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E-commerce Platform Based on Vue.js+Element UI

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Abstract

In order to make up for the shortage of few types and tedious offline purchases, this paper designs an e-commerce platform based on Spring Boot and Vue.js. We mainly introduce the system from requirements analysis, system design, function implementation and the key technologies involved in the development, including the front-end mainstream framework Vue.js, the back-end Spring Boot framework, the database MySQL.

Keywords

E-commerce platform, Vue.js, Spring Boot, MySQL.

1. System requirements analysis

1.1. Demand description

With the high development of the Internet in today's society, people have entered the era of rapid development of information globalization and transparency. All walks of life are actively using modern means to continuously improve service quality and work effectiveness. Nowadays, with the rapid development of the computer industry and fields in the information age, the old-fashioned offline shopping method can no longer meet the shopping needs of the public, and the national online shopping has become the mainstream shopping method. Consumers only need to browse the Internet to view the goods they want. Without going out, they can enjoy the service of delivering the goods they want to their home. This makes the shopping process and methods more convenient and relaxed, which saves time and energy at the same time. Online shopping malls are booming now. How to let customers choose this website system, good-looking pages and concise and clear operation methods need to be taken into account, and give users a good experience in this system.

Through the online market survey, it is finally determined that the system is divided into two functional modules: front-end and back-end. The front end is mainly used for browsing products, searching products, placing orders and shopping, login and registration, etc. The background is mainly used by the administrator to manage order shipment, modify user information, and count commodity sales.

1.2. Functional requirement

The system is a three role system, including ordinary users, merchants and senior administrators. The functions of the whole system are divided and developed around these three roles.

User facility

Login and registration: When logging in, the user can choose to browse the mall as a tourist, and can jump to the registration interface to register as an ordinary member. After logging in, the background system will automatically identify the user's identity. When jumping to the

management system, different types of users correspond to different menus, so as to achieve different functions.

Search for goods: Click the search box in the product interface to enter the keyword and product category you want to search (even if you do not login).

Join the shopping cart and buy: After logging in, click the desired product to enter the details interface to view the details of the product. In the details interface, there are three options: collect, add to the shopping cart, and purchase. Click Add to the shopping cart to add the selected goods to the shopping cart, and modify the purchase information type and quantity of the goods in the shopping cart. You can purchase the goods directly through the detailed interface, or you can purchase the goods in the shopping cart with one click through the shopping cart.

Collection function: Click collection in the detailed interface to add the commodity to the collection. You can click the commodity in the collection to enter the detailed information interface of the commodity.

Browse history: By browsing the history, you can see the commodities you have bought, so as to trace back the history, which is convenient for users to find commodities.

Order management: After purchasing goods, the system will automatically generate an order, and ordinary members can view their existing orders. When the merchant does not deliver the goods, it can modify the order and feed back the modification information to the merchant in real time. The order will be cancelled automatically if the payment for the goods is timed out.

Information query: In this module, users can view their historical orders and the logistics process of purchased goods.

Payment information management: After confirming the purchase by selecting the type and model of the commodity to be purchased, click purchase to add the order to the order management, and the order status is to be paid, After payment, the transaction is successful, and the merchant starts shipping according to the printed order.

Business function

Order management: The merchant can view the order information and modify the information according to the request sent by the user.

Commodity release and modification: Merchants can upload, add and modify commodities.

Commodity information query and modification: The merchant can view and modify the inventory, purchased quantity and other information of the commodity.

Goods out of the warehouse: After receiving the order information from the user, the merchant will print the order according to the information filled in by the user, and record the outbound goods. Select logistics to distribute goods after goods are delivered.

Distribution management: The delivery is carried out according to the order information and the harvest address of the user. During the delivery, the system records the delivery information and the information of the delivery personnel, and the user displays the logistics information in real time.

Logistics information management: The system can update commodity logistics information in real time. Administrators and merchants can also manage logistics information and modify logistics status.

Administrator function

Information management: The administrator can maintain the category and details of commodities, and manage users and merchants, including modifying user status.The administrator can only view the user table and the merchant table through the view, and can only view part of the information of the user and the merchant, so as to fully protect the user's privacy information.

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Commodity records: The administrator can query the records of commodity issue and receipt, merchant release times, user purchase times and other information.

Status management: Administrators can modify user status, commodity status, logistics status, etc.

Order Management: Administrators can read historical orders and modify order information.

Interface modification: The administrator can modify the recommended information on the home page interface by modifying the content of the data in the database.

Permission is given: Administrators can modify user permissions.

2. Using technical analysis

2.1. Client side[1-4]

The system uses a B / S structure.Vue framework and element UI component library are used in front-end interface design. Vue is a lightweight framework based on JS, including Vue cli, Vue router and Vue X. these increase the development efficiency and shorten the development time. At the same time, Vue can carry out component development to further increase the development efficiency. Vue uses virtual DOM for bi-directional binding of data, and the life cycle is clear.With the interface developed by Vue, the page does not need to be refreshed every time it jumps, which speeds up the access speed and improves the user experience.

Because Vue is component-based development, and element UI is a component library based on Vue, when creating pages, the components provided by element UI greatly shorten the development cycle, and the produced interface is simple and beautiful.

2.2. Server side[5-6]

The language used for back-end interface development is Java, and the framework used is spring boot. Spring boot is a new framework based on Java language, which solves the problem of tedious configuration of spring. Spring boot is also a good microservice development framework. Because springboot is developed completely with annotations, and the related files are automatically configured, the development efficiency is greatly improved.At the same time, spring boot has a built-in server container, which saves the time of configuring the server.The MySQL relational database that is free of charge and compatible with java development is selected as the database.

2.3. Exploitation environment

The platform is developed on the windows 10 operating system. The front-end development tool uses webstorm, the back-end development tool uses IntelliJ idea, and the database management tool uses Navicat.

3. Data description

3.1. User table

#	Name	Datatype	Length/Set	Unsig...	Allow ...	Zero...
1	id	INT		☐	☐	☐
2	username	VARCHAR	255	☐	☑	☐
3	password	VARCHAR	255	☐	☑	☐
4	number	VARCHAR	255	☐	☑	☐
5	real_name	VARCHAR	255	☐	☑	☐
6	group_id	VARCHAR	255	☐	☑	☐
7	role	VARCHAR	255	☐	☑	☐
8	salt	VARCHAR	255	☐	☑	☐

Figure 1. User table structure diagram

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3.2. Commodity table

#	Name	Datatype	Length/Set	Unsig...	Allow ...	Zero...
1	id	INT				
2	cover	VARCHAR	255		✓	
3	name	VARCHAR	255			
4	product_id	VARCHAR	255		✓	
5	state	VARCHAR	20		✓	
6	bind	VARCHAR	255		✓	
7	location	VARCHAR	255		✓	
8	groupid	VARCHAR	255		✓	

Figure 2. Structure chart of the commodity table

3.3. Order Form

#	Name	Datatype	Length/Set	Unsig...	Allow ...	Zero...
1	id	INT				
2	mid	INT				
3	uid	INT				
4	action	INT			✓	
5	time	DATETIME			✓	

Figure 3. Structure diagram of the order chart

3.4. Menu table

#	Name	Datatype	Length/Set	Unsig...	Allow ...	Zero...
1	id	INT				
2	path	VARCHAR	64		✓	
3	name	VARCHAR	64		✓	
4	name_zh	VARCHAR	64		✓	
5	icon_cls	VARCHAR	64		✓	
6	component	VARCHAR	64		✓	
7	parent_id	INT			✓	

Figure 4. Menu table structure chart

3.5. Manage the commodity table

#	Name	Datatype	Length/Set	Unsig...	Allow ...	Zero...
1	id	INT				
2	rid	INT			✓	
3	mid	INT			✓	

Figure 5. corresponds to the structure diagram of the commodity table

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3.6. Manage user tables

#	Name	Datatype	Length/Set	Unsig...	Allow ...	Zero...
1	id	INT				
2	uid	INT			✓	
3	rid	INT			✓	

Figure 6. Management user table structure diagram

3.7. Administrator role table

#	Name	Datatype	Length/Set	Unsig...	Allow ...	Zero...
1	id	INT				
2	name	VARCHAR	100		✓	
3	name_zh	VARCHAR	100		✓	
4	enabled	TINYINT	1		✓	

Figure 7. Administrator role table structure chart

4. Conclusion

The e-commerce platform based on Vue and element UI basically realizes the basic needs of online shopping, and reflects various advantages of online shopping in demand analysis.The system has a variety of adaptation modes, which can be changed into a variety of B/S websites, shortening the development cycle of other systems.The 21st century is the era of the Internet.The upsurge of online shopping will continue. In the future, online shopping will become more and more easy to operate and closer to reality. Online shopping will be everywhere in people's lives.

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