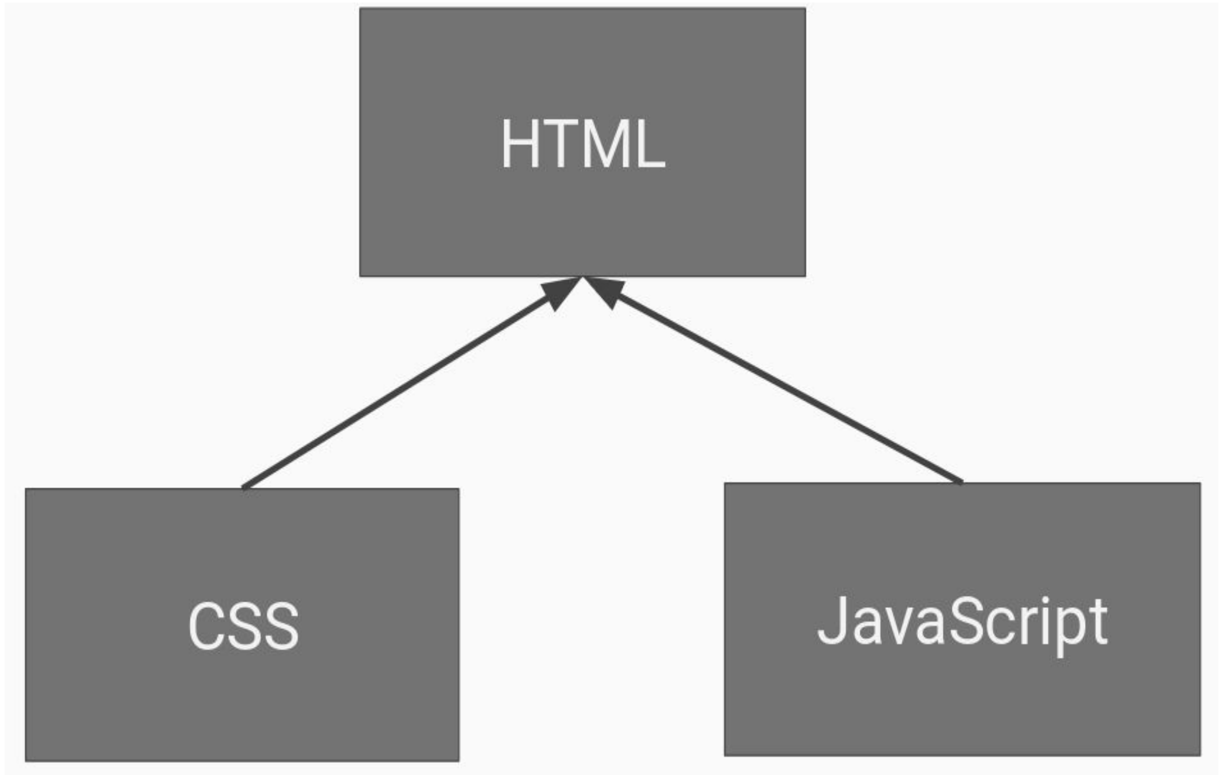
Module 4 Day 9

Introduction to Vue.js and
Vue Data Binding

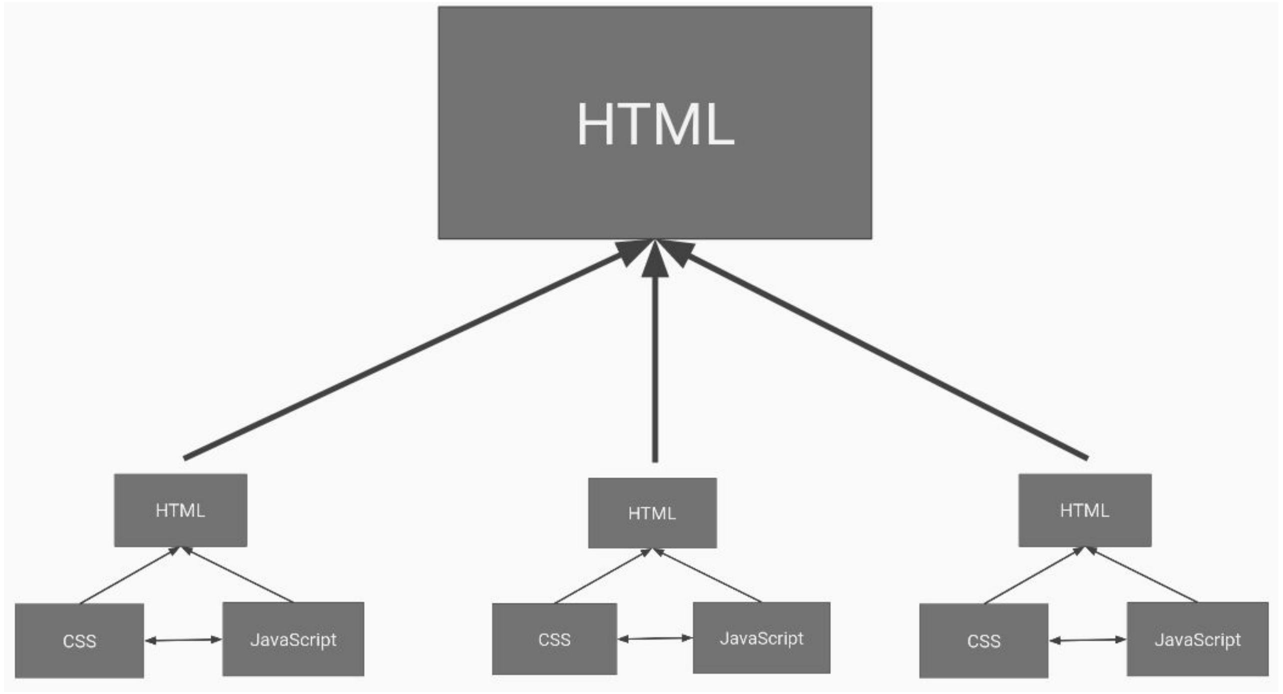
The Vanilla JavaScript Model



… and the problems it leads to as sites grow…

- Incredibly complex
- JavaScript files get larger and larger
- More and more difficult to maintain.

Component Based JavaScript: A Better Way



Vue Building Blocks

Vue.js Component Pieces: <template>

```
<template>
  <div id="app">
    <img alt="Vue logo" src="./assets/logo.png">
    <HelloWorld msg="Welcome to Your Vue.js App"/>
  </div>
</template>
```

Vue.js Component Pieces: <script>

```
<script>
import HelloWorld from './components/HelloWorld.vue'

export default {
  name: 'app',
  components: {
    HelloWorld
  }
}
</script>
```

Vue.js Component Pieces: <style>

```
<style>
#app {
  font-family: 'Avenir', Helvetica, Arial, sans-serif;
  -webkit-font-smoothing: antialiased;
  -moz-osx-font-smoothing: grayscale;
  text-align: center;
  color: #2c3e50;
  margin-top: 60px;
}
</style>
```

Vue Component Integration

Vue.js Component Use: Loading

In your <script> tag:

```
import HelloWorld from './components/HelloWorld.vue’
```

Then add your component:

```
components: {
   HelloWorld
  }
```

Vue.js Component Use: Adding to a Page

Simply include a component element by using a named tag:

- **<hello-world></hello-world>**

1. The component will be injected at that tag's location.
2. Take note of the tag name! This is a standard of Vue.
3. The component is Pascal Cased.
4. The tag is all lower with cased names separated by a hyphen.
5. One word component names should be preceded by the name Web:
   WebAnimal -> <web-animal></web-animal>

Vue.js Component Use: Starting Out

Time to jump into VS Code!

Vue Directives, Data, and Bindings: Notes

VUE-Directives

Before we get started on data-binding let’s introduce several VUE directives.

- A VUE directive is an extra attribute on a HTML element that asks the VUE library to take some kind of action on that element.

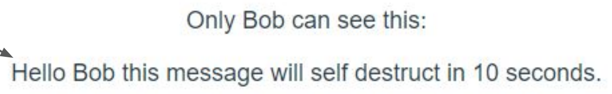
- Today, we will discuss the following:
  - **v-model**: directly associates a DOM element to a chunk of the JSON model.
  - **v-for:** (with v-bind): loops
  - **v-if**: renders the DOM element if certain conditions are met.

v-if

The v-if directive will render a DOM element only if certain conditions are met. Consider the following:

```
<template>
   <div class="main">
       <p>Only Bob can see this:</p>
       <p class="description"  v-if="name == 'Bob'">Hello {{name}} this
        message will self destruct in 10 seconds.</p>
   </div>
</template>


<script>
export default {
 name: 'product-review',
 data() {
   return {
     name: 'Bob',
     description: 'secret agent'
   }
 }
}
</script>
```


Only Bob can see this:

Hello Bob this message will self destruct in 10 seconds.

Note that the second paragraph has a v-if directive.

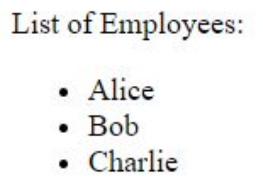
The element will only display if the name attribute is Bob.

v-for

The v-for directive is used for looping. This operates in a similar manner as <c: foreach> in JSTL. We want to apply the v-for on the HTML element that is going to repeat!

```
<template>
   <div class="main">
       <p>List of Employees:</p>
       <ul>
         <li v-for=' employee in empList' :key='employee'>{{ employee}} </li>
       </ul>
   </div>
</template>

<script>
export default {
 name: 'product-review',
 data() {
   return {
     empList: ['Alice','Bob','Charlie']
   }
 }
}
</script>
```



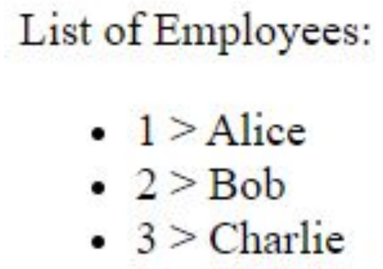
```
List of Employees:

  • Alice
  • Bob
  • Charlie
```

In here, we are looping through an array of Strings, the <li> element will be repeated three times, one for each element on the array.

v-for : (but with an array of objects)

```
<template>
   <div class="main">
       <p>List of Employees:</p>
       <ul>
<li v-for='employee in empList' :key='employee'>
{{employee.id}} > {{employee.name}}
</li>
       </ul>
   </div>
</template>
<script>
export default {
 name: 'product-review',
 data() {
   return {
     empList: [
       {id: 1, name: 'Alice'},
       {id: 2, name: 'Bob'},
       {id: 3, name: 'Charlie'}
     ]
   }
 }
}
</script>
```



List of Employees:

- 1 > Alice
- 2 > Bob
- 3 > Charlie

In the previous example we had an array of Strings, now we are working with an array of objects, necessitation dot notation, i.e. employee.name

Computed Properties

Computed properties can be thought of as custom fields based on the JSON data model. Computed properties are defined in the script section of a VUE component:

```
<script>
export default {
 name: 'product-review',
 data() {
        ...
 },
 computed: {
   metricUnits() {
      let metricMeasure = this.volumeImperial / 0.061024;
      return metricMeasure;
   }
 }
}
</script>
```

- The way computed properties are defined greatly resemble functions!
- Note that in relation to the data() section, the computed section is a peer (not a descendant) of data.

Computed Properties

We can now refer to these computed properties using the double mustache.

```
<template>
   <div class="main">
       <h2>Product Reviews for {{ name }}</h2>
       <p class="description">{{ description }}</p>
       <p>Volume in Imperial Units: {{  volumeImperial }}</p>
       <p>Volume in Metric Units:{{  metricUnits }}</p>
   </div>
</template>
```

```
<script>
export default {
 name: 'product-review',
 data() {
   return {
     name: 'Cigar Parties for Dummies',
     description: 'Banned in 50 countries',
     volumeImperial: '100'
   }
 },
 computed: {
   metricUnits() {
      let metricMeasure = this.volumeImperial / 0.061024;
      return metricMeasure;
   }
 }
}
</script>
```

Binding

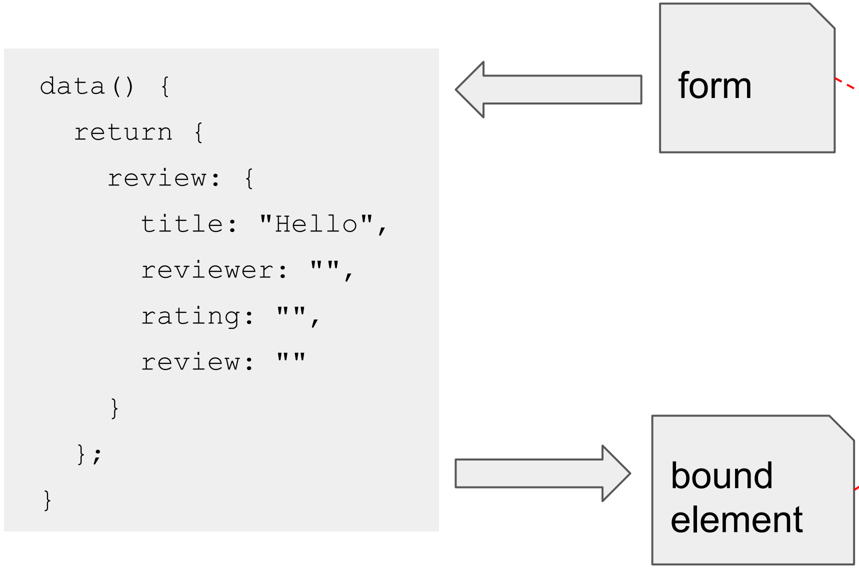
Data Binding Definition

- Data Binding techniques allow your HTML data-dependent elements to remain synchronized with its data source.
  - Consider the case of a drop-down box on HTML that lists all the Canadian provinces and US states… you could write A LOT of HTML and build this drop-down.
    - Or… you could bind the box to a JSON representation of the data.

- We have already seen plenty of examples for one way data binding where the HTML comment is derived from the JSON object inside the script section.

Two way binding: a visual

Suppose we had the following JSON object:



```
data() {
  return {
    review: {
      title: "Hello",
      reviewer: "",
      rating: "",
      review: ""
    }
  };
}
```

In our view, we have a form, input from the form will update the values of the data model.

The current values from the data model will be reflected on a bound element within the view

Two way binding: v-model

Let’s take a look at part of the form that will update the data model first using v-model:

```
<template>
 <div class="container">
   <h1>Add New Review</h1>
   <div class="row">
     <div class="col-7">
       <form>
         <div class="form-group">
           <label for="title">Title</label>
           <input
             type="text"
             class="form-control"
             id="title"
             placeholder="Enter title"
             v-model="review.title"
           />
         </div>
...
```

```
data() {
  return {
    review: {
      title: "Hello",
      reviewer: "",
      rating: "",
      review: ""
    }
  };
}
```

Note how v-model allows us to associate a form element with the JSON data model.

Two way binding: Bound Elements

We can have an element

```
<template>
 <div class="container">
   <h1>Add New Review</h1>
   <div class="row">
     <div class="col-7">
       <form>
         <div class="form-group">
           <label for="title">Title</label>
           <input
             type="text"
             class="form-control"
             id="title"
             placeholder="Enter title"
             v-model="review.title"
           />
         </div>
...
```

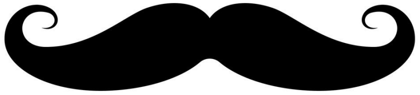
```
data() {
  return {
    review: {
      title: "Hello",
      reviewer: "",
      rating: "",
      review: ""
    }
  };
}
```

Note how v-model allows us to associate a form element with the JSON data model.

Two way binding: Bound Elements

We can use a mustache to have an HTML element reflect the value of the data model:

```
data() {
  return {
    review: {
      title: "Hello",
      reviewer: "",
      rating: "",
      review: ""
    }
  };
}
```



```
<div class="col-5">
  <h2>Submission</h2>
  <hr />
  <p>Title: {{ review.title }}</p>
  <p>Reviewer: {{ review.reviewer }}</p>
  <p>Rating: {{ review.rating }}</p>
  <p>Review: {{ review.review }}</p>
</div>
```

The value of the JSON object will be properly reflected on the view.