

Class 3: Learning Vue.js Independently

Agenda

- Review: Last Class
- Vue.js Components
- Vue.js Exploration
- Troubleshooting Vue.js Apps

Review: Last Class

Review: App

App, short for application, is an **interactive program** for **computational devices** (i.e. phones) typically designed to **support users with tasks**.

Apps are **Expensive!**

- ~\$100,000 to \$250,000
- ~3 months to 12 months

Review: Prototype

“ A user interface prototype is a hypothesis – a candidate design solution that you consider for a specific design problem. ”

Source: NN/Group

Prototyping Methods

- Low-Fidelity (Sketches, Wireframes, Paper Prototypes)
- Medium-Fidelity (Digital Wireframes, Clickable Prototypes)
- High-Fidelity (Visual Designs, Functional Prototypes)

Review: Vue.js

“ Vue.js is an approachable, performant and versatile framework for building web user interfaces. ”

Source: <https://vuejs.org/>

Review: Primary Course Learning Objective

Learn how to independently approach problems and technologies that are new to you.

- Tutorials
- Examples
- Documentation
- Ask ChatGPT
- **Exploration & Experimentation**

Vue.js

Discussion: What did you learn about Vue.js?

For today's class preparation, you independently explored Vue.js using your Homework 1 repository.

Single Page Applications (SPAs)

A Vue.js app is a **Single Page Application (SPA)**.

An SPA (Single-page application) is a web app implementation that loads only a single web document (i.e. HTML), and then updates the body content of that single document via JavaScript [...]

Source: <https://developer.mozilla.org/en-US/docs/Glossary/SPA>

Components - `.vue` Files

- Each `.vue` file is a **component**.
- Each component has:
 - `<template>`: HTML structure
 - `<script>`: JavaScript logic
 - `<style>`: CSS styling

`ButtonCounter.vue`:

```
<script setup>
import { ref } from 'vue'
const count = ref(0)
</script>

<template>
  <button @click="count++">{{ count }}</button>
</template>

<style scoped>
button {
  font-size: 1.5em;
  padding: 0.5em 1em;
}
</style>
```

Component \approx *HTML Tag*

- Components can be **imported** and **used** in other components.
- Using a component is similar to using an HTML tag.

App.vue :

```
<script setup>
import ButtonCounter from './ButtonCounter.vue'
</script>

<template>
  <h1>Button Counter</h1>
  <ButtonCounter />
</template>
```

Practice

Tips: Learning Unfamiliar Technology

- Be curious.
- Don't be afraid to break things.
- Explain what the code is doing to yourself (or others).
- Build **minimum working examples** to try **one** thing at a time.

Activity: Vue.js SPA Exploration

Working with a peer, answer the following questions on your handout:

1. Where does the app “start”? What is the main?
2. How does the `<ButtonCounter>` component work?
3. How would you add a second button counter to the app?
4. How would you style the app to change the font and center the content?

App.vue :

```
<script setup>
import ButtonCounter from './ButtonCounter.vue'
</script>

<template>
  <h1>Button Counter</h1>
  <ButtonCounter />
</template>
```

ButtonCounter.vue :

```
<script setup>
import { ref } from 'vue'
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Tips: Learning Unfamiliar Technology

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- Don't be afraid to break things.
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- Build **minimum working examples** to try **one** thing at a time.

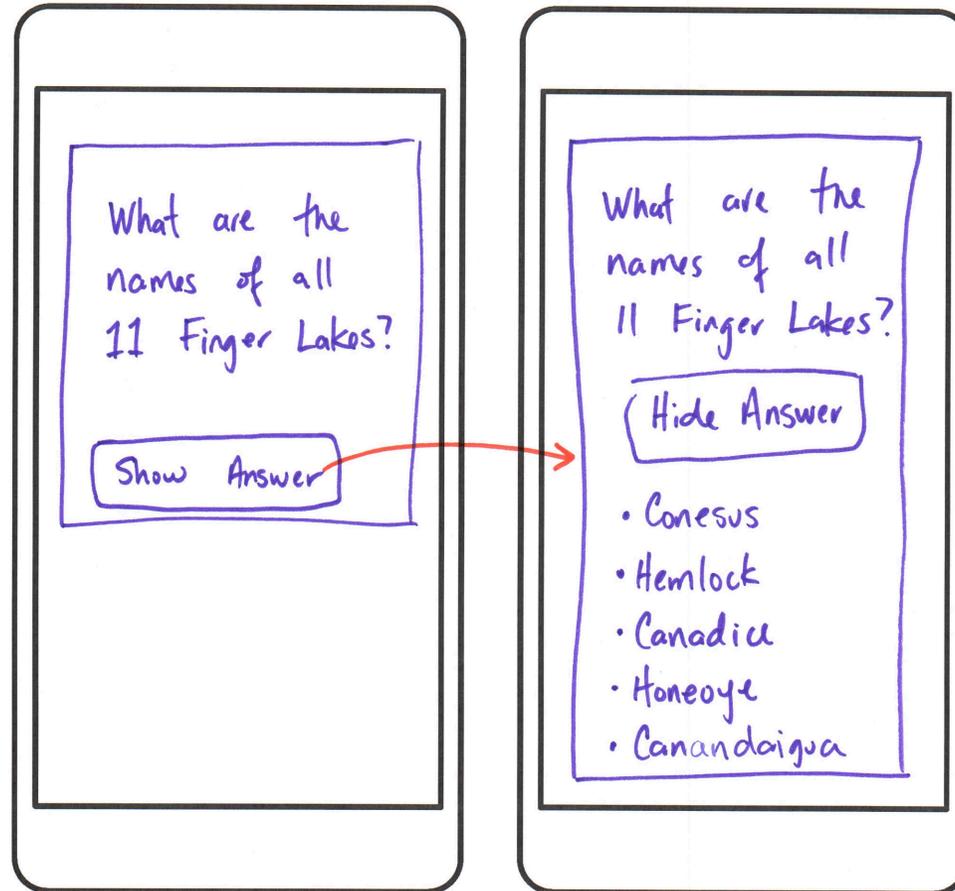
Minimum Working Example

A minimum working example is the smallest amount of code that demonstrates a concept or problem.

Examples:

- A Vue.js component
- Event handling
- Conditional Rendering

Homework 2: Flashcard Prototype App



Troubleshooting Vue.js Apps

Syntax Errors

Syntax errors are shown in the **Debug Console** (or Terminal if you launched via `npm run dev`).

1. Vite compiles Vue.js to an SPA.
2. Vite runs on the local development server (e.g., `http://localhost:5173/`).
3. If there is a syntax error, Vite shows the error in the console.

Runtime Errors

Single Page Applications (SPAs) run in the **browser**.

Where should you check for errors in client-side code?

Browser DevTools Console!

All I see is a blank page!

You have an error in your code.

1. Check your Codespace's **Debug Console** for syntax errors.
2. Check your browser's **DevTools Console** for runtime errors.

Summary

- Vue.js is a framework for building Single Page Applications (SPAs).
- Vue.js apps are made up of components defined in `.vue` files.
- Components can be imported and used in other components.
- Minimum working examples isolate concepts to help you learn unfamiliar technology.
- Troubleshoot syntax errors in the Debug Console and runtime errors in the Browser DevTools Console.

Homework 2, parts I & II due before next class!