Design and development of shopping website based on java ssm framework

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Abstract: In recent years, with the rapid development of mobile Internet, e-commerce has become more and more popular among Internet users. Simple processes, convenient and reliable payment methods, fast and smooth logistics and express delivery, and secure information protection all make e-commerce more and more popular among Internet users. This paper mainly analyzes the functional requirements of the front-end and back-end management systems, based on which the system is designed using the SSM framework, developed using the MVVM-based model, using Eclipse as the authoring tool, and using the Microsoft MySQL relational database as the data storage medium to complete the development of the system. The main modules of the system have been designed and implemented.

Keywords: Shopping website, MySQL, SSM framework, Java.

1. Introduction

1.1 Development background and significance

The rapid development of the Internet, the popularization of mobile Internet terminals (cell phones, tablets), the convenience of online payment and settlement, the smooth flow of express logistics and the corresponding regulations and policies are becoming more and more perfect for the development of shopping sites to provide a strong guarantee and support.

The system was developed based on the need to improve the current Chinese online sales platform, which has some drawbacks: users cannot pick up the goods immediately after placing and paying for an order, and they should consider whether the goods are damaged.

1.2 Development tools and related technology introduction

The system front-end framework uses the more popular progressive JavaScript framework Vue.js. Vue-Router and Vuex are used to achieve dynamic routing and global state management, Ajax to achieve front-end and back-end communication,

Element UI component library to make the page quickly formed. Back-end part: using ssm as the development framework, while integrating MyBatis, Redis and other related technologies.

Vue.js is a set of incremental frameworks for building user interfaces. Unlike other heavyweight frameworks, Vue uses a bottom-up incremental development design, implementing responsive data binding and combined view components through the simplest possible API.

SSM (SpringMVC + Spring + Mybatis) allows web applications to have a clear hierarchy, upgrade and update operations do not affect the normal use, allowing multiple use of the characteristics. This system is based on this composite framework to form a structured, powerful and well-structured system: Spring MVC to separate the boards, Spring to make development more flexible and convenient, the use of My batis allows developers to manipulate objects directly, each level of work is clearly divided and decoupled between the various levels, making the code more flexible and streamlined. This framework allows programmers to avoid individual errors during the development period to avoid the overall damage, but also at a later stage to respond to new customer needs for the product.

2. System Analysis

2.1 Feasibility analysis

This system will be analyzed for feasibility from four perspectives: economic, technical, operational, and legal provisions.

The whole system from design to development and testing process is complete with rigorous steps, all tasks are completed by me, did not obtain external technical support, saving costs, and the development of the system based on Java language, so the development of the system required software and hardware conditions can be met on ordinary computers, with technical feasibility, the use of B/S structure development makes the user operation compared to other more The B/S structure makes the operation more simple and convenient. At the same time, the development of software has not violated the law, which involves the issue of whether the software or system can be released.

2.2 Demand analysis

Front Desk Requirements. User module: mainly includes user registration and login, user personal information management and user billing query functions; Commodity module: mainly including commodity browsing, commodity information display, commodity search, commodity collection, commodity purchase, commodity reviews and other functions; Order module: mainly includes the functions of adding orders, viewing my orders and deleting orders.

Back office requirements. User management: mainly includes user list, user level management and user comment management, etc; Commodity management: Mainly includes commodity list, commodity category management, commodity addition, commodity information management and other functions; Order management: mainly includes functions such as order and payment management.

<div align="center">2.3 Business process analysis</div>

In the frontend of Xiaomi shopping website, the user module and the product module interact with data to realize the function of purchase. The functions of the frontend mainly include the user module, the product module, and the order module. In the backend of Xiaomi shopping website, the administrator processes the data generated from the user's application submitted in the frontend to meet the user's needs. The front-end system and the back-end system have data interaction, and each part of the whole system is independent and inseparable from each other. The functions of the backend mainly include user management, product management, and order management.

The system business flow diagram is shown below.

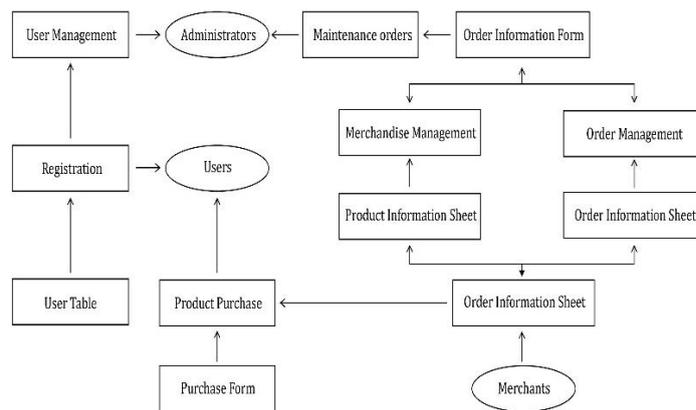<div align="center">Fig. 1 System business flow chart</div>

<div align="center">2.4 Data flow analysis</div>

Data flow diagrams are designed mainly because the system is not yet functionally defined, so you can first describe the possible functions to be used, and ask the user for information such as "what data the system receives from the outside world" and "what data the system sends to the outside world". The data flow diagram is designed based on the responses given by the user.

Xiaomi shopping website data flow diagram mainly reflects in detail the principle that each functional module corresponds to the operation and data for interaction. It also shows the data flow of each role to the function module operations in more detail, so

that developers can understand the development direction of the system and can develop the system model more accurately.

The product information maintenance is refined to obtain the product information management data flow chart, as shown in the following figure.
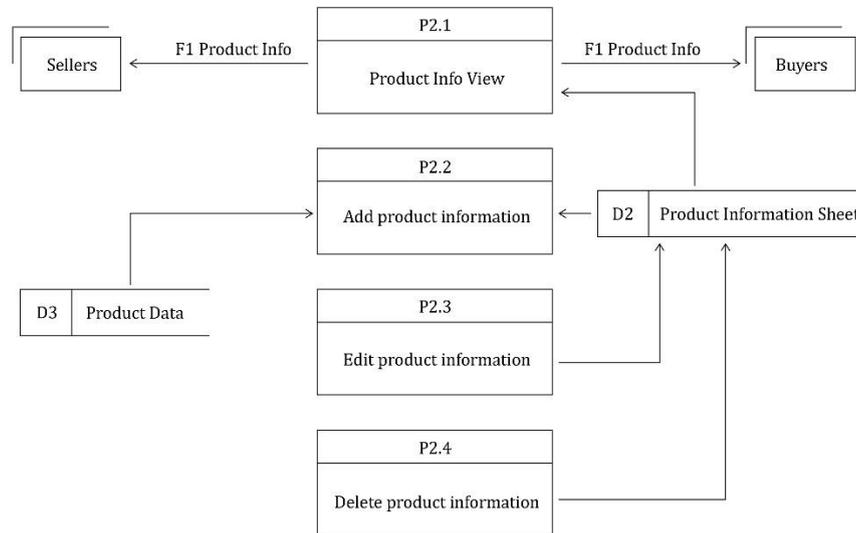

Fig. 2 Commodity management data flow diagram

The order information management is refined to obtain the order information management data flow chart, as shown in the following figure
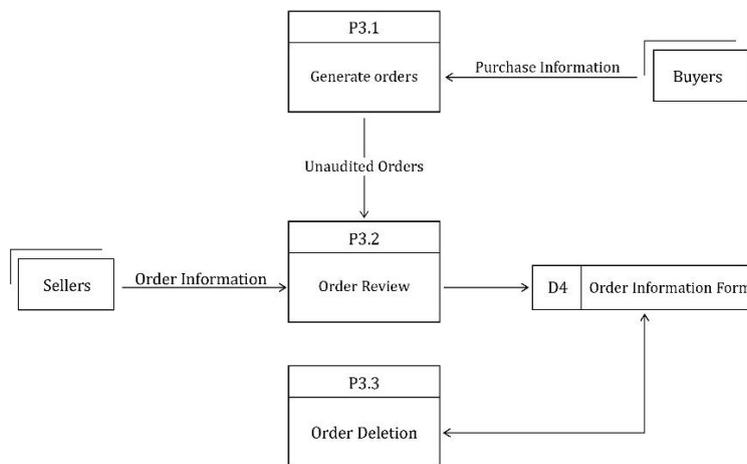

Fig. 3 Order management data flow diagram

3. System design

3.1 System structure design

Xiaomi shopping website is divided into display layer, data layer and business layer. In the architecture of the system, in order to facilitate the upper layers to call to complete the corresponding functions, each layer will provide the corresponding interface for its corresponding upper layer.
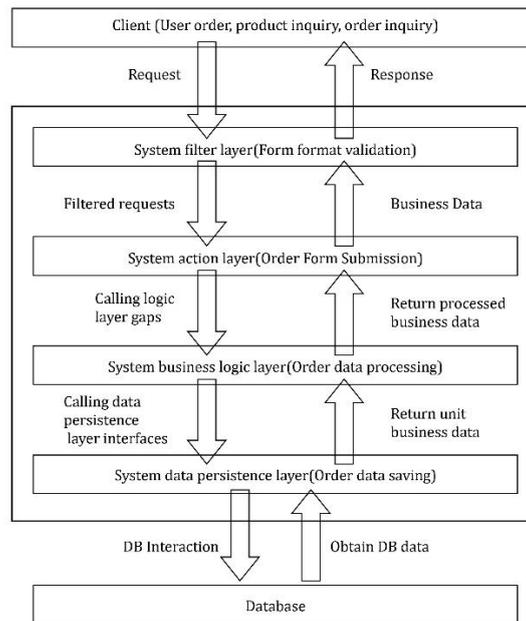
The system structure diagram is shown below.

Fig. 4 System structure diagram

Display layer, this layer is mainly to provide the user with the UI interface for computer interaction, it provides the corresponding logic processing according to the corresponding user operation.

The database layer, the database is not only the mapping of the entities involved in the software, but also the key to read and process data in the system. The whole operation flow of the system is designed around the data inside the database.

The business layer, mainly through the business logic in the business layer of the system to achieve business needs, according to the corresponding requirements, the analysis of the implementation of the strategy and the corresponding business logic, its merits and demerits, to a large extent, determine the quality of the software, so the main reason for the success or failure of the whole system lies in the logic of business implementation.

3.2 Functional module design

The basic functional requirements of the system have been obtained through the requirements analysis of the software. The system has been divided into various functional chunks based on the major functional modules.
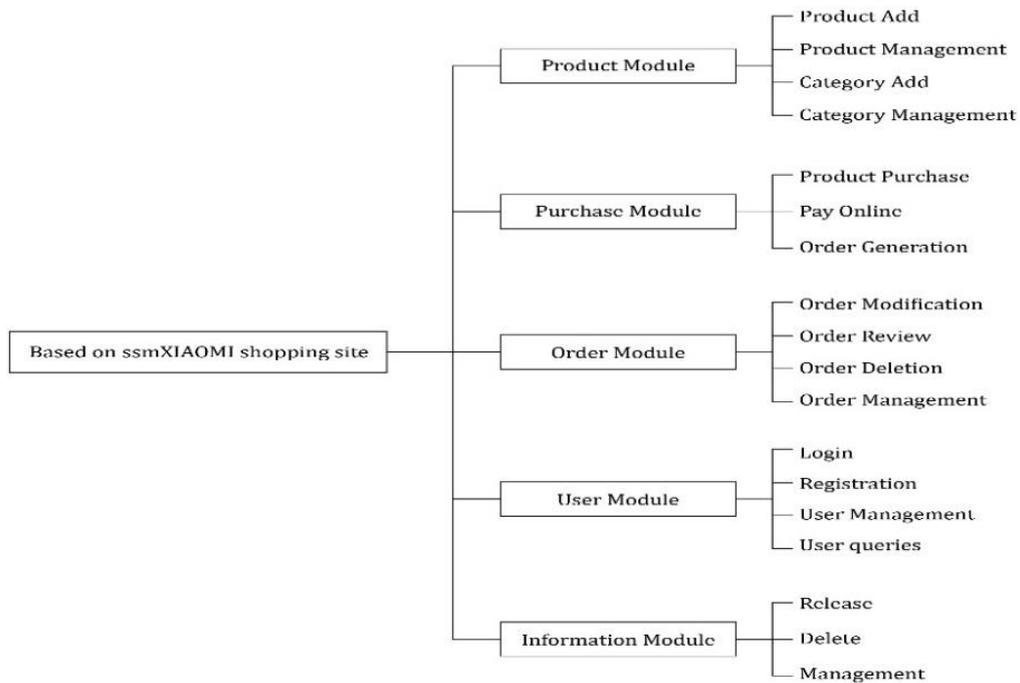
Fig. 5 System functional structure diagram

4. System design

This chapter describes in detail the process and implementation methods of the major functional modules of the system, the implementation of each function, the fundamental goal of the design in detail is to determine the system that should specifically achieve what is required, mainly from the implementation of the main page, the implementation of the login module, the implementation of the product information management module, the implementation of the order information management module, the implementation of the registered user management module, the implementation of the merchant information management module, etc. The system is described in the following way.

Implementation of the login module. After user registration, click "Login" to enter the login page, enter the user name and password, click "Login" button, verify the user name and password, and check whether a user information can be found in the database according to the user name and password entered, if If the user information cannot be returned, then the login fails and the page prompts that the user name or password is wrong.

Implementation of the login module. The user interface should be as simple and generous as possible, so that users can easily find the required functional entrance, browse and purchase products, and be easy to modify and maintain, while also ensuring user legality and system security.

Implementation of commodity information management module. The administrator can get the list of all products in the system and edit them. When the administrator adds a product, he/she needs to input the basic information of the product, such as name, price, specification, etc. He/she also needs to input the description of the product details, including the description of the product function and the display picture, etc. After adding products, a piece of information is added to the database product table. The administrator can search for products and edit the products that have been added.

Implementation of the order information management module. Administrator in the backend management interface click to all orders interface dingdan_list. jsp, send a request to the control layer dingdan Action, search for all current order information, dingdan Action to dingdanDAOImp call to search all orders request to the database of the order table to search for all current orders and will order information Returned to the dingdan_list.jsp interface in the form of objects layer by layer, showing all the current order information. At the same time, you can delete expired orders, confirm existing orders, and perform shipment processing.

Implementation of the registered user management module. Administrator's management of system users, in yhzhgl.jsp to achieve the management of administrator users, including entry, deletion, modification, modify the password by SESSION to obtain the user name, and then enter the new password, submit to mod.jsp, use the sql command to update the password.

Implementation of the order list management module. This function views, user name, order number, product picture, price, original price, purchase quantity, and other information operations.

5. System Testing

The program is mainly described as follows.

Firstly, ported the system to another computer and ran with errors. After modifying the configuration information, it runs successfully. And user information management module comprehensive test, add new user roess, assign general administrator role to it, view general administrator role permissions, save the settings, log in as roess and view the permissions owned. Finally, according to the design and implementation of Xiaomi shopping website, we entered the system as different roles and tested the functions of each module of the system to test whether there is any error in the logic work between modules. After testing, it is found that this development system can meet the basic workflow and basic requirements of the Xiaomi shopping website process, and can complete the functions of product selection, product management, product evaluation management, order management, user management, after-sales

management, etc., so that the developed system is simple to operate and meets the requirements of system openness, and the system can run in an open hardware architecture and can be connected smoothly with other systems.

6. Conclusion

At present, the system has been put on line and is in the trial run stage, with good feedback from users, basically completing what users need, no blocking problems during the trial run, and some shortcomings and minor problems are also corrected in time, after the system is put on line, in order to ensure the security of data, the system is backed up, the system backup is once every two months, the database backup is once a week, the system is deployed in the leased The system is deployed in the leased cloud platform server.

In the future upgrade process, the system needs to solve a series of problems raised by users, such as how to avoid browser compatibility problems during the printing process, and how to maintain a high response speed when a large number of users access the system, and will focus on solving these security issues in the future upgrade process of the system.

Acknowledgements

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