

Requirement Analysis and Design of E-commerce Platform

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Abstract

At this stage, both developed and developing countries are investing more and more enthusiasm in the development of e-commerce platforms. Therefore, in order to catch up with the upsurge of the times, the e-commerce platform was made. Online shopping can help people buy goods at home according to their preferences. And online shopping has solved the shortcomings of incomplete offline shopping goods, uneven prices, time-consuming and laborious. In the fast-paced life, it has more targeted to solve various problems caused by people buying goods.

Keywords

Buy goods online, Vue.js, Spring Boot, MYSQL.

1. Research background and significance of the project

1.1. Project research background

With the rapid development of science and technology in the 21st century, the same is true of the Internet. With the development of the times, the quality of people's life has also been greatly improved. This has greatly increased people's demand for necessities of life. However, with the improvement of people's quality of life and the busy work, people do not have more time to buy goods in physical stores. Therefore, an online shopping platform is now built, which allows people to choose their favorite goods on this platform and have more choices. Through this platform, people can easily buy goods, but also save people's time. For this platform, it is suitable for people of all ages and convenient for people to operate. With the continuous development of information technology and the deepening of Internet technology, today's domestic e-commerce is developing faster and more perfect, so many enterprises have entered the e-commerce market for development. Nowadays, e-commerce has not only become an important way of transaction between enterprises, but also between enterprises and individuals.

1.2. Significance of project development

E-commerce platforms are all operated by combining the web end and the mobile end, but now they are more concentrated on the mobile end. Therefore, compared with the mobile end, the web end is more developable. Most shopping platforms in the market still use the original web development technology, but Information Technology is improving every day. Compared with the previous Web Technology, today's Web Technology has changed a lot. It not only takes less time to compile than the previous technology, but also presents a more beautiful picture than the previous website. The advantages of B/S framework are becoming increasingly obvious, This system mainly discusses the imitation e-commerce platform based on SpringBoot and Vue framework. Users can visit the website through the web to implement shopping. (here the web includes the front end and the back end)

2. Feasibility analysis

2.1. Social feasibility

At this stage, both developed and developing countries are investing more and more enthusiasm in the development of e-commerce platforms, which are more based on the B2C model. At the same time, we have also seen the rapid development of this model. The infrastructure of B2C e-commerce system is becoming more and more perfect with the development of society. At the same time, the development environment supporting e-commerce system is gradually becoming standardized. The height of e-commerce system developing online shopping platforms is also becoming more and more diversified. Various platforms carry out online shopping publicity, which further promotes the awareness and purchasing power of online shopping. With the development of society and technology, the personalized needs and user experience of the online shopping platform in China have also been greatly improved, thanks to the vigorous development of the network platform and operating environment of the online shopping system.

2.2. Economic feasibility

Economic feasibility mainly includes two aspects: First, e-commerce platforms can reduce the extra money that merchants need to rent stores, because opening stores in online shopping systems is free. While eliminating the time needed for merchants to organize their stores, it also solves the problems of fewer user-selectable styles offline, unequal prices and time-consuming. Users can choose many styles when shopping online, and can directly filter out the lowest-priced goods, which greatly increases the convenience of users. Secondly, the development of online platform requires only human resources, and can work anywhere during the development, which greatly reduces economic losses, and the use of new technology to develop software greatly reduces system problems, thus saving costs.

2.3. Technical feasibility

The system is built with B/S structure, which is convenient for later maintenance. The system mainly uses JavaWeb technology and MySQL database. The platform is divided into four layers: system interface layer, business logic layer, database access layer and database layer. The system interface layer is the interface displayed when users browse. Business logic layer is mainly used to process data sent by users. The database access layer handles requests sent by the logical layer and operates on the database. The database layer supports the data for the entire system.

3. System Function Analysis

The system uses triangle color mode, including users (including unregistered users), businesses, and administrators;

Tourist

A non-logged-in user is a browser. A browser can browse the website's goods without registering and view the details of the goods. However, a browser cannot purchase goods, comment on goods, view order information. After interacting with these users, the browser jumps to the login interface. This role model primarily provides a simple experience for users who have not experienced it. The use case diagram is shown in Figure 1.

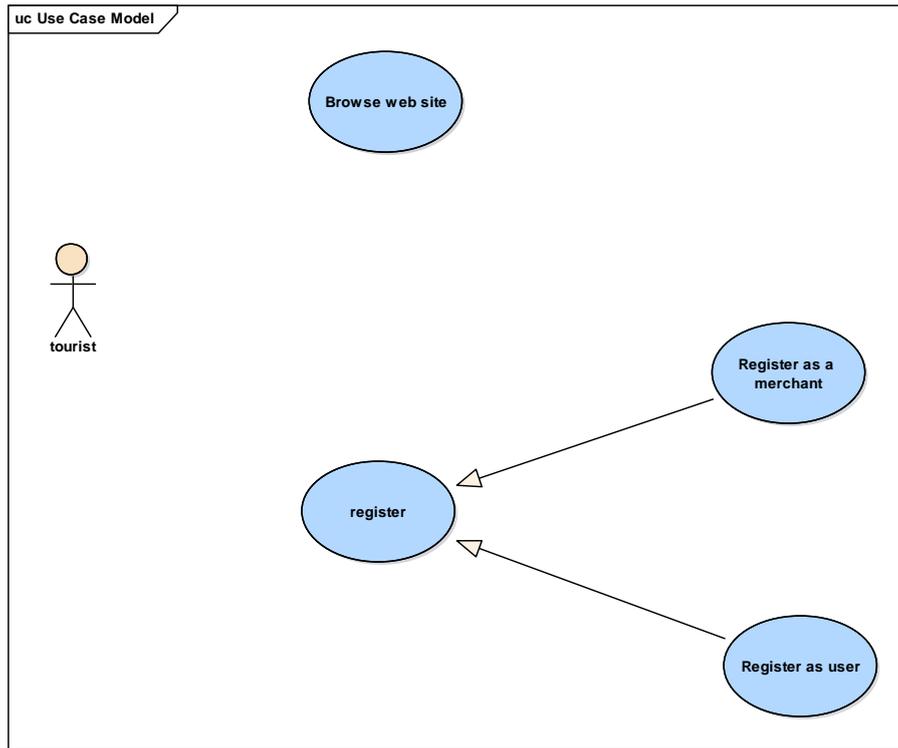


Figure 1 Browser use case diagram

Ordinary users

If the user can log in with an existing account, if the user does not, registration is required. When a user clicks to enter the registration page, he or she needs to enter the user name and the registered mobile number, and then verify the mobile number by SMS. First confirm that the user name is not used, and after the format of the phone number is verified correctly, send a request to the server for SMS authentication code to prevent users from filling in the wrong phone number or malicious registration. After successful registration, users can log on to the system with the username they entered at the time of registration. At the time of login, the system will send a verification code corresponding to the mobile phone number. After entering the verification code correctly, users can log on to the system. When the user logs in successfully, the website uses cookies to record the user's login status and the user's login information, ensuring that the user can log in automatically for a period of time. The logout function requires clearing the user's login information from the server and then leaving the user logged out of the system. After the user logs in, they can browse the goods to purchase goods, or modify their personal information. On the first page, users can choose their favorite items to join the shopping cart and complete subsequent purchases. After successful purchase, the system jumps to the user's order interface, in which the order information can be modified, and the merchant receives the order and the goods are shipped on behalf of others. After receiving the goods, the user clicks to confirm the receipt of his order to complete the transaction. Then you can comment on the goods you ordered, and the comment information is updated to the details page of the goods in real time. The user use case diagram is shown in Figure 2.

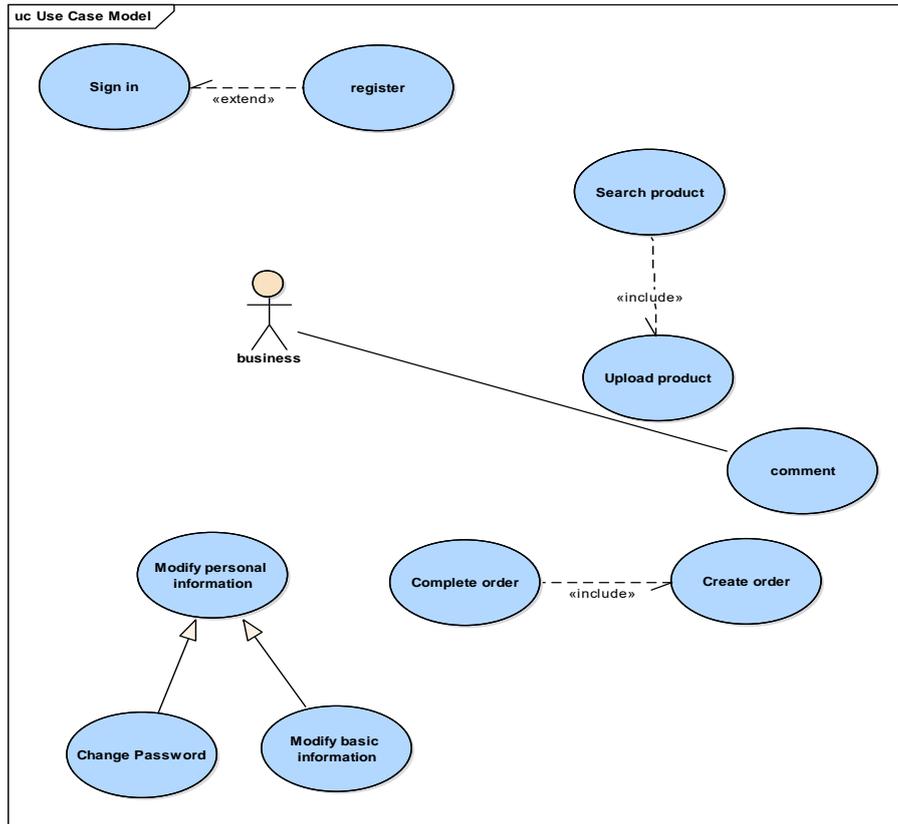


Figure 2 User case diagram

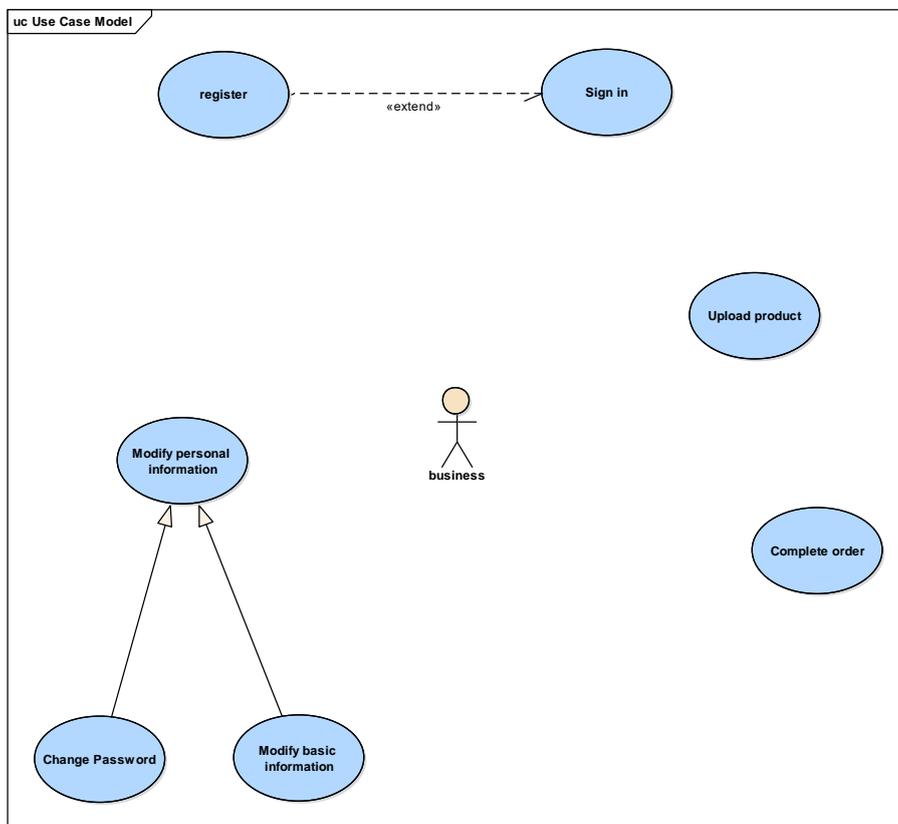


Figure 3 Business example

Business

After detailed editing, merchants can shelve their own goods and modify the information of goods already on shelf. Businesses can update the basic information of their stores, and they can track order information and respond in time. Business users can view this month's sales in the background, including net profit, number of completed orders, number of pending orders, the ten most popular items, and the number of collections in this store. The business use case diagram is shown in Figure 3.

Administrators

Administrators can change what is recommended on the first page, and they can modify the display of the first page broadcast map. Administrators can modify, remove uploaded goods, and administrators can modify user permissions, such as blocking accounts, unable to purchase, and so on. Administrators can view traded orders and modify their status. Administrators can add, delete and modify information of users and businesses. Administrators can add, delete, and change user and business operations. The administrator use case diagram is shown in Figure 4.

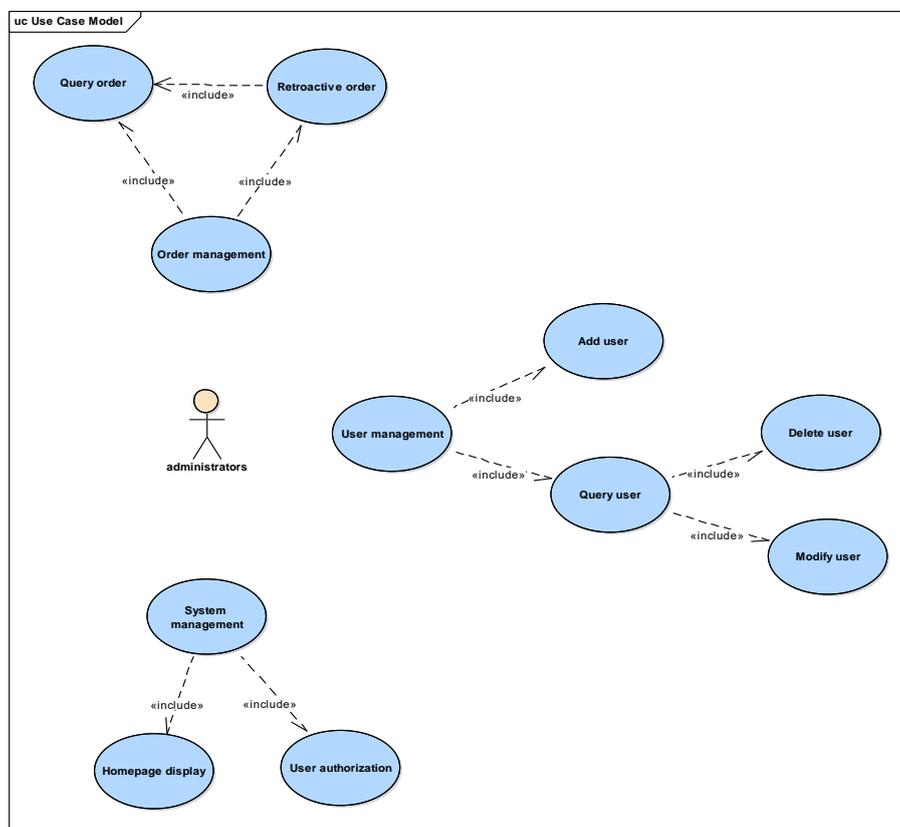


Figure 4 Administrator use case diagram

4. Development Environment[1-6]

The front-end of the system is based on Vue and Element UI. Request interface is applied to AJAX, and Echarts is used to implement data reports in the background to show the sales of the platform. The backend is based on the technical architecture of SpringBoot+MyBatis plus, which uses relational database MySQL and non-relational database Redis. Make use of MySQL for persistent data storage; Use Redis for data caching to solve concurrency problems; By using RabbitMq to communicate messages between modules, the coupling between modules is reduced and the concurrency is handled. Using Duboo, the system is split into multiple systems, enabling multiple databases to resist high concurrency.

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