



COMPUTER ENGINEERING

CHIANG MAI UNIVERSITY

Vue.js

CPE405 - Advanced Computer Engineering Technology

Dome Potikanond
Navadon Khunlertgit
Banana Software co., Ltd

Computer Engineering, Chiang Mai University

What is Vue.js?

- Progressive JavaScript Framework that focuses on building user interfaces
- Works in the “**view layer**” only
- Incrementally adoptable
- Easily integrated into other projects/libraries
- Capable of powering advanced SPAs



Vue.js

What Vue.js offers?

- Reactive Interfaces
- Declarative Rendering
- Data Binding
- Directives
- Template Logic
- Components & Nesting
- Event Handling
- Computed Properties
- CSS Transitioning & Animation
- Custom Filters

Using Vue.js

There are several ways to implement Vue.js

- ▣ Include in the `<script>` tag in an html file
- ▣ Install using **NPM** (Node Package Manager)
- ▣ Use the **Vue-cli** tool along with **Webpack**
- ▣ Install using the **Bower** client side package manager

Vue-cli Tool

■ This is the recommended way to build Vue.js apps

```
# npm install -g vue-cli // install vue-cli globally
```

```
# vue init webpack myapp // create new project with webpack
```

```
# cd myapp
```

```
# npm install // install dependencies
```

```
# npm run dev // run development server
```

```
# npm run build // build application to production
```

Simple Example

- Rendering data to the DOM and using **interpolation**

```
<div id="app1">  
  {{ msg }}  
</div>
```

HTML code

```
var app = new Vue({  
  el: '#app1',  
  data: {  
    msg: 'Hello World!'  
  }  
});
```

JavaScript code

Directives

- **Special attribute** with the **v- prefix** that does something to the DOM
- Reactively **applies side effect to the DOM** when the value of its expression changes

`<element v-directiveId="[argument:] expression [| filters...]"> </element>`

- **element**: any HTML elements

Simple Directive Examples

<code> {{ msg }} </code>	<code>// basic interpolation</code>
<code></code>	<code>// using v-text directive</code>
<code></code>	<code>// Parse HTML</code>
<code>{{ msg }}</code>	<code>// one-time interpolation</code>

Conditionals and Loops

■ If statement

`<p v-if="show">This is shown</p>`

`<p v-else>This is not</p>`

■ Show

`<p v-show="show">This is shown</p>`

■ For Loop

`<li v-for="user in users">{{ user.name }}`

```
var app = new Vue({  
  el: '#app1',  
  data: {  
    show: true,  
    users: [  
      { name: 'Bob'},  
      { name: 'Sam'}  
    ]  
  }  
});
```

Class and Style Binding

■ Class binding

```
<div v-bind:class="{active: isActive}"></div>
```

■ Style binding

```
<div v-bind:style="{color: activeColor}"></div>
```

```
data: {  
  isActive: true,  
  activeColor: 'red'  
}
```

Components

- Complex application should be divided into components
 - Provide organization and encapsulation
 - Re-useable code
 - Can be separated into “.vue” files
- Register

```
Vue.component( 'my-component',  
  { template: 'This is my component' }    // just string or HTML  
)
```

```
<div id="app">
```

```
  <my-component></my-component>
```

```
</div>
```

Additional Tools & Plugins

- **vue-router** – Official router deeply integrated with Vue.js
- **vue-resource** – Handle web requests
- **vue-async-data** – Async data loading
- **vue-validator** – Form validation plugin
- **vue-devtools** – Chrome devtools extension
- **vue-touch** – Touch gestures using [Hammer.js](#)



Vue.js

< Let's Code >

Getting Started

- <https://vuejs.org/v2/guide/installation.html>
- Direct **<script>** include – simple start
 - Download “**vue.js**” file and save in project folder (e.g. scripts)
 - `<script src="scripts/vue.js"></script>`
- Include the latest version from **CDN**
 - `<script src="https://unpkg.com/vue@2.4.2"></script>`

CLI – Command Line Interface

- ❑ Prerequisite: install **Node.js**
- ❑ Install **vue-cli** globally using **npm**
 - ❑ `# npm -install -global vue`
- ❑ Create a new project using the “**webpack**” template
 - ❑ `# vue init webpack <project_name>`
- ❑ Install dependencies and start the sample app
 - ❑ `# cd <project_name>`
 - ❑ `# npm install`
 - ❑ `# npm run dev`

Vue.js Project

- **package.json** – **Node.js** project configuration file
 - Metadata
 - Dependencies information
- **node_modules/** - dependency modules
- **src/** – entry point to **Vue application** and its components
 - **main.js** – Vue instance and where it all starts
 - **App.vue** – the main component
 - **components/** - vue subcomponents
- **build/dev-server.js** – import dependency modules
 - `var port = <port_number> // assign application port`

Vue-Resource

- A tool for making HTTP request to resources
 - REST API, Local resource
- Install **vue-resource** locally to the project
 - `# npm install vue-resource --save`
- Modify **main.js** to import vue-resource
 - `import vueResource from 'vue-resource'`
- Run through “**Vue.use()**” middleware
 - `Vue.use(vueResource)`

Vue-Router

- A tool for mapping URLs to corresponding views
 - <https://router.vuejs.org/en/essentials/getting-started.html>
- Install **vue-router** locally to the project
 - `# npm install vue-router --save`
- Modify **main.js** to import vue-resource
 - `import vueRouter from 'vue-router'`
- Run through “**Vue.use()**” middleware
 - `Vue.use(vueRouter)`

Vue-Router (cont.)

▣ In **main.js**, create **vue-router** instance

```
const router = new vueRouter( {  
  mode: 'history',  
  base: __dirname,  // directory of current module  
  routes: [  
    { path: '/', component: Users },  
    { path: '/xxx', component: Test }  
  ]  
} );
```

Vue-Router (cont.)

■ In **main.js**, create **Vue** instance and pass router instance

```
new Vue ( {  
  router,  
  template:  
    `      <ul>  
        <li><router-link to="/">Users</router-link></li>  
        <li><router-link to="/xxx">Test</router-link></li>  
      </ul>  
      <router-view></router-view>  
    </div>`  
} ).$mount('#app')
```

References

- General guideline

- <https://vuejs.org/v2/guide/>

- Installation guideline

- <https://vuejs.org/v2/guide/installation.html>

- Vue instance lifecycle guideline

- <https://vuejs.org/v2/guide/instance.html>

- Traversy Media Channel : Vue.js 2.0 in 60 Minutes

- <https://www.youtube.com/watch?v=z6hQqgvGI4Y>

References

▣ Vue-resources

- ▣ <https://github.com/pagekit/vue-resource/blob/develop/docs/http.md>

▣ Vue-router

- ▣ <https://github.com/vuejs/vue-router>

▣ Bootstrap themes

- ▣ <https://bootswatch.com/>

▣ Browser Events

- ▣ <https://javascript.info/introduction-browser-events>