Introduction to Vue.js

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Topics

- What is Vue.js?
- Why Vue?
- Getting Started
- Declarative Rendering
- Conditionals and Loops
- Handling User Input

The Progressive JavaScript Framework

Approachable

- Already know HTML, CSS and JavaScript? Start building things in no time!

Versatile

- An incrementally adoptable ecosystem that scales between a library and a full-featured framework.

Performant

- 20KB min+gzip Runtime
- Blazing Fast Virtual DOM
- Minimal Optimization Efforts

About Vue.js

- Vue (pronounced /vjuː/, like view) is a progressive framework for building user interfaces.

- Unlike other monolithic frameworks, Vue is designed from the ground up to be incrementally adoptable.

- The core library is focused on the view layer only, and is easy to pick up and integrate with other libraries or existing projects.

- Vue is perfectly capable of powering sophisticated Single-Page Applications (SPAs) when used in combination with modern tooling and supporting libraries.

Some Vue.js Features

Supported in Vue

- Templates
- Declarative Bindings

Templates

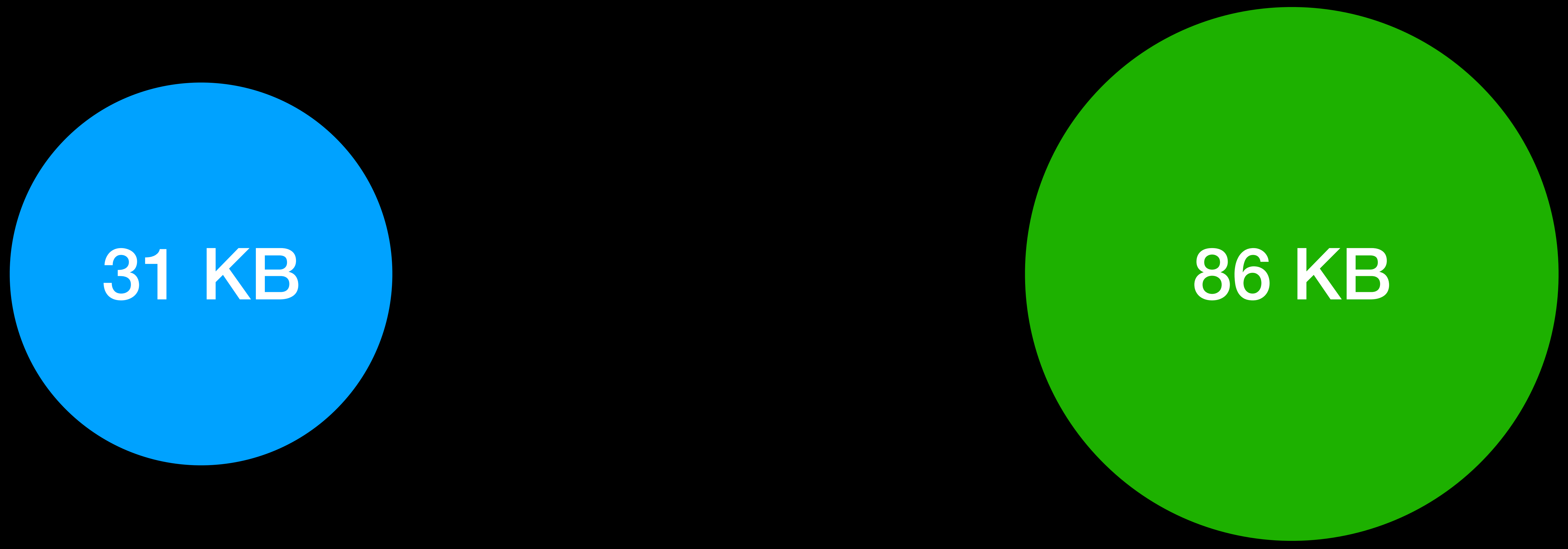
- Separate Data and Business Logic
  - User Interface = HTML and CSS
- Minimizes the amount of code you have to write
- UI is driven by Data, not the HTML

Declarative Bindings

- The glue that holds the UI and data together
- Simplify development
- Remove the burden of managing the DOM when data changes
- Updates happen automatically

Vue.js is Fast

Vue.js File Size



31 KB

Gzip and Minified
Transfer Size

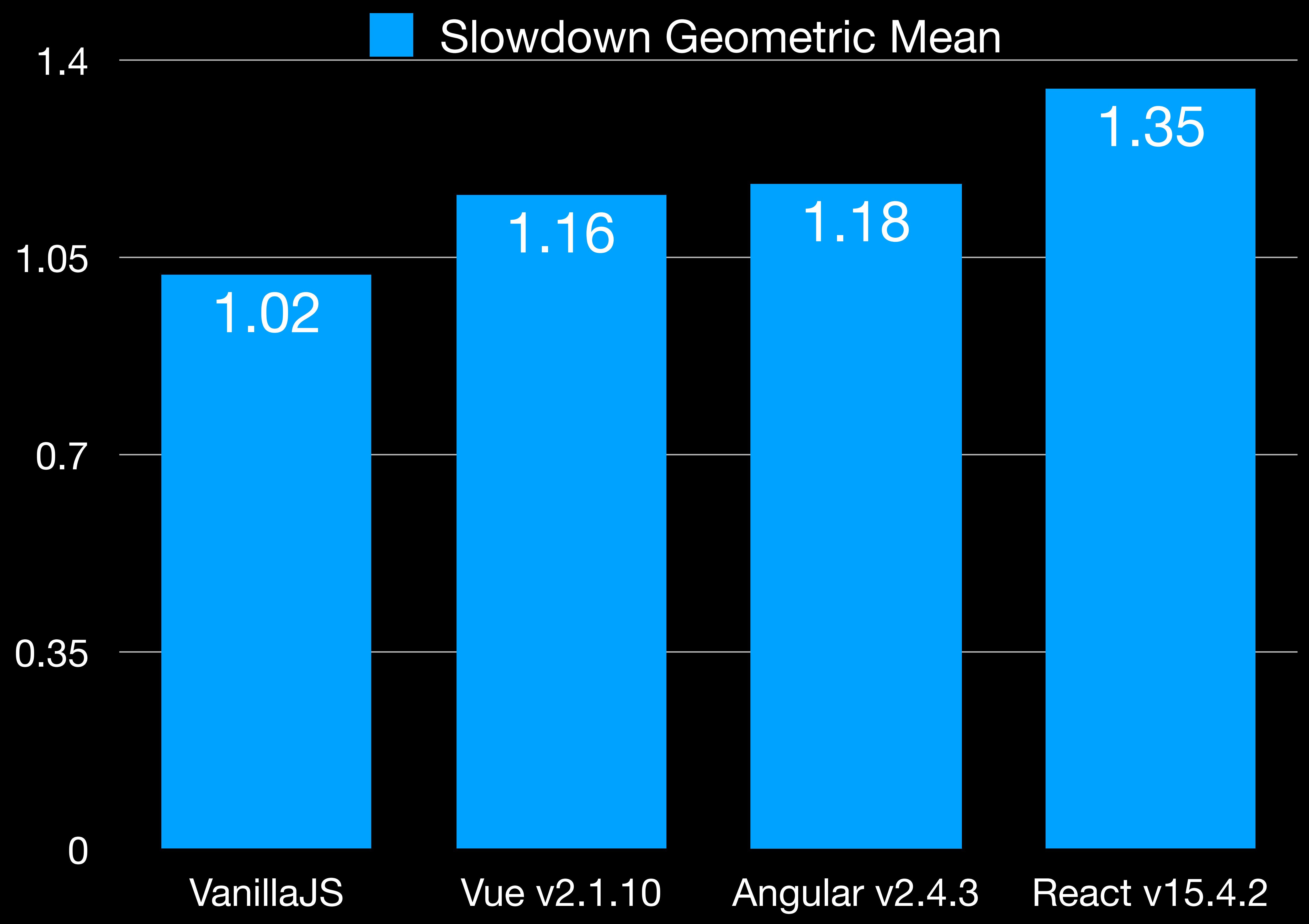
86 KB

Unzipped
Resource Size

DOM Virtualization

- DOM updates are expensive
- DOM Recalculations are expensive and blocks the User
- Virtual DOM
  - Lightweight copy of the actual DOM
  - Vue efficiently determine what needs to be updated
  - Batch updates the DOM in the browser

Speed Comparisons



Data Source: http://stefankrause.net/js-frameworks-benchmark5/webdriver-ts/table.html

Other Considerations for using Vue.js

Browser Support

- Legacy Browsers
  - IE 9+
- Evergreen Browsers
  - MS Edge, Google Chrome, Mozilla Firefox, Apple Safari
- Mobile Browsers
  - Android and Safari on iOS

Licensing

Vue.js	jQuery	Angular	React
MIT	MIT	MIT	3-clause BSD license with Facebook Adendum

Installing and Setting up Vue

Installing Vue

- Vue.js
  - Core Library
  - Available via Content Delivery Network (CDN)
  - `unpkg` CDN is recommended
    - Vue’s project maintainers keep unpkg in sync with the latest version of Vue

Vue.js CDN URL

- Latest Version
  - https://unpkg.com/vue
- Specific Version
  - https://unpkg.com/vue@[version]/dist/vue.min.js

Axios for HTTP Requests

- Not part of Vue
- The preferred library of Vue for making HTTP requests
- Latest Version of Axios
    - https://unpkg.com/axios/dist/axios.min.js

Example Installation

```html
<!DOCTYPE html>
<html lang="en">
<head>
    <title>Hello Vue</title>
</head>
<body>

    <div id=“hello"></div>

    <script type="text/javascript" src="https://unpkg.com/vue"></script>
    <script type="text/javascript" src="https://unpkg.com/axios/dist/axios.min.js></script>
</body>
</html>
```

Instantiating and Mounting Vue

Instantiate and Mount

```
let hello = new Vue({
    el: '#hello'
    // You can use CSS selector to identify the element to replace, or
    //  you can provide a direct reference to the element
    //el: document.getElementById('hello')
})
```

Templates

Templates

- Define template data
- Bind content to a template
- Bind to HTTP attributes

Data Property

- At design time, represents the schema
- At runtime, serves as the model
- Can not add or remove properties
- Vue automatically creates getters and setters using JavaScript’s `object.defineProperty` method.
    - This enables dependency tracking and change notification
    - This is known as making the property reactive

Binding Content to a Template

- Semantic Binding
- Declarative Binding
- One-time bindings - For you to investigate

Semantic Bindings

- Uses double curly braces `{{ … }}`
- Often referred to as mustaches

```
<h1>{{message}}, {{courseName}}</h1>
```

Interpolation

```
let hello = new Vue({
    el: '#hello',
    data: {
        message: 'Hello',
        courseName: 'CS4220'
    }
})
```

```
<h1>{{message}}, {{courseName}}</h1>
```

- Vue will replace the data associated with message and courseName in the curly braces in the template.

- If the value can not be found, it will be replaced with the empty string and an error message will appear in the console.

Declarative Bindings

- Created via directives
- All built-in directives begin with “v-“
- We will not say “v-“, but it will be implied.

`v-text` Directive

```
<h1 v-text="message"></h1>
```

- The v-text directive interpolates a property value as an HTML element’s text.

- If you need to bind to only part of an element, use the semantic syntax.