



# Module 3-1 1

## VUE Component Communication

# Objectives

- Identify candidate components in a web page/app
- Explain SRP (Single Responsibility Principle)
- Implement a simple SPA (Single Page Application)
- Implement a child component that is passed data from a parent using props
- Create child components from an array in a parent component
- Access data stored in Vuex from multiple components
- Modify data stored in Vuex using mutations

# Components in Vue

- A component is a custom element in Vue. They help you extend basic HTML elements to encapsulate reusable code.
- Allows you to break your app into small, reusable pieces which you can then use to build more complicated apps with.
- Just like encapsulation!
- SRP – Single Responsibility Principle – each component of an app should handle only one job.
  - Limit functionality as much as possible

# Working With Multiple Components

- So far we have dealt with a relatively simple project setup, with a single component doing all the hard work, then importing that component into the App.vue parent component.
- The whole idea of component based JS development is that we can take several components and integrate them together under a parent component.
  - This requires us to learn some additional techniques as individual components are not aware of each other.
- Namely, we will be covering how to transmit data from a parent component to a child component and vice versa.

# Importing Components

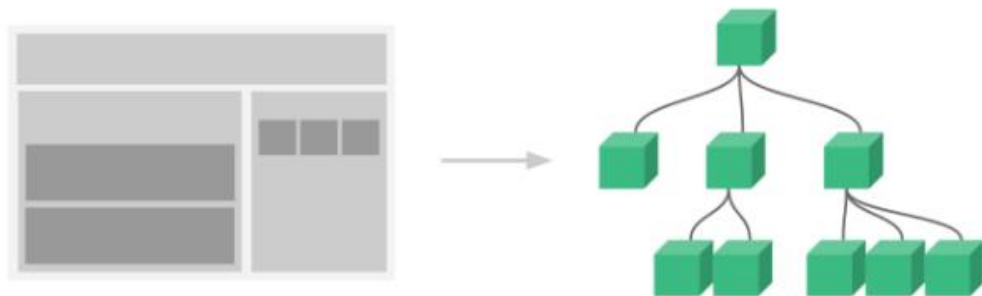
- Three step process
  1. Import the component in the script area
  2. Declare the component in the components object
  3. Add the component to your template object in the mark-up

```
<template>
  <add-review></add-review>
</template>

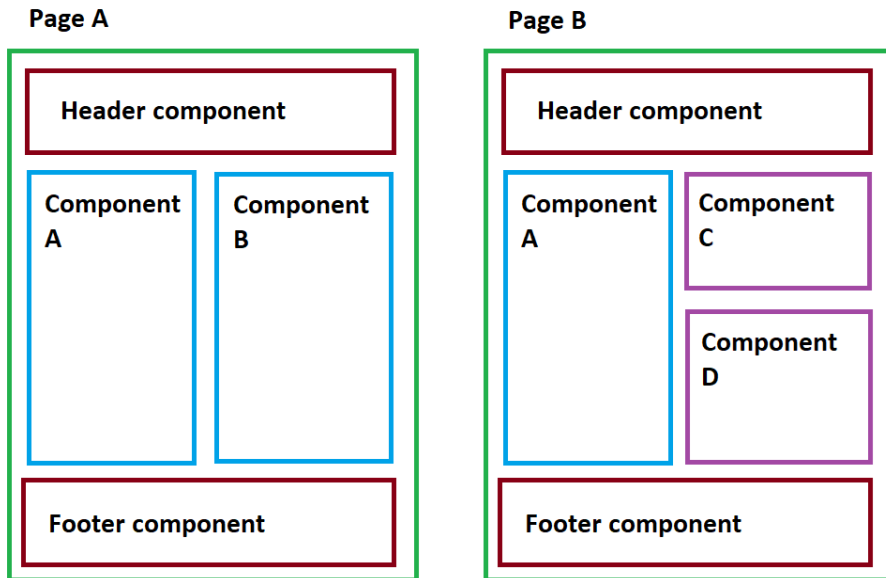
<script>
import AddReview from './components/addReview';
export default {
  components: {
    AddReview
  }
}
</script>
```

# Working With Multiple Components

- Does not change functionality
- Makes app easier to test and more maintainable



# Working With Multiple Components





# How to break apart ProductReviews

Product Reviews for Cigar Parties for Dummies

Host and plan the perfect cigar party for all of your squirrelly friends.

2.75

1

0

2

1

0

Average Rating

1 Star Review

2 Star Reviews

3 Star Reviews

4 Star Review

5 Star Reviews

Name:

Title:

Rating:

Review:

Save

Cancel

Malcolm Gladwell

★★★★ What a book!

It certainly is a book. I mean, I can see that. Pages kept together with glue and there's writing on it, in some language.

Favorite? ☐

Tim Ferriss

★★★★★ Had a cigar party started in less than 4 hours.

It should have been called the four hour cigar party. That's amazing. I have a new idea for muse because of this.

Favorite? ☐

Ramit Sethi

★ What every new entrepreneurs needs. A door stop.

When I sell my courses, I'm always telling people that if a book costs less than \$20, they should just buy it. If they only learn one thing from it, it was worth it. Wish I learned something from this book.

Favorite? ☐

Gary Vaynerchuk

★★★★ And I thought I could write

There are a lot of good, solid tips in this book. I don't want to ruin it, but prelighting all the cigars is worth the price of admission alone.

Favorite? ☐

# Single Responsibility Principle

Displaying Counts  
& Averages

Managing the Add  
Review Form

Filtering Reviews

Displaying Review  
Information

Product Reviews for Cigar Parties for Squirrels  
Because squirrels LOVE their cigars

NaN	0	0	0	0	0
Average Rating	1 Star Reviews	2 Star Reviews	3 Star Reviews	4 Star Reviews	5 Star Reviews

Name:

Title:

Rating:

Review:

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Favorite? ☐

Display product information

Letting the user filter on  
star count

Adding Reviews

Marking Reviews as Favorited

# Identifying Components

Product Reviews for Cigar Parties for Squirrels

Because squirrels LOVE their cigars

NaN	0	0	0	0	0
Average Rating	1 Star Reviews	2 Star Reviews	3 Star Reviews	4 Star Reviews	5 Star Reviews

Name:

Title:

Rating:

Review:

Save Cancel

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Favorite? ☐

# Props

- Vue has many properties, data, computed, methods and now props. Props is how a component can be given access to data from outside of that component.
- We will be using props to transmit data **from a parent component to a child component.**

# Props Defining

- Within a child component, props are defined in JSON format within the script section.
- It is a peer of the other sections we've seen so far: data(), computed, methods.

```
<script>
export default {
  name: "product-review",
  props() {
    // your props go here
  },
  data() {
    ...
  },
  computed: {
    ...
  },
  methods: {
    ...
  }
}
</script>
```

# Properties Example

Consider the following example, where we utilize props to send data from a parent component to a child component:

## On App.VUE (or parent component)

```
<template>
  <div id="app">
    ...
    <product-review
      name="Toothbrush"
      description="To brush teeth"
    />
    ...
  </div>
</template>
```

## Child Component (script)

```
props: {
  name: String,
  description: String,
},
```

The child component can now use these props, for instance having **{{ name }}** on the template would result in *Toothbrush* being rendered.

# Components for Product Reviews

Product Reviews for Cigar Parties for Dummies

Host and plan the perfect cigar party for all of your squirrelly friends.

AverageSummary

2.75 Average Rating

1 1 Star Review

0 2 Star Reviews

2 3 Star Reviews

1 4 Star Review

0 5 Star Reviews

StarSummary

Name:

Title:

Rating:

Review:

Save Cancel

AddReview

ReviewList

ReviewDisplay

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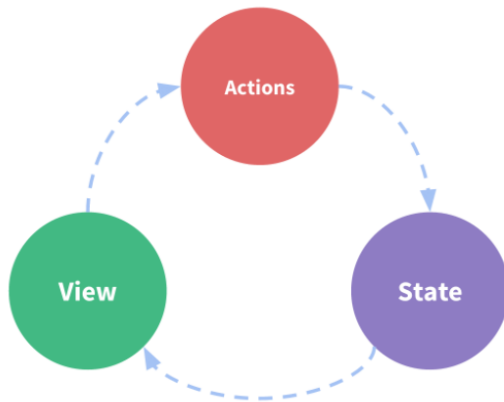
# Let's Look at the Lecture Code!





# Sharing data across multiple components

- Best to have data live in central location
  - Separate from components that use it
  - Datastore
    - State
    - View
    - Actions
- Components read from store
  - Not keep own copy of data
- Only one store for each application
  - Single source of truth

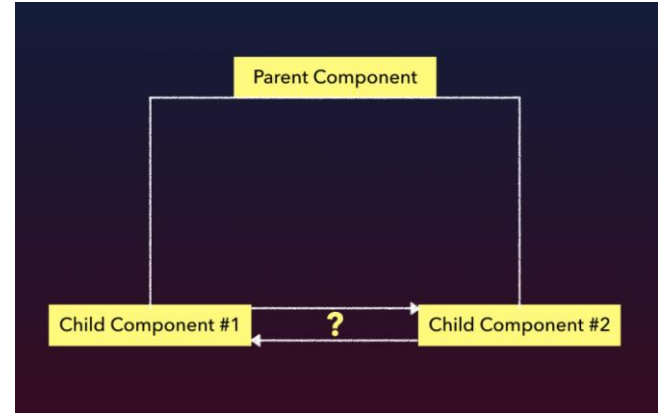
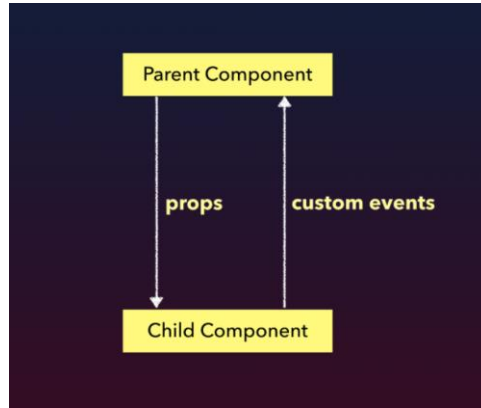
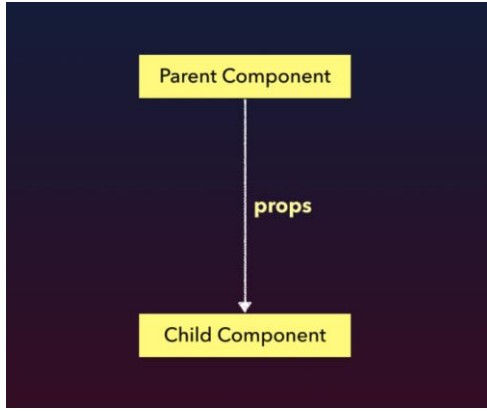


# State and State management

- State of data
  - Data shared across components
  - Components receive this data
  - When data changes, component will update itself
  - Single source of truth in app
- State management
  - Managing data across components of an app
  - Store pattern where all actions that change state are in single stored class
  - Library such as Vuex makes this easy!

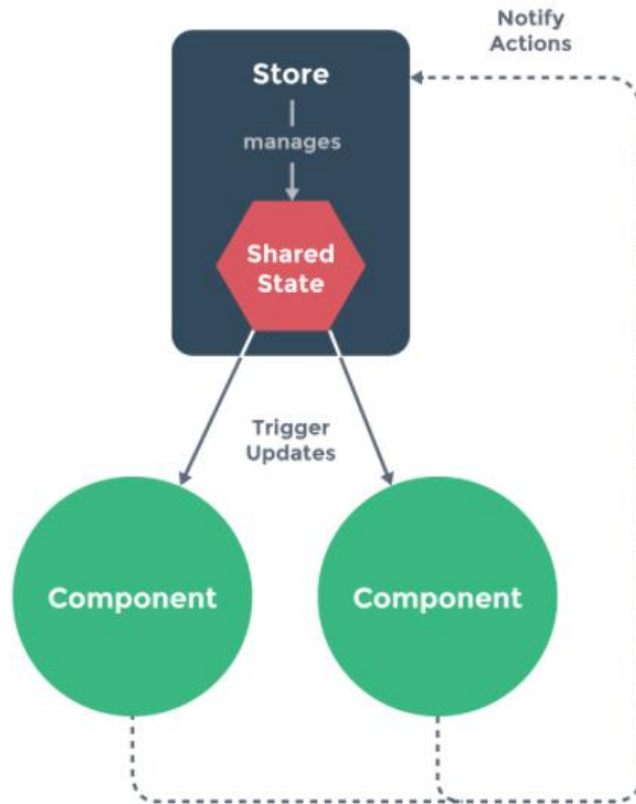


# Sharing data across components



# Vuex Store

**Vuex**



# Creating a Vuex Store

- During project creation, add Vuex.

```
Vue CLI v3.7.0
Update available: 4.5.10

Please pick a preset: Manually select features
Check the features needed for your project: (Press <space> to select, <a> to toggle all, <i> to invert selection)
> (*) Babel
  ( ) TypeScript
  ( ) Progressive Web App (PWA) Support
  ( ) Router
  ( ) Vuex
  ( ) CSS Pre-processors
  (*) Linter / Formatter
  ( ) Unit Testing
  ( ) E2E Testing
```

- Add vuex to already created project

```
C:\Users\Margaret Green\Workspace\first-project>vue add vuex

Invoking generator for core:vuex...
Installing additional dependencies...

added 1 package from 1 contributor and audited 1294 packages in 6.076s
found 0 vulnerabilities

Successfully invoked generator for plugin: core:vuex
The following files have been updated / added:

  src/store/index.js
  package-lock.json
  package.json
  src/main.js

You should review these changes with git diff and commit them.

C:\Users\Margaret Green\Workspace\first-project>
```

# Vuex Store

```
import Vue from 'vue'
import Vuex from 'vuex'
```

```
Vue.use(Vuex)
```

```
export default new Vuex.Store({
  state: {
  },
  mutations: {
  },
  actions: {
  },
  modules: {
  }
})
```

## Defining State

```
import Vue from 'vue'
import Vuex from 'vuex'

Vue.use(Vuex)

export default new Vuex.Store({
  state: {
    name: 'Cigar Parties for Dummies',
    description: 'Host and plan the perfect cigar party for all of your squirrels',
    filter: 0,
    reviews: [
      {
        reviewer: 'Malcolm Gladwell',
        title: 'What a book!',
        review:
          "It certainly is a book. I mean, I can see that. Pages kept together in language.",
        rating: 3,
        favorited: false
      },
    ],
  },
})
```

# Accessing State

```
<template>
  <div id="app" class="main">
    <h1>Product Reviews for {{ $store.state.name }}</h1>
    <p class="description">{{ $store.state.description }}</p>
    <div class="well-display">
      <average-summary />
      <star-summary rating="1" />
      <star-summary rating="2" />
      <star-summary rating="3" />
    </div>
  </div>
</template>
```

# Moving State to Vuex with Mutations

```
1 import Vue from 'vue'
2 import Vuex from 'vuex'
3
4 Vue.use(Vuex)
5
6 export default new Vuex.Store({
7   // State contains the global application state. Think of it as app-wide data
8   state: {
9     isAddQuestionVisible: false,
10  },
11
12  // Mutations are used to make discrete changes to state from a central place
13  mutations: {
14    SHOW_ADD_QUESTION(state) {
15      state.isAddQuestionVisible = true;
16    },
17    HIDE_ADD_QUESTION(state) {
18      state.isAddQuestionVisible = false;
19    },
20  }
21 })
22
```



# Calling Mutations from Component

```
1 export default {  
2   // Methods contain functions which can be invoked from event handlers or other code  
3   methods: {  
4     /**  
5      * Shows the add question form.  
6      */  
7     showAddQuestionForm() {  
8       this.$store.commit('SHOW_ADD_QUESTION');  
9     },  
10  },  
11  // Computed contains the Vue.js equivalent of getters that rely on other data to compute results.  
12  // Think of computed as computed or auto-calculated properties that are bound to from the template.  
13  computed: {  
14    isAddQuestionVisible() {  
15      return this.$store.state.isAddQuestionVisible;  
16    }  
17  }  
18 };
```

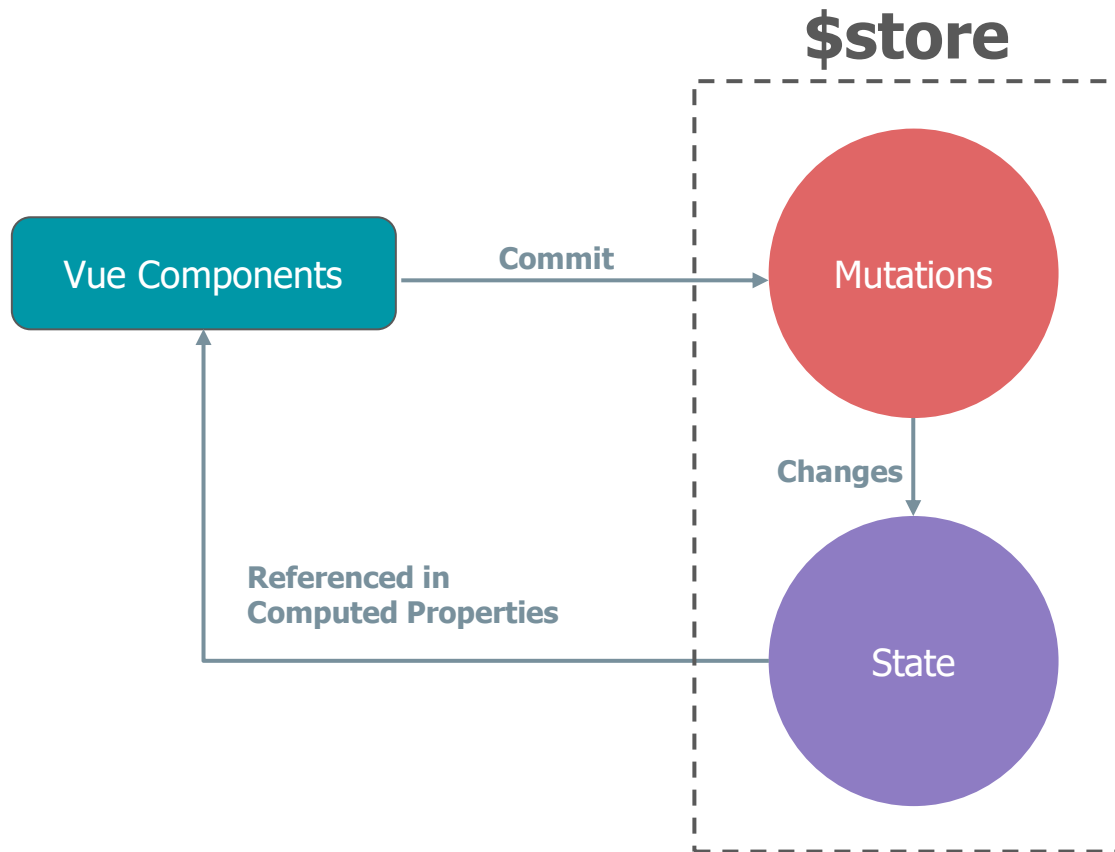
# Sending parameters from Component to Store

```
1 export default {  
2   // Methods contain functions which can be invoked from event handlers or other code  
3   methods: {  
4     someMethod() {  
5       // Call the SOME_MUTATOR_NAME mutator with a payload of 42  
6       this.$store.commit('SOME_MUTATOR_NAME', 42);  
7     },  
8   },  
9   // Other members omitted...  
10 };
```

# Receiving parameters from Component

```
1 export default new Vuex.Store({  
2   // State contains the global application state. Think of it as app-wide data  
3   state: {  
4     isAddQuestionVisible: false,  
5     someVariable = 0,  
6   },  
7  
8   // Mutations are used to make discrete changes to state from a central place  
9   mutations: {  
10    SHOW_ADD_QUESTION(state) {  
11      state.isAddQuestionVisible = true;  
12    },  
13    HIDE_ADD_QUESTION(state) {  
14      state.isAddQuestionVisible = false;  
15    },  
16    SOME_MUTATOR_NAME(state, payload) {  
17      state.someVariable = payload;  
18    },  
19  },  
20 })
```

# Vuex



# Big Picture



## Component

```
1 export default {
2   // Methods contain functions which can be invoked f
3   methods: {
4     /**
5      * Shows the add question form.
6      */
7     showAddQuestionForm() {
8       this.$store.commit('SHOW_ADD_QUESTION');
9     },
10  },
11  // Computed contains the Vue.js equivalent of gette
12  // Think of computed as computed or auto-calculated
13  computed: {
14    isAddQuestionVisible() {
15      return this.$store.state.isAddQuestionVisible;
16    }
17  }
18 };
```

```
1 export default new Vuex.Store({
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# Big Picture



## Component

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```

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10    },
11    HIDE_ADD_QUESTION(state) {
12      state.isAddQuestionVisible = false;
13    },
14  },
15 },
16 })
```

# Immutability

```
1 export default new Vuex.Store({
2   // When strict is set to true, state can ONLY be mutated from the store. This should be true.
3   strict: true,
4
5   // State contains the global application state. Think of it as app-wide data
6   state: {
7     // Omitted...
8   },
9
10  // Mutations are used to make discrete changes to state from a central place
11  mutations: {
12    // Omitted...
13  },
14 })
```

Let's Code! REVIEW FIRST

# Objectives

- Identify candidate components in a web page/app

Product Reviews for Cigar Parties for Dummies

Host and plan the perfect cigar party for all of your squirrely friends.

2.75	1	0	2	1	0
Average Rating	1 Star Review	2 Star Reviews	3 Star Reviews	4 Star Review	5 Star Reviews

StarSummary

Name:

Title:

Rating:

Review:

Save Cancel

AddReview

ReviewList

ReviewDisplay

Malcolm Gladwell

★★★★ What a book!

It certainly is a book. I mean, I can see that. Pages kept together with glue and there's writing on it, in some language.



# Objectives

- Identify candidate components in a web page/app
- Explain SRP (Single Responsibility Principle)



**SOLID**

Software development is not a Jenga game.



**SINGLE RESPONSIBILITY**

Avoid tightly coupling your tools together.

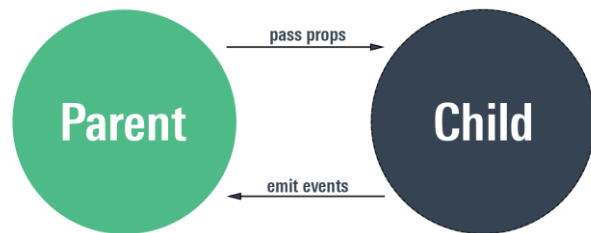
# Objectives

- Identify candidate components in a web page/app
- Explain SRP (Single Responsibility Principle)
- Implement a simple SPA (Single Page Application)



# Objectives

- Identify candidate components in a web page/app
- Explain SRP (Single Responsibility Principle)
- Implement a simple SPA (Single Page Application)
- Implement a child component that is passed data from a parent using props



<https://michaelnthiessen.com/vue-props-ultimate-guide/>

# Objectives

- Identify candidate components in a web page/app
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- Implement a child component that is passed data from a parent using props
- Create child components from an array in a parent component



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```
    filteredReviews() {  
      const reviewsFilter = this.$store.state.filter;  
      const reviews = this.$store.state.reviews;  
      return reviews.filter(review => {  
        return reviewsFilter === 0 ? true : reviewsFilter === review.rating;  
      });  
    }  
  }  
}
```

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- Modify data stored in Vuex using mutations

```
methods: {  
  onFavoritedChange(review) {  
    this.$store.commit("FLIP_FAVORITED", review);  
  }  
}
```