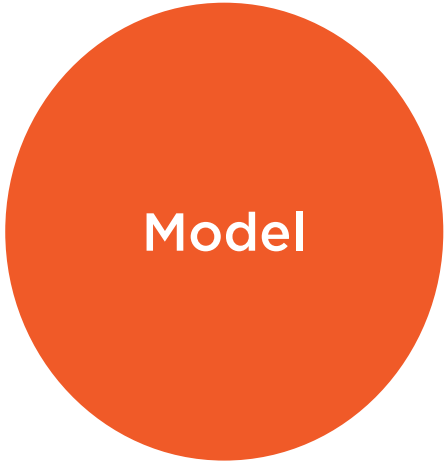
Atomic Design

Atoms	Basic building blocks
Molecules	Groups of two or more atoms
Organisms	Groups of molecules functioning together

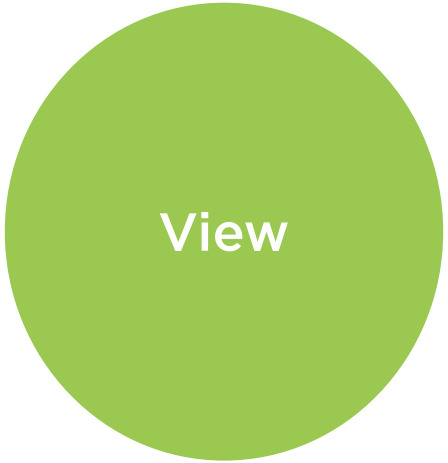

AIRBAG
Mercedes-Benz

Atoms → Molecules → Organisms

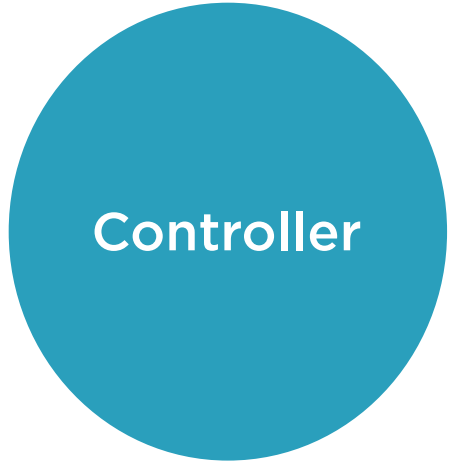
Home Page



Data

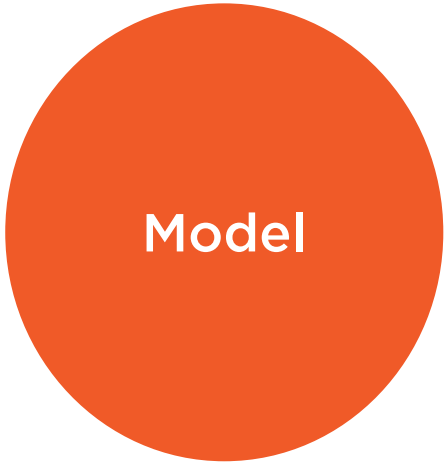


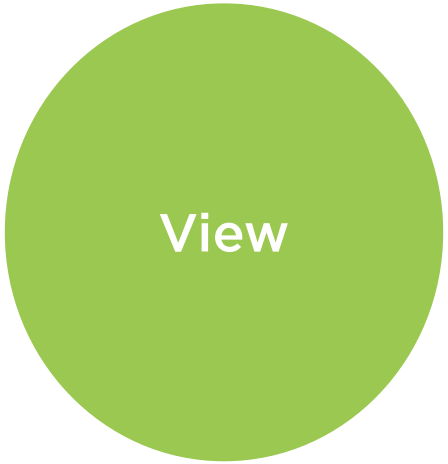
HTML

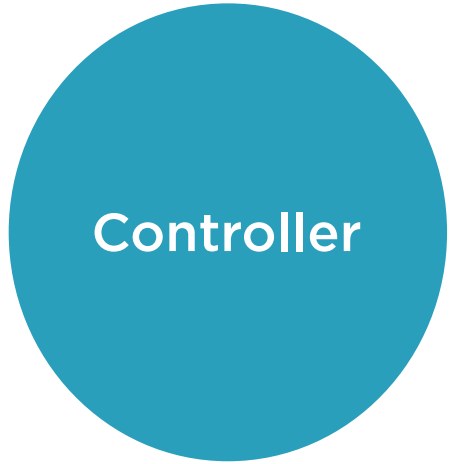


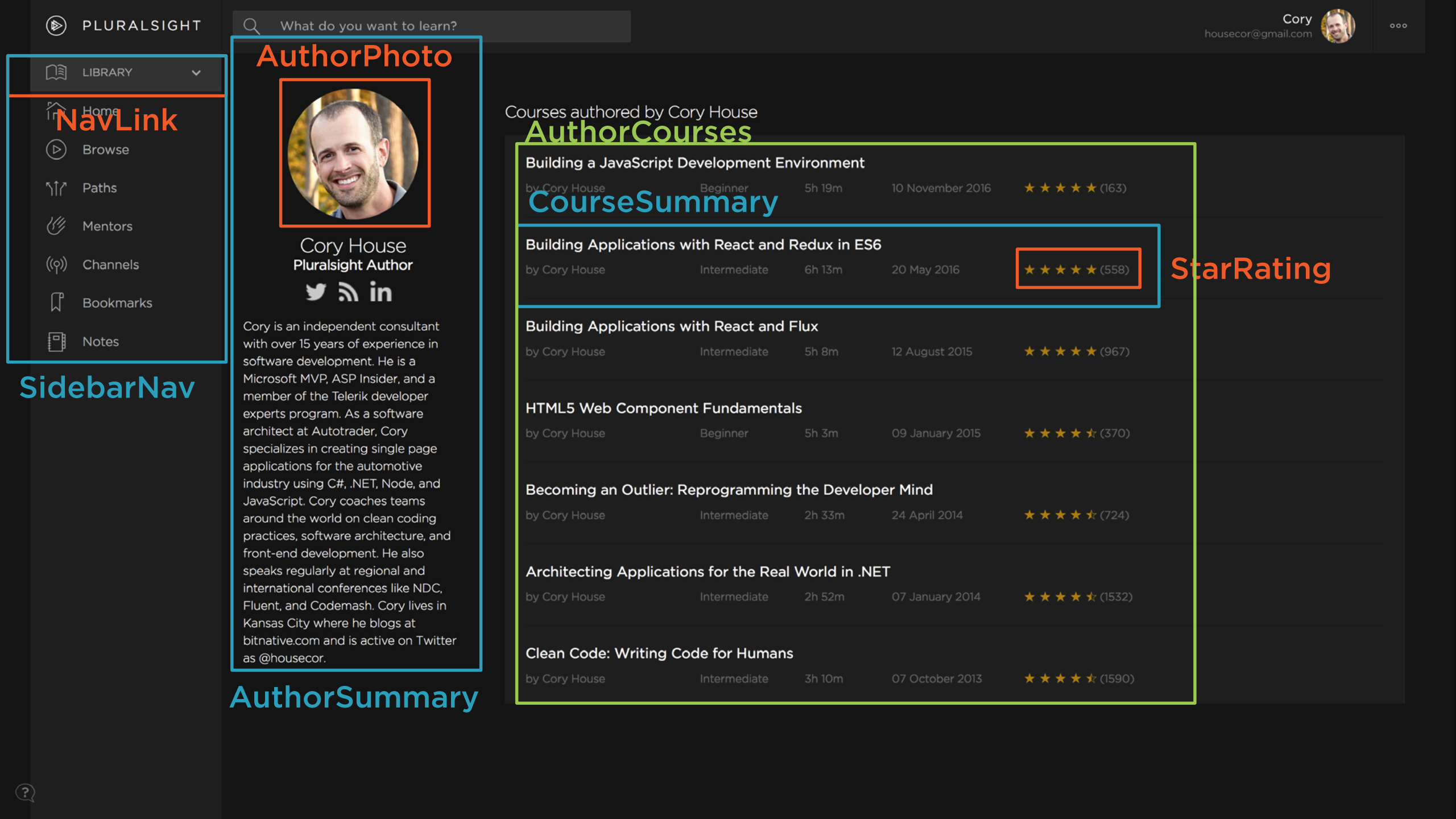
Logic

Product Page





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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. As a software architect at Autotrader, Cory specializes in creating single page applications for the automotive industry using C#, .NET, Node, and JavaScript. Cory coaches teams around the world on clean coding practices, software architecture, and front-end development. He also speaks regularly at regional and international conferences like NDC, Fluent, and Codemash. Cory lives in Kansas City where he blogs at bitnative.com and is active on Twitter as @housecor.
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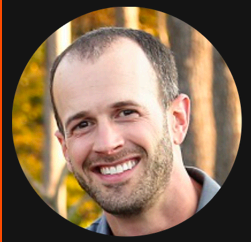

Cory House
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Cory is an independent consultant with over 15 years of experience in software development. He is a Microsoft MVP, ASP Insider, and a member of the Telerik developer experts program. As a software architect at Autotrader, Cory specializes in creating single page applications for the automotive industry using C#, .NET, Node, and JavaScript. Cory coaches teams around the world on clean coding practices, software architecture, and front-end development. He also speaks regularly at regional and international conferences like NDC, Fluent, and Codemash. Cory lives in Kansas City where he blogs at bitnative.com and is active on Twitter as @housecor.

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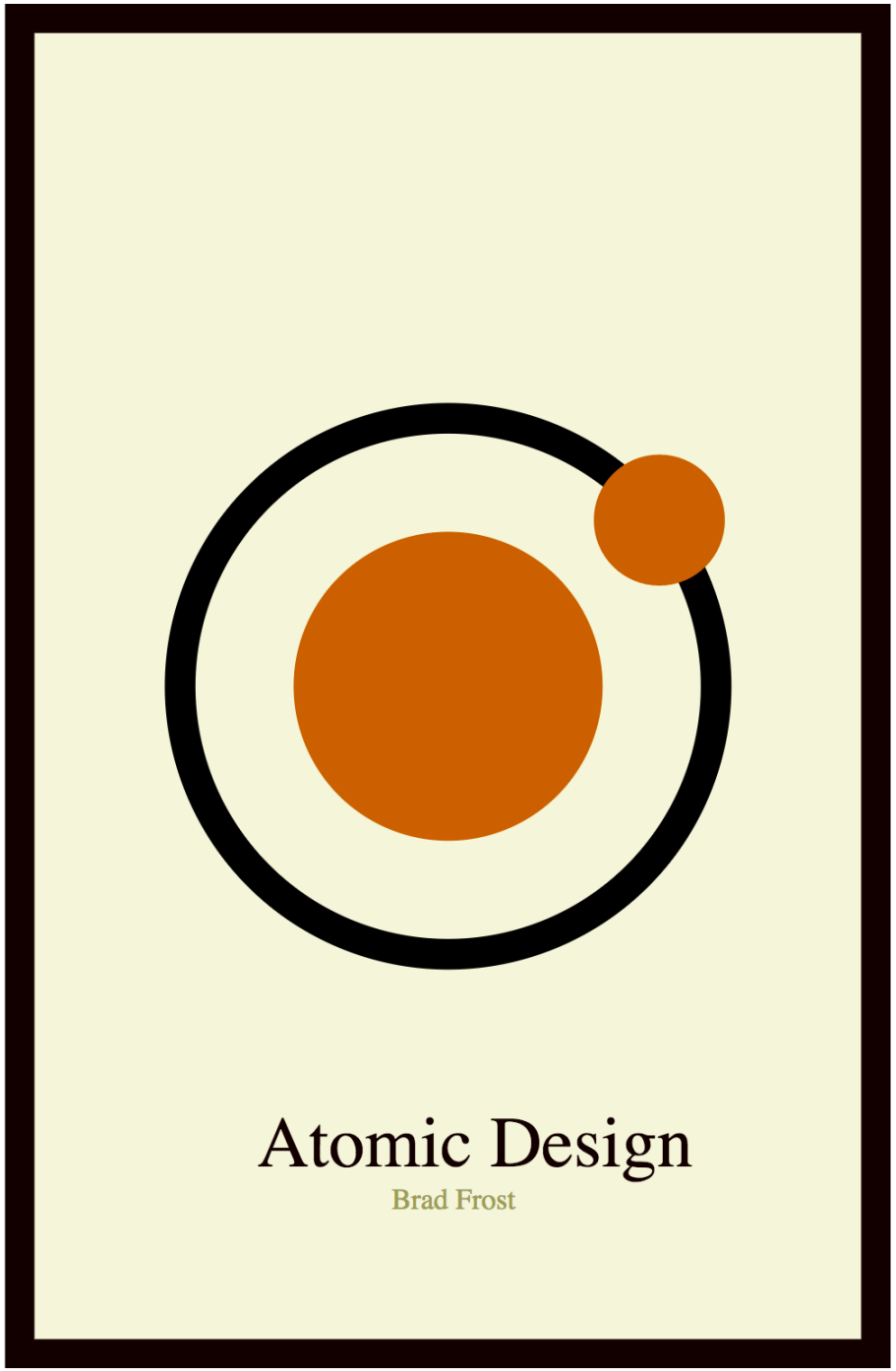
React: Nested Components

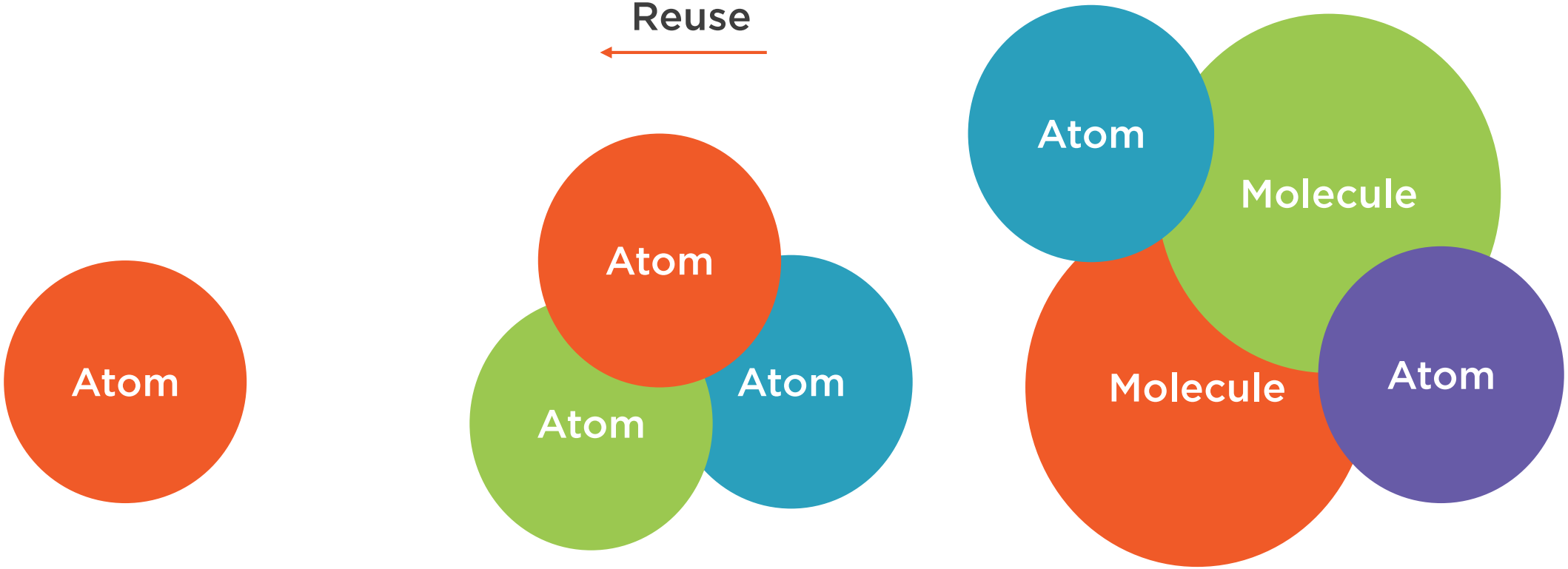


Atomic Design by Brad Frost

atomicdesign.bradfrost.com

Difficulty

Reuse

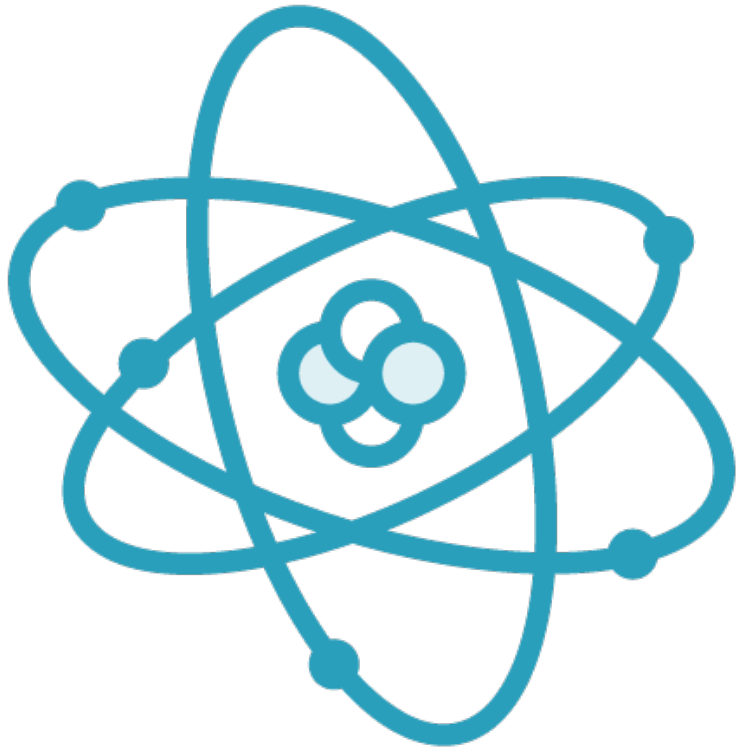


Atom

Molecule

Organism

Atomic Design
=
Modular Design



5 Stages of Atomic Design

1. Atoms
2. Molecules
3. Organisms

Focus for this module

4. Templates

Put components in a layout

5. Pages

Populate templates with content

Why Atomic Design?

Multiple layers of abstraction

Encourages reuse

Convey component relationships

Convey intent

Atomic design = hierarchy.

Wrap Up

Reusable component design:

- Avoid weak wrapper elements
- Specify PropTypes and defaults
- Don’t hard code HTML IDs
- Consider config objects
- Have a single responsibility

Atomic Design: Describe components with scientific terms

- Multiple layers of abstraction
- Encourages reuse
- Convey component relationships
- Convey intent

Next up: Atoms