Design and Implementation of an Internet Financing Product

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Abstract: With the rapid development of economy and the gradual increase of people's income, how to conduct efficient and convenient financial management has become the hard demand of the vast majority of people. At present, many people in China only trust offline financial institutions such as banks or insurance when purchasing wealth management products, to purchase wealth management products. However, offline financial institutions generally have disadvantages such as low returns, complex purchase processes, many restrictions and poor flexibility. At the same time, online financial products such as P2P have appeared on the Internet, but online financial products currently have disadvantages such as lack of qualifications and high risk factors. Therefore, this paper proposes an idea to provide online financial product services for them by connecting with various offline financial industries such as banks and insurance, so as to ensure the qualification of financial products. It also cooperates with major domestic manufacturers such as WeChat and Alipay to provide login services to ensure the quality of users. At the same time, users are provided with questionnaires and other methods to evaluate financial products suitable for their purchase. At the same time, different types of financial products, such as high-yield, strong stability, easy redemption and other financial products, are displayed on the home page of the system to provide users with a variety of Internet financial platforms.

1. Background Related

According to relevant data, China's per capita income level increased significantly in 2018, with a year-on-year growth of 3.19%. It can be seen that people's living standards have been continuously improved, which is a rare opportunity for the financial industry. With the continuous innovation and development of computer software development technology, its influence in the traditional industries has become more and more profound. In the field of finance, the integration of the Internet has produced Internet finance. The Internet brings a lot of data to people, and people who contact with the Internet also make new achievements. It is imperative to use the sword of the Internet.[1]

With the emergence of online financial products, as an emerging product, it has aroused extensive discussion and concern of the society and financial market. Since the development and implementation, it has gradually shown a strong “ability suction gold”, causing great fluctuations in the traditional financial market. The birth of a series of online financial products has caused the upsurge of online financial management, which not only affects the demand deposits of banks, but also has a certain impact on the traditional financial products of banks[2].

At present, a large number of enterprises have used the Internet to create and launch their own brands and products, which is the same for the financial industry. The ability of the Internet cannot be underestimated. For users, the online financial management system can get rid of the trouble of
filling in complicated forms when purchasing financial products at financial institutions, which greatly facilitates customers' management of their personal financial management\(^3\).

2. System Concept Design

The Internet financial management platform should be divided into three modules, which are basic module, financial management type evaluation module and revenue calculation module. The detailed introduction of each module is as follows:

2.1 Basic Module

The function of the basic module is mainly aimed at the user's registration and login. The system provides multiple ways to register, such as mobile phone number and email. At the same time, it interfaces with WeChat and Alipay, and provides a login interface to facilitate subsequent one-click login of users, eliminating the tedious login steps. Users who become full members have the right to access and use financial products. At the same time, the system's background will evaluate the user's behavior pattern and establish a signature for them to push financial products suitable for users\(^4\).

2.2 Financial Management Module

Financial management module is divided into two parts, including evaluation function and access to financial products functions. The evaluation function is that the user enters the financial management type evaluation page through navigation for the first time or actively, and answers questions according to the prompts. After the answers are completed, the user's characteristic code is automatically calculated by the background, and suitable financial products are pushed for them\(^5\).

The function of access to financial products is to provide online purchase mode for financial institutions through docking with banks, insurance companies and other financial institutions, through screening low-risk, national listing and other financial products of financial institutions, so as to ensure the qualification of platform financial products and prevent the reputation of platform from being damaged by unqualified financial products.

2.3 Revenue Calculation Module

Revenue calculation module: enter the revenue calculation page according to the platform's homepage index entry. The revenue calculation page contains input verification to verify the input information. For example, the deposit amount must be a positive number, and the deposit duration must be a positive integer. If the user enters an error, a corresponding error message prompt is given. If it is correct, the calculation is performed, and the calculated profit data is returned to the user. Firstly, the platform will model the products accessed by financial institutions, build the types of financial products, label them, such as high risk, low risk, high-yield, low-yield, etc., and calculate the seven-day rate of return, annual rate of return and other common income for them. At the same time, it will match the type of financial products with the user's characteristic code, and push for the users who meet the financial products to attract their purchases. Users can also calculate the financial product in detail\(^6\).

The platform provides users with a variety of financial management modes, such as single interest, compound interest, accrual bond and other financial management modes for users to choose.
2.4 Module Integration

In order to better realize the cooperation between the above modules and their internal sub functions, the platform uses MySQL database to realize the execution of persistence layer transactions, and uses the navicat database visualization plug-in to design the connection between the various entity classes in the databases, including the design of database foreign key association relationship, the design of key point inside and outside the table, and the design of table association relationship inside the program. The final design does not rely on the association of the database itself, but uses the program to realize the dependency relationship between the tables, which is more flexible and easier to maintain, expand, modify and update[7].

3. System Design

3.1 System Function Design

The functions of the system shall include: multiple queries for financial products, product name query, financial type query and deposit period query; financial type evaluation module, which provides guidance and suggestions for users to purchase corresponding product types; financial revenue calculation module, which compares the merits and demerits of different products through calculation. The user module provides registration and login functions. After a successful login, users can view the user manual of this platform. At the product level, it provides financial products to join the shopping cart and generate orders. In the background of the system, the administrator can modify the information of financial products, add products and delete products after login. At the same time, the user who has successfully registered can modify the password and all users' purchase orders are summarized in the background[8].

The sub functions of users include registration, login, query of financial product information, and view of fixed product details; the classification module includes the function of adding, modifying and deleting corresponding products in each classification, and the function of financial product query under the classification; the sub functions of financial product include the multi-condition combination query and the query of suitable people's personality; the sub functions of financial type evaluation include: Test Test question entry, question score setting, final score calculation and matching financial management type function according to score; financial management income calculation includes annualized value verification, financial product investment time verification and income calculation result display[9].
3.2 System Use Case Design

The main functions of the platform are product promotion and display, customer service, and more emphasis on system function modules.

The use cases of platform users include registration and login, password modification, query, income calculation and financial evaluation.

1) registration: visitors log in to the platform and click registration to enter the registration page, enter personal account password and other information to complete the registration.

2) log in: users who have successfully registered will have a system success prompt. They can log in to the system through website navigation. After entering the user name and password correctly, they can log in successfully. After logging in, users have more access to the system and products, such as evaluation and revenue calculation[10].

3) change password: the successful login user can change the password. After the old password is verified, the new password can be set to change the password to ensure security.

4) query: the system classifies the financial products and supports the query of financial products under their respective classifications; the product list contains some basic information of financial products, such as annualized and suitable personality groups, and you can click these attributes to query the same financial items; support the fuzzy query of name, and enter the product name in the search box, and the fuzzy matching includes Financial management project with input information; multi condition combination query. Select advanced search to enter the advanced search page, enter multiple criteria annualization, name, etc. to query, among which the relationship between each criteria is and.

5) purchase or add to shopping cart: platform products can be purchased or added to shopping cart, and can be viewed in personal order after purchase[11].

6) income calculation: the platform provides an entry for income calculation. In this function, input the amount, time and annualization of the deposited financial products to calculate the due income, in which the input data will be verified and tested.

7) financial management evaluation: after logging in to the platform, provide the access to evaluate personal financial management type, enter the evaluation function, answer the questions composed of attitude towards various things and situations in daily life to calculate the user score, and then give the user's financial management type.

4. Design and Implementation
Based on the previous two chapters of this chapter, the requirements analysis and use case requirements are analyzed in detail, and each sub function under the module is implemented successively as an atomic unit. This chapter introduces and demonstrates the relevant technologies applied and the specific implementation of sub functions[12].

4.1 Implementation tools

The code compiling tool ide of this system is IntelliJ idea, which is used for Java code writing, construction and debugging; the web container uses Tomcat 9.0.19, which can deploy the web application by setting the local path and port of Tomcat in idea; at the same time, the platform uses Maven package management tool, which needs to write the relevant dependency of setting program running in pom.xml configuration file, In order to achieve this goal, we only need to add dependency coordinates in the configuration XML file, instead of adding each jar file to the Lib directory manually, which reduces the occurrence of misguided events during manual operation. At the same time, the whole web project occupies less disk space, and the packaging is easy, fast and convenient for development. Many dependency packages of important functions are configured in this configuration file, including SSM project construction dependency and test tool dependency on connection database dependency verification code[13].

4.2 Basic Function Realization

This system uses mybatis persistence layer framework to control and realize the transaction of database. The platform creates entity classes strictly according to the field structure of the tables in the database, and realizes the corresponding relationship between the database and entity classes. The mybatis framework encapsulates all kinds of methods for dealing with database transactions. We can write them manually, or use reverse engineering to generate basic mapper files and entity classes. The mapper proxy method is more convenient, and even does not need to implement the Dao interface. The implementation of this mapping relationship cannot lack the get and set methods. In order to facilitate unit test and integration test, toString() method in entity class is written. In addition, if the mapper is configured in the mapper.xml file and the relative path of Dao interface is specified, the implementation class of the interface will not be written, and the corresponding relationship between the XML file and the interface will be completed, so as to reduce the amount of code and facilitate the development. But also in accordance with certain rules and regulations[14].

The platform applies the spring MVC framework in the presentation layer to realize the interaction between the front and the back through annotations. Each annotation corresponds to a class of spring, and each prop of the annotation is an attribute name of the class. Annotation development method greatly facilitates program development and reduces a lot of redundant code. Annotation @ requestmapping also plays a role of matching path. The application of this annotation's narrow request mapping realizes diversified URL correspondence. Spring MVC natively supports spring container management and implements customized implementation classes through XML file configuration. Through annotation, you can also set the way to accept front-end requests to improve the security performance of the system[15].

Conclusion

Online wealth products have great development prospects and will quickly occupy the financing market because of the higher yields, which is attractive to young consumers including college students. With the rapid development of Internet, Internet financial products are also developing rapidly. Not only financial institutions and Internet institutions meet their own needs, but also meet the development of modern society, save transaction costs and improve transaction efficiency. And in the era of big data, the Internet financial management mode is open and transparent. When financial products and the Internet are put together, financial products can quickly attract the attention of a wide range of investors at a lower cost.
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