

# Design and Implementation of Social Platform Based on Vue Framework

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**Abstract:** *With the rapid development of the Internet industry, online interactive entertainment based on Web pages has penetrated into people's daily life and become a popular leisure way. This article records the design and implementation of a social platform that mainly implements functions such as content editing, content classification submission, and user personal information management. In development, the MVVM feature of Vue is utilized to achieve bidirectional binding of platform data, and the local storage function in HTML5 is used to achieve the desired front-end interface effect.*

**Keywords:** Web development; Vue; localStorage; MVVM.

## 1. INTRODUCTION

With the advent of the information age, the social form of human existence has stepped into an information society dominated by intelligence. The emergence of the Internet is a new turning point in the history of human society. So, the various ways in which the people live, work, and entertain themselves have become more convenient and diverse. Information dissemination is one of the prominent features of the Internet era, and various types of social platforms have become important media for people to record, share and obtain information [1-2]. This article will introduce the design and implementation of a social platform using browser related technology stacks such as Vue framework and localStorage. Recent advancements in fault detection, optimization, and machine learning applications have significantly contributed to various fields, including cloud infrastructure, healthcare, and sustainable development. Wu (2025) proposed a fault detection and prediction model to optimize resource usage in cloud infrastructure, demonstrating its potential to enhance system reliability and efficiency[1]. In healthcare, Diao et al. (2025) optimized Bi-LSTM networks to improve lung cancer detection accuracy, achieving notable performance enhancements in medical diagnostics[2]. Meanwhile, Yao (2024) investigated the local head loss coefficient in short-tube hydraulic testing, providing insights into fluid dynamics and engineering applications[3]. In materials science, Xiangyu et al. (2024) explored granule extrusion-based 3D printing of POE, utilizing response surface methodology to study the effects of printing parameters on mechanical properties[4].

In the realm of labor economics, Zhao et al. (2025) evaluated labor market efficiency under the impact of media news using machine learning and the DMP model, highlighting the role of data-driven approaches in economic analysis[5]. Chen et al. (2025) further examined the green innovation effect of the digital economy, emphasizing its contribution to sustainable economic growth[6]. Additionally, Meng et al. (2025) focused on green warehousing logistics, optimizing site selection and path planning through deep learning techniques to promote environmentally friendly practices[7]. In financial technology, Deng et al. (2025) developed a transformer-based model for real-time financial fraud detection, leveraging cloud-optimized streaming to enhance detection accuracy and efficiency[8]. Lastly, Zhou et al. (2024) optimized an automated garbage recognition model using ResNet-50 and weakly supervised CNN, supporting sustainable urban development through improved waste management systems[9].

## 2. TECHNOLOGY STACK

### 2.1 Vue Framework

Vue is one of the three mainstream web front-end frameworks (Vue, Angular, React) used for building user interfaces. Compared with other large frameworks, Vue belongs to a responsive lightweight framework that promotes progressive component-based development, avoids duplicate code during programming, and reduces the degree of coupling between codes.

### 2.2 LocalStorage Browser API

LocalStorage is a new local storage API added by HTML5 for browsers, which can be abstracted as a data warehouse for browser front-end pages. Its main function is to store data in the client for a long time. The capacity of this API for data storage is generally 5MB, and the data is only saved in the client and does not participate in communication with the backend server.

### 2.3 Node.js platform and npm package management tools

Node.js is a platform that helps JavaScript run on the server side, following a non blocking I/O model. Npm, also known as Node Package Manager, is a module management and allocation tool that is installed together when deploying a Node.js environment. It can help developers download and install the modules they need, as well as manage installed modules or upload and share their own packages, making it easier for developers in need to share code.

## 3. PLATFORM DESIGN AND IMPLEMENTATION ANALYSIS

### 3.1 Functional Requirements Analysis

In the era of big data on the Internet, all kinds of information are born every day in a flash, so it is particularly important to help people record information and obtain real-time information content by targeted classification. Social networking sites are playing such a media role to promote information dissemination. Based on people's current preferences for the functionality of social networking sites, users need a channel to gather information on external current events, express personal opinions, share daily life and personal preferences, and record their life content. So the platform mainly records the information generated by users performing platform operations, providing users with diversified community information content.

#### (1) Homepage login/exit:

Users can log in to the platform and verify their personal information through their phone number or custom username and password. After logging in to the platform and reaching the user's personal page, they can also choose to exit.

#### (2) Homepage management:

Users can set their favorite usernames and avatars on their personal homepage, and obtain public platform information such as community recommended topics and community recommended dynamic content. Users can mark their homepage by editing their personal signature and self introduction sections, and record their spontaneous information sharing through message boards, speaking, recommended content, and other sections.

#### (3) Classification recommendation community content:

Users can obtain temporal information of the classification community module content provided by the platform, such as movie ratings, music recommendations, and rankings. The main section content is divided into community public content recommendation modules such as music recommendation and movie recommendation.

### 3.2 Feasibility Analysis of Implementation

The Vue CLI scaffold is a very convenient tool for initializing and building platform projects. During the construction process, execute the npm command statement in the cmd console in the Node.js environment to perform operations such as initialization, running, adding plugin installation packages, etc. on the project. At the same time, Vue CLI has the feature of real-time compilation of changed content, which prevents successful project execution when encountering errors. Therefore, errors and warnings involved in the programming process can be promptly output in the console, improving development efficiency. For errors that occur during the implementation of logic flow through JavaScript, they can sometimes be difficult to capture during runtime, and can be debugged using the vue devtools browser tool.

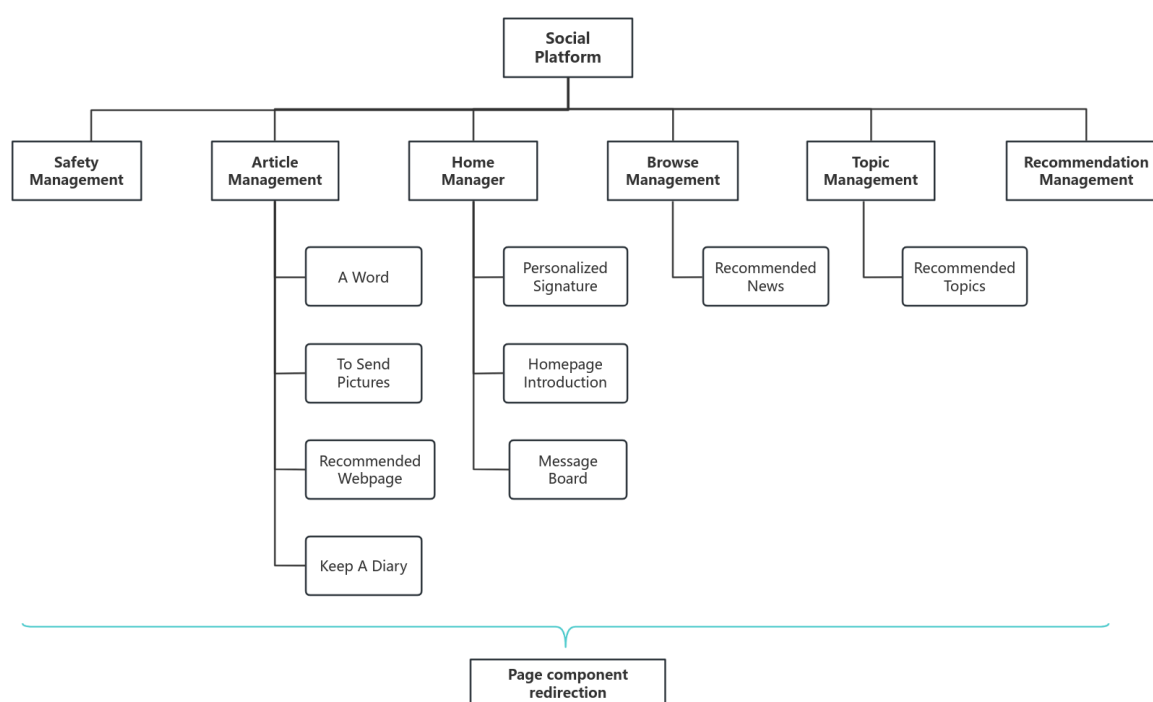
The platform page is composed of multiple .vue files, each corresponding to an independent or common component that constitutes one or more pages, achieving component reuse. After adding the vue router and vuex installation packages in the project, you can switch the content of page components and perform modification and

update operations on the common state through different components. By using localStorage, the information generated by the user's platform operations is stored locally, allowing the browser to render the page with persistent memory.

## 4. IMPLEMENTATION OF PLATFORM DESIGN FUNCTIONS

### 4.1 Functional Module Design

The platform module is divided into security management, user homepage, and entertainment recommendation, with specific interactive function requirements gathered in the user homepage module. Among them, the security management module provides functions such as login and logout. In article management, it provides functions such as recommendations and diary writing. The user homepage management provides personalized signature, introduction, message board and other functions, as shown in Figure 1.



**Figure 1:** Functional Module Design

### 4.2 Platform Framework Construction

On the Node.js platform, use version 4.5.12 of Vue CLI scaffolding to build a project on the cmd console using the vue create command statement. After the project is initialized and set up, execute the npm i module name - save command statement in the cmd console to install the modules and packages required for the project and record the version and status in the file package.json. The dependent packages themselves are stored in the node\_modules folder. The key code is written in the src folder, and resources such as images are stored in assets, where various components are defined. The main.exe file utilizes ES6's modularity to introduce templates and serves as the main entry point for configuring the main page [3]. Configure project routing under the router module.

### 4.3 Implementation of functional modules

#### 4.3.1 Page Component Jump

After entering the platform, users need to log in to reach the user homepage. From the user homepage, in addition to performing user function operations, they can also choose to exit the platform or go to other entertainment recommendation pages. The Vue Router routing manager is used to switch components and redirect pages.

Import the routing dependency package and the required. vue component file into the index.js file in the router directory using the import statement.

Configure the redirect property to implement route redirection and specify the preferred rendering component when entering the page. The children attribute can be nested in multiple layers.

When registering, define the sub components of the current component through the children attribute to switch components. After registration, export the route to implement the application.

In the parent component of the switched component, use the router link tag to redirect the child components, and use the router view tag to render the page of the switched component.

#### 4.3.2 Homepage Content Release

On the user's personal page, users can freely record and share: post what they want to say, share their favorite photos, recommend their preferences, and keep a diary to describe their emotions.

By clicking on different links, you can switch the input text boxes pointed to by different operations.

When entering the content to be published in the text box and clicking the publish button, the publish list below the text box will display the newly added content, including custom nicknames, avatars, content text, publication time, and delete button.

After the username, the operation mode selected by the user will be marked. Click the delete button, and the currently selected content will be deleted from the publishing list.

When there is no text input in the input text box, the publishing operation cannot be performed. At this time, clicking the button will prompt the user to enter the content.

In the process of implementing the page, a cache list is created in the browser through loacalStorage. When new content is published, the browser stores the added content in the cache list and uses v-model to achieve bidirectional data binding. The next time the page is opened or switched back to the current page from another component, the browser will determine whether there is a cache entered during the historical operation process in loacalStorage, and if so, read the historical cache to perform memory rendering on the page. The execution statement is deployed under the mounted hook function and executed when the page is mounted. The key example code is as follows:

```
Var release List = JSON. Stringify (this. $ store. state. releaseList);
```

```
Local Storage. Set Item ("release List", release List);
```

```
Localrelease Mseeage () { if (local Storage. getItem ("releaseList") != "") { this. $ store. state. Release List = JSON. Parse (local Storage. getItem ("release List")); } }
```

#### 4.3.3 Homepage User Information Editing

The homepage interface will display various types of user information, and users can edit their personal signatures and homepage introductions. In the process of implementing the functional modules of this page, browser loacalStorage cache was also used to access the content.

Click the add edit button, and an input text box will appear in the editing area. Enter the content to be added in the text box and click the modify or save button. The text box will disappear and the latest edited content will be displayed in the editing area, indicating successful operation.

If there is no input in the text box, clicking the button will keep the default text as originally set.

Set up the message board module on this interface, write a message in the text box, click the message button, and the message content, message time, and other information will be displayed in the message list below. Execute the delete button to delete the corresponding message record in the message list.

#### 4.3.4 Community Content Recommendation

The platform provides users with recommendations on community dynamics and topics in the browsing discovery section and topic square section, presented in the form of a template list on the page layout. Write list data in the data attribute of the page component instance, and render it in a data-driven manner using v-for statements under a fixed template. At the same time, add a key attribute to the rendering elements to improve rendering performance, which greatly improves the code redundancy phenomenon that occurs in single-mode big data.

#### 4.4 Implementation Interface Example



Figure 2: Implementation Interface Example

## 5. CONCLUSION

This platform is designed and developed using the Vue framework and browser front-end related technology stack. The final platform interface has achieved basic interactive functions such as user information editing and recording, and helping users obtain diverse community information content. After development and testing, it has been proven that this platform has a beautiful interface, clear business logic, and rich interactive functions, which can meet the basic needs of users for socializing and information acquisition on the platform, presenting users with a diversified entertainment and learning platform. At present, our platform's security considerations are not sufficient, such as the issue of encryption strength for usernames and passwords during storage and transmission. In future work, we will continue to improve these requirements and strive to provide a social platform product with a simple interface and strong security.

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