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Vue Fundamentals - 03
Style binding & in depth components

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Using v-model

Two-way databinding with Vue

Using v-model to select changes

"You can use the `v-model` *directive to create two-way data bindings on form input, textarea, and select elements. It automatically picks the correct way to update the element based on the input type."*

https://vuejs.org/v2/guide/forms.html

Using `v-model`

Two-way data binding

Reflect changes in the UI back to the component and the other way around

```
<input type="text" v-model="…">
```

Push items to (new) array


```
<input type="text" class="form-control-lg"
       v-model="newCountry"
       @keyup.enter="addCountry()"
>
<button @click="addCountry()" class="btn btn-info">
    Add Country
</button>
```


methods: {
selectCountry(index) {
this.selectedCountryIndex = index;
},
addCountry(){
this.newCountries.push(this.newCountry);
this.newCountry='';
},
},
computed: {

Using `v-model` on check boxes

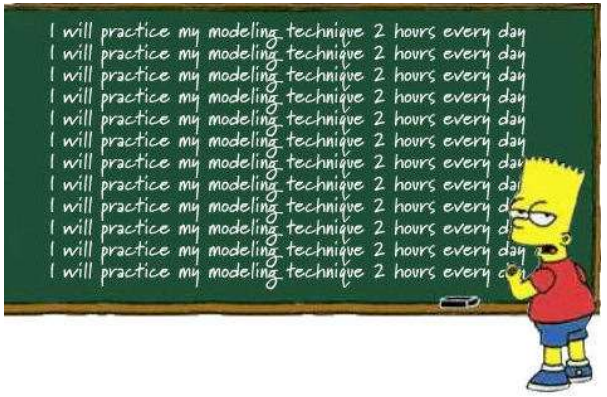
```
<input type="checkbox" v-model="…">
```

Using `v-model` on radio buttons

```
<input type="radio" v-model="…">
```

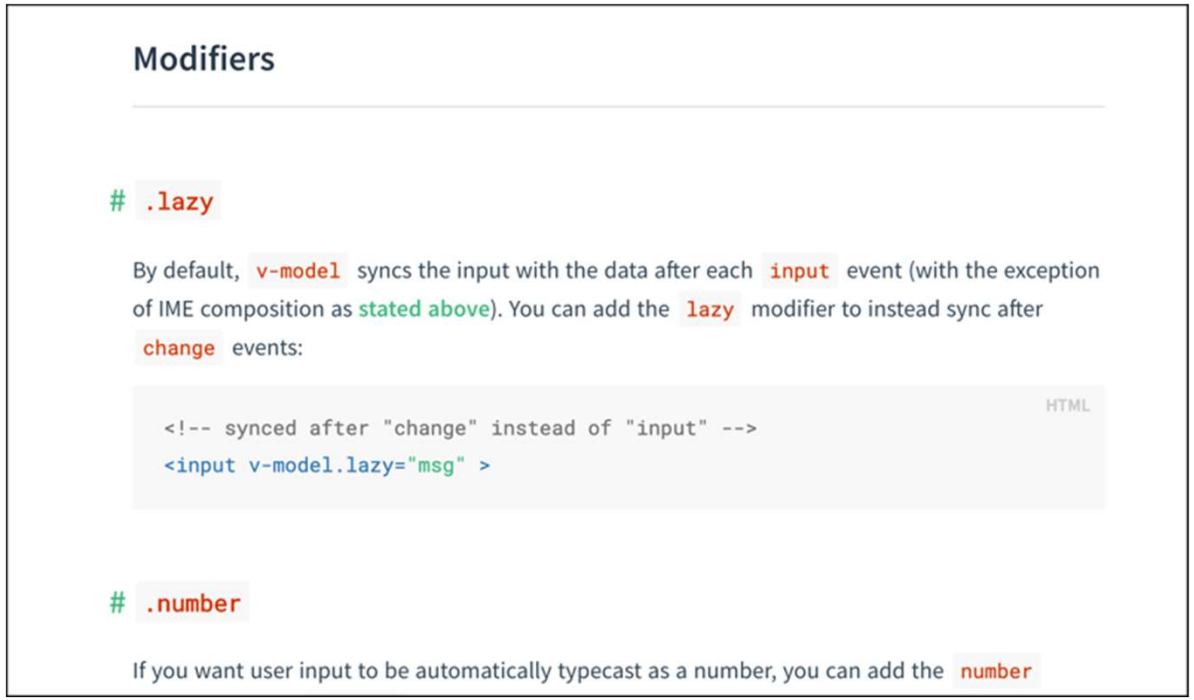
Workshop v-model

- Create a component with 2 input fields. The values you type in one field, are copied to the other field and vice versa
- Add checkboxes to your own data list. If a field is checked, it is added to an array and shown in the user interface
- Optional: create a textfield on one component.
  - Text that is typed in, is passed on as a `prop` to another component
  - See default `HelloWorld` component as an example for `props`
- Examples: `…/125-v-model, 126-…, 127-…, 128-…`



Optional - modifiers for v-model

- Modifying the input, received from a `v-model` textbox
  - `.lazy`
  - `.number`
  - `.trim`
- https://vuejs.org/v2/guide/forms.html#Modifiers



Modifiers

.lazy

By default, `v-model` syncs the input with the data after each `input` event (with the exception of IME composition as stated above). You can add the `lazy` modifier to instead sync after `change` events:

HTML

```
<!-- synced after "change" instead of "input" -->
<input v-model.lazy="msg" >
```

.number

If you want user input to be automatically typecast as a number, you can add the `number`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Component lifecycle hooks

Tapping into the lifecycle of created components

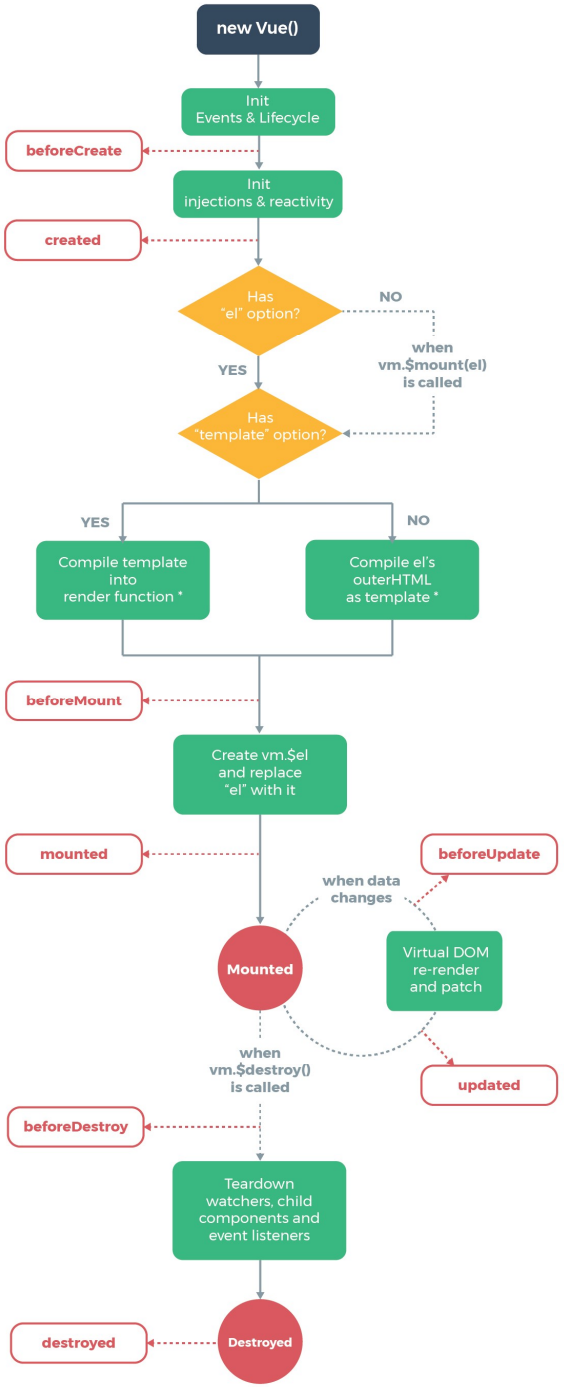
Lifecycle hooks

- Perform an action automatically when a specific lifecycle event occurs

"Each component instance goes through a series of initialization steps when it's created - for example, it needs to set up data observation, compile the template, mount the instance to the DOM, and update the DOM when data changes."

https://vuejs.org/v2/guide/instance.html#Instance-Lifecycle-Hooks

Official lifecycle diagram



The Red squares are the lifecycle hook methods.

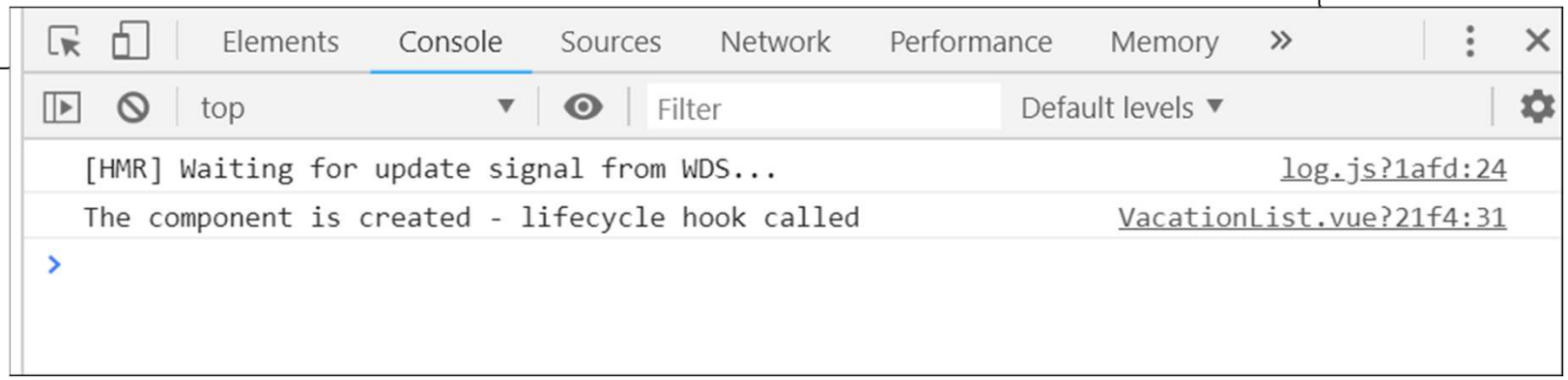
Most used:

- `created`
- `updated`
- `destroyed`

https://vuejs.org/v2/guide/instance.html#Instance-Lifecycle-Hooks

Using the `created` hook

```
export default {
   name: "VacationList",
   data() {
      return {
         header: 'List of destinations',
      }
   },
    // Using the 'created' lifecycle hook.
   created(){
      console.log('The component is created - lifecycle hook called');
      // update the header
        this.header = 'The component is created';
   },
   ...
}
```

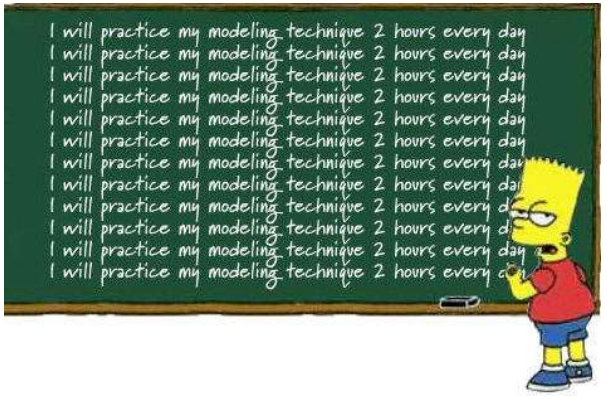


Usage of lifecycle hooks

- Typical usage
  - `created` – initialisation of variables, call API's for fetching data etc.
  - `mounted` – if you want to access or modify the DOM.
  - `updated` – when the component receives new data from the outside (props)
  - `destroyed` – to destroy or garbage collect stuff that is not removed automatically
  - Vue 3: `unmounted()` (instead of `destroyed()`)

Workshop

- Create a new component.
- Give it some data that you bind in the UI.
- Use a lifecycle hook `created` to log to the console that the component is created.
- Edit the data in the `created` lifecycle hook. Verify that it is shown correctly in the UI.
- Read the documentation on some other lifecycle hooks, for instance https://www.digitalocean.com/community/tutorials/vuejs-component-lifecycle
- Example: `…/150-lifecycle-hooks`



Style Bindings

On using global styles and scoped styles

Global styles and scoped styles

With default styles, CSS is globally available.

For instance, see `App.vue`:

```
<style>
    #app {
        font-family: 'Avenir', Helvetica, Arial, sans-serif;
        color: #2c3e50;
    }
</style>
```

This is also true for components!

Using scoped styles

- To avoid naming collisions, it is best to add the `scoped` attribute to a style block inside a component
- Different components now can reuse the same classname without clashes.

```
<template>
    <div>
        <h2 class="heading">Component 1</h2>
        …
    </div>
</template>

<script>
   export default {
      name: "ComponentOne",
   }
</script>

<style scoped>
    .heading {
        font-size: 36px;
        color: cornflowerblue;
    }
</style>
```

```
<h2 class="heading">Component 2</h2>
<style scoped>
    .heading {
        font-size: 36px;
        color: crimson;
    }
</style>
```

```
<h2 class="heading">Component 3</h2>
<style scoped>
    .heading {
        font-size: 48px;
        color: rebeccapurple;
    }
</style>
```

Three components. Same class name, different styling.

Component 1

Lorem ipsum dolor sit amet, consectetur adipisicing elit. At illum molestiae quae tempore ut. Expedita nostrum omnis perspiciatis porro praesentium repellat similique voluptate voluptatum. Dolorum eaque ex praesentium quibusdam voluptates?

Component 2

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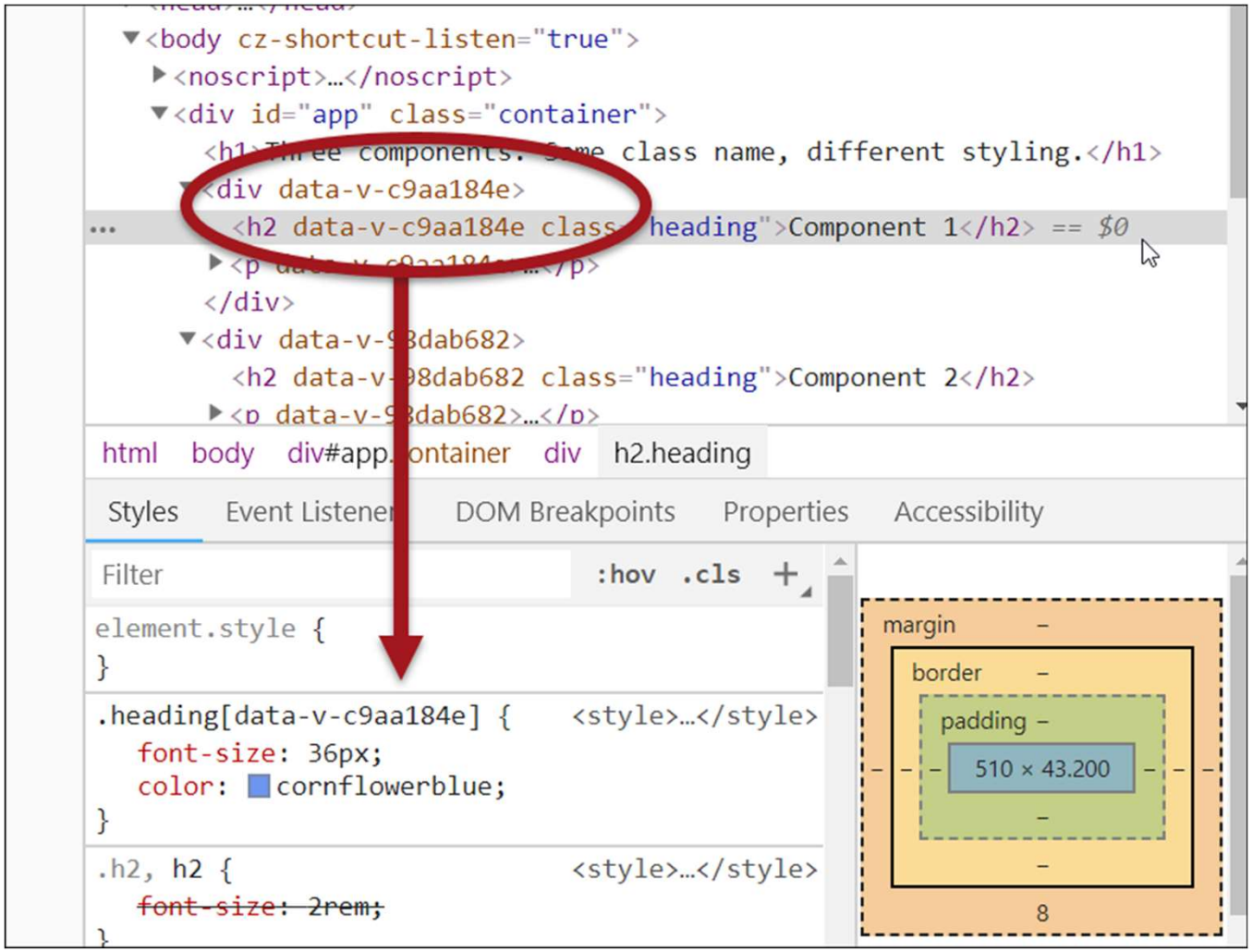
Component 3

Lorem ipsum dolor sit amet, consectetur adipisicing elit. At illum molestiae quae tempore ut. Expedita nostrum omnis perspiciatis porro praesentium repellat similique voluptate voluptatum. Dolorum eaque ex praesentium quibusdam voluptates?

Vue adds (semi random) hashes to elements



General rules on styling

- Do not create global styles in components
- Only the top level component (`App.vue`) should have global styles
- You *can* use a generic CSS-framework like Bootstrap, Foundation, Vuetify, etc.

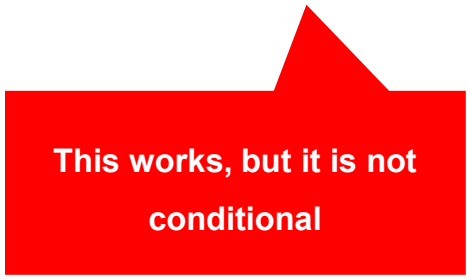
Conditionally applying styles

- Bind to the style attribut like so:
  - `v-bind:style="{ …some-style…}"` or just
  - `:style="{…some-style…}"`
  - For instance `:style="{ border: '2px solid black'}"`
  - These are actually just CSS styles and notation!
- If your CSS-style has a hyphen in them, a special notation is needed:
  - `:style="{['background-color']: 'lightBlue'}"`
  - or use camelCase notation:
  - `:style="{backgroundColor: 'lightBlue'}"`

Making the style conditional

- For instance: we only want the style to be applied if the cost of a trip is less than 1000
- We can just bind to the HTML `:style` property
- For the value: use a computed property, or method.
- Let the computed property or method return a valid CSS style object

```
:style="{backgroundColor: 'lightBlue'}"
```



This example: using a method

```
<li class="list-group-item"
    :style="highlightBackground(index)"
    v-for="(country, index) in data.countries" :key="country.id">
        {{ country.id }} - {{country.name}}
</li>
```

```
methods:{
   highlightBackground(index){
      return {
         backgroundColor:
                this.data.countries[index].cost < 1000 ?
                    'lightBlue' :
                    'transparent'
      }
    }
}
```

Conditionally applying styles

List of destinations

1 - USA

2 - Netherlands

3 - Belgium

4 - Japan

5 - Brazil

6 - Australia

Using v-model on a selection list

```
<h2>Destinations cheaper than:
    <select class="form-control-lg" v-model="selectedCost">
        <option value="1000">1000</option>
        <option value="2000">2000</option>
        <option value="3000">3000</option>
        <option value="4000">4000</option>
        <option value="5000">5000</option>
        <option value="6000">6000</option>
    </select>
</h2>
```

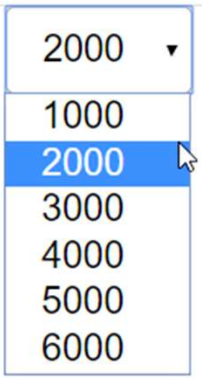
```
data() {
   return {
      …
      selectedCost: 1000
   }
},
methods: {
   highlightBackground(index) {
      return {
         backgroundColor:
            this.data.countries[index].cost < this.selectedCost ?
               'lightBlue' :
               'transparent'
      }
   }
}
```

Conditionally applying styles

List of destinations

- 1 - USA
- 2 - Netherlands
- 3 - Belgium
- 4 - Japan
- 5 - Brazil
- 6 - Australia

Destinations cheaper than: 2000



Conditionally applying classes

- Most of the times it is better to use CSS classes instead of inline styles
- Class binding is an object where the keys are the name of the CSS-class you want to toggle.
- You set the value to a boolean expression that should evaluate to `true` or `false`
  - If `true`, the class is applied
  - If `false`, the class is removed from the element
  - Of course this is all dynamic

Same functionality – with class binding

Create a CSS class:

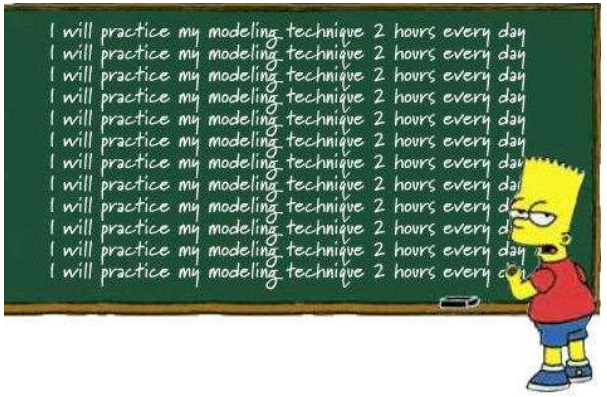
```
<style scoped>
    .lightblueBackground {
        background-color: lightblue;
    }
</style>
```

Apply the class conditionally in HTML:

```
:class="{'lightblueBackground': country.cost < selectedCost }"
```

Workshop

- Create a component with a `<button>` and a `<div>`
- if the button is clicked, the class of the div is toggled
  - First – use conditional styles
  - Second – use conditional classes
- Add a `<div>`. If you hover the mouse over the div, toggle a class to highlight it
- Ready made example: `140…/…/ConditionalClass.vue`
  - (But first try it yourself!)



Checkpoint

- You can use v-model in various situations
- You know about lifecycle hooks
- You can write and (re)use mixins
- You know the difference between global styles and scoped styles
- You know how to apply styles and classes conditionally