Design and Implementation of Home Online Store System Based on PHP Framework

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Abstract

The online store system is a kind of software used to open stores on the Internet, generally B/S architecture. Commonly known as online store system, e-commerce system and shopping system. With the help of online store system, small and medium-sized enterprises and individuals can quickly and efficiently build e-commerce platforms suitable for their own enterprises or individuals and carry out e-commerce activities. This paper designs and implements a home online store system based on Web architecture, through which users can search and view home goods, add shopping carts, and add orders to purchase; Administrators can manage user orders. The front end of the system is based on HTML5 technology and uses Element UI for layout. The developed web page can adapt to different resolutions. The back end is developed based on Think PHP framework. This paper discusses the system development process from the key stages of software development, such as function design, data model design, effect realization, etc. Finally, through experimental testing, the system has good usability, users can easily search and purchase goods, and get feedback in time.

Keywords

Online store system, HTML5 technology, Element UI framework, Think PHP framework

1. Introduction

The online store system is a virtual store that uses various means of e-commerce to achieve the process of buying and selling. The online store can provide personalized services for individual users and enterprises, create a friendly, relaxed and pleasant shopping environment for users, and meet the increasingly diverse shopping needs of consumers. With the advantages of more competitive prices and gradually improved logistics and distribution system, the online store is relative to the physical store, is winning more market share. The home online store system in this paper is an e-commerce portal website that provides the design, sales and construction of bathroom products for the end consumers developed by the state-owned bathroom brands. This article will discuss the development process of this system in detail from the perspective of software development cycle [1].

2. Function design

The roles used in this system include ordinary users and background administrators. Ordinary users can use the foreground function to browse and purchase goods, and administrators can use the background to manage all users and orders. Ordinary users browse the home page of the home online store system, enter information to register an account, which needs to be reviewed by the background administrator. After logging in to the system successfully, the user will jump to the commodity browse page, where they can select household goods, add the goods they need to the shopping cart, collect goods, place orders to buy goods, manage personal orders or modify personal addresses and passwords. The background management address of the system is only open to the administrator role. The administrator can enter the
correct account password to log in to the background management interface, which can audit and manage ordinary users, and can also manage orders uniformly, view some statistics of the system, and maintain the display content of the foreground [2]. The key functional modules of the system are designed as follows:

1) Product display: through this module, users can view the information of products, filter the conditions of products, search products by fuzzy conditions, and members can order and collect products after logging in.

2) Member registration and management module: users can register as members here, and members can modify their own information as needed.

3) Shopping cart management: members can add the goods they want to order to the shopping cart, modify the quantity of goods they order, or empty the shopping cart.

4) Front order management: members can view their order status, order details, and manage orders.

5) Comment management: members can comment on products and manage their own comments.

6) Address management: members can enter the receiving address when purchasing goods. You can manage the receiving address in this module. You can add multiple receiving addresses and select the default receiving address.

7) Product management: The administrator can view the product information, add products, modify products, delete products, put products on the shelf, and put products off the shelf through this module.

8) Member management: administrators can manage members, review members, modify member information, freeze members, view member information, etc. through this module.

9) Order management: the administrator can view member orders, update order status, count order amount, modify order information, view order details, etc.

3. Database model design

The user role of the system includes administrator and foreground user. The foreground user has shopping cart, order management, address management, comment management, collection and other functions. To complete these functions, user table, shopping cart table, order table, address table, comment table, collection table, etc. are designed. The user table records the user's basic information, including login name, password, personal information, etc; The shopping cart table records product ID, product attribute, unit price, quantity, adding time, etc. The foreign key includes user ID and product ID; The order table records the goods entered into the order, including the order number, total order amount, quantity of goods, delivery address, order status, order placing time, etc. The foreign key includes user ID, commodity ID, and address ID; The address table records the user's shipping address. A user can have multiple shipping addresses, including postal code, telephone number and address details. The default address is set by marking, and the foreign key is the user ID; The comment table records the user's comments on the product, including scoring, attached drawings, and comment details. The foreign keys are user ID and order ID; The collection table records the items that users add to their collection. The foreign keys are user ID and item ID, which can record the collection time [3]. The designed database model relationship is shown in Figure 1.

4. Technical framework

The front end of the system selects the popular Element UI framework, which is based on the UI framework developed by Vue. The built-in CSS Media Query function of Element UI can develop responsive layout web pages and automatically adapt to different resolution effects; By using rich Web components, including drop-down menus, button groups, button drop-down menus, navigation, navigation bar, path navigation, paging, typesetting, thumbnails, warning dialog boxes, progress bars, media objects, etc., you can quickly build a beautiful and fully functional front end of the website, and can also perform on-demand mapping without causing too much redundancy and minimizing the file [4].

The backend of this system is developed in the popular PHP environment, which is a general open source scripting language [5]. The syntax absorbs the characteristics of C language, Java and Perl, which is easy to learn and widely used, and is mainly applicable to the field of Web development. It can execute dynamic web pages faster than CGI or Perl. Compared with other programming languages, dynamic pages made with PHP embed programs into HTML documents for execution, and the execution efficiency is much higher than CGI that completely generates HTML tags; PHP can also execute compiled code. Compilation can achieve encryption and optimize code operation, making the code run faster. Based on PHP, the popular Think PHP framework is used [6]. ThinkPHP is a fast and simple lightweight PHP development framework based on MVC and object-oriented. The latest version is 5.0. ThinkPHP 5.0 is based on PHP 5.4. It perfectly supports PHP 7. It adopts a new architecture idea, introduces many new PHP features, optimizes the core, reduces dependency, supports Composer, realizes true lazy loading, and provides in-depth support for API development, it is outstanding in terms of function, performance and flexibility, and is very suitable for WEBapplication and back-end API development [7].

5. Key functions and implementation

This system is aimed at users who purchase home online, and provides functions such as shopping cart management, user ordering, personal center, product evaluation, order management, and product management. Next, select several
key functions to analyze their implementation.

![Database model design.](image)

**Figure 1. Database model design.**

(1) **Shopping Cart Management**

After logging into the system, users can search for goods and add the goods they want to buy to the shopping cart. The shopping cart can display the name, parameters, unit price and quantity of the goods, and calculate the total number and total price of the goods in real time. Users can manage the goods in the shopping cart, add or delete the goods from the shopping cart, increase or reduce the number of goods, add the favorite goods to the attention, and remove the goods off the shelf from the shopping cart.

(2) **Personal Center**

After logging in successfully, the user can enter the personal center to manage all personal information. The member center provides my shopping cart, order management, collection management, evaluation management, address management, personal information, password modification and other functions. For refund rights protection, the user can provide information management for interaction with customer service. For my order management, the user can search the order he has placed by order number, order time, and order status, For each order, you can view the order details and apply for a refund for the paid order.

View the order details. The key code of the backend is as follows:

```php
public function order_details()
{
    $pay = I('pay');
    $this->assign('pay', $pay);
    $order_number = I('order_number');
    $address_id = M('orders')->where(['order_number'=>I('order_number')])
        ->field('address_id,addtime,pay_type,state,pro_id')->find();
    $address_id['addtime'] = date('Y-m-d H:i:s',$address_id['addtime']);
    $orders = M('orders')->where(['order_number'=>I('order_number')])
        ->field('address_id,pro_num,addtime,pay_type,state,attr_value')->find();
    // Further code to display order details...
}
```
(3) Commodity evaluation

Users can evaluate the purchased goods, and the evaluation information will be used to evaluate the goods in the mall after collection. Users can select one to five stars to score, select the evaluation tag, upload the use effect picture, post comments, and analyze all the evaluation of the products, then they can count the most popular products or products with the most negative comments, providing reference for mall optimization.

6. Summary

PHP is a widely used web application development language in the industry. ThinkPHP framework is a web framework based on PHP, with MVC structure, which is easy to develop server-side applications quickly; Element UI is a popular front-end development framework that can quickly produce responsive pages. Based on the popular front-end and back-end framework in the industry, this paper constructs an online store system for home purchase. This paper discusses the design and implementation of this system in detail from the perspective of software development cycle, which is believed to have certain reference significance for readers to develop software.

References

[7] Wanquan. Design and implementation of group purchase website based on ThinkPHP framework [D]. Capital University of


