Research on the design of community micro service platform

Sun Yuhui

The People's Armed Police Sergeant School Hangzhou, 310007, China

Abstract: *With the rapid development of information technology, all industries are actively seeking information technology for transformation and upgrading, through scientific and technological means to improve work efficiency and people's living standards. The Residents Community micro service platform uses information technology to present the functions of traditional property management on the Internet. It aims to establish a one-stop convenient service program to provide residents with more convenient community services and more convenient property management. Using spring cloud framework to build community micro service platform, first of all, the functional requirements of the platform are analyzed to get the functional requirements of the platform; Then the overall design and detailed design of the platform are carried out to supplement and improve the functional modules of the platform; Finally, the deficiencies of the platform and the need to modify the place to supplement, for the future management and maintenance platform to provide fast and convenient documents. The database used in the platform is MySQL database, which is developed with spring cloud framework. In terms of software development, eclipse and wechat developer tools are used to develop the administrator side and the owner side respectively. In the process of design and development, it fully ensures the readability, expansibility, generality, easy to update and maintain, simple operation and simple page of the development code.*

Keywords: *Community micro service platform; Spring cloud framework; Mysql database; Java*

1. Introduction

In the context of the continuous development of world economy and technology, more and more industries are developing in the direction of informatization, which greatly improves the efficiency of work. With the continuous improvement of people's living standards, community service, as a very important part of all service systems, involves a large number of people and needs more efficient and convenient services to improve the quality of life of residents. The traditional community service adopts manual way, setting property and community committee to solve the difficulties of residents' daily life and life payment, but the residents often feel that the steps and procedures are too cumbersome to solve the problems in life more effectively and conveniently. For this reason, we propose a community micro service platform based on WeChat official account. It is also the largest mobile media information distribution platform in China. Whether it is marketing promotion or information dissemination, it has a wide audience range, so that residents of all ages can enjoy the convenience they bring.

As a new way of service, community micro service platform enables residents to solve all aspects of life problems anytime and anywhere through the Internet. They can complete the payment of living expenses or make an appointment for public services and public facilities in the community without leaving home, or seek help in emergency, or release information, such as renting, lost and found, etc. As an important part of the service industry, community micro service platform relies on the transformation and upgrading of information technology to adapt to the development of the new situation. How to effectively build a community micro service platform for residents, so that residents can enjoy a higher quality of life, so that residents can get more quality and convenient services, is an important factor to further develop to a modern society. The design of the residents' community micro service platform is to avoid the tedious and time-consuming community business, optimize the allocation of resources, and provide residents with more time-saving, worry saving and labor-saving one-stop community service.

2. Research and analysis of current situation at home and abroad

2.1 Research and analysis of the current situation in China

WeChat has occupied a high usage rate in the domestic software market, and WeChat official account can be implemented into every user as a service platform. Using WeChat official account for micro service can achieve convenient and high quality community service. According to the comprehensive literature, many communities in China have begun to official account and intelligent community platform for residential community service.

In 2013, The article "Research on the Countermeasures for the construction of smart community service system in China" points out that China has made great achievements in the construction of smart community service system: First, the service content is constantly expanding, and a series of smart services such as home-based care, parking guidance and employment promotion are gradually carried out in the community. Second, the way of community service has been continuously improved, and modern information technology has been used to promote the construction of community informatization. Many places have tried "one-stop" service; Through a variety of funding channels, social forces began to participate in providing services for the community. Third, the service environment is constantly improving, and various professionals in the construction of smart city begin to infiltrate into the community. The state has issued relevant laws and regulations around community service facilities, and various regions have also issued policies and measures to promote the construction of community service system. In 2016, An empirical study on user satisfaction of o2o smart community platform -- a case study of Fangzhuang community in Fengtai District, Beijing, points out that community o2o is based on community, In order to serve the family life of community residents, provide community services and facilitate people's life, it is an operation mode of online and offline integration and interaction of the resources around the community. In 2017, According to the research on information dissemination of WeChat official account based on social network analysis, it is pointed out that the current research on WeChat mainly focused on user use and micro service evaluation. The conclusion is that WeChat WeChat official account has great potential to use WeChat platform to develop product marketing and brand building effectively. We should pay attention to the construction of original information content, strengthen customer relationship management, and attach importance to the information interaction with ordinary users; We should innovate the official account information resources construction mechanism, and absorb the common users and official account numbers to jointly develop WeChat's information resources. Establish a big data information analysis mechanism to push differentiated information for different users, different stages and different time points in the process of information dissemination.

2.2 Research and Analysis on the current situation and future development trend of foreign countries

Abroad, there are Singapore's "smart country 2025" plan and Japan's "i-japan" strategy, Nearly 98% of the public services of Singapore government are provided online, and the public enjoy one-stop service. Ma Liang, a researcher at Nanyang Technological University in Singapore, said, In the implementation of "smart city 2015" plan, The application of Internet of things sensor has been very extensive, In the future, community micro services will focus on data collection, Predict the needs of the people and provide better services.

3. Platform design analysis

As the name suggests, the research content of the residential community micro service platform is to provide users with a variety of life services on the platform, that is, flat community service, Function for the property manager side: Home page, personal center, owner management, community announcement management, property payment management, visit application management, visit record management, owner repair management, message notification management, administrator management, platform management. Owner wechat: home page, community announcement, my (owner information, property payment, visit application, visit record, owner repair, message notification) and other functions.

3.1 Platform requirement analysis

The small program of community micro service platform is designed to facilitate the owners and property managers, on the basis of traditional property services, some functions provided by the property are implemented in wechat applet, more convenient and efficient daily community services for each

household; Part of the functions of property management are implemented in the server browser, which can interact with the user's small program, more convenient for the management of property personnel, and can respond to the owner's request in time. It can effectively realize the combination of residents' life service and property management, and improve the utilization rate and visualization of stored information. The design of the functional module of the platform is to determine the different needs of the owners and the property through field research and questionnaire search, and discuss their respective operability, so as to facilitate everyone to operate the platform or small program.

In the property management function, there is a simple add delete modify button, which is convenient for each property administrator to operate the data. Each function module is implemented separately, only some functions are related. For the functions of the owner side, the interface is light and fast, and each function can be basically realized. The notification of the message, the filling and modification of the information and the comments can be transmitted to the property manager side to realize the data interaction.

3.2 Platform architecture analysis

There are two common software architectures: B/S and C/S.C/S architecture is an early software architecture, which is mainly used in LAN, which means "client / server" mode, C means client, s means server. B/S represents the "browser / server" mode, B represents the browser side, s represents the server side. B/S Structure is a popular network structure mode after the emergence of web. Browser is the most important application software. This form combines the client and realizes the interface through the browser, which makes the development, maintenance and implementation of the platform easier.
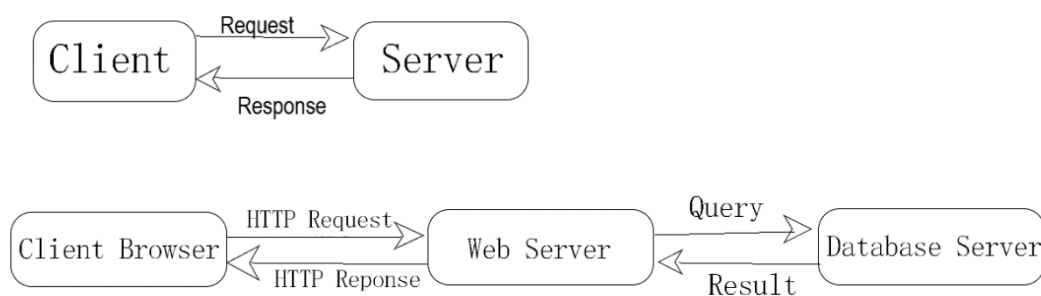

Fig.1 C/S and B/S architecture interaction diagram

The software under C/S structure can't view the current business situation anytime and anywhere. It can only see the data after the business is completed. The data synchronized to the server is the previous data, which is not suitable for decision-making. In the B/S structure of the software, you can view the current business in real time, all the real-time data changes and message notifications generated by the client can be directly transferred to the database, solving the problem of data inconsistency, suitable for rapid decision-making. To sum up, the development of this platform chooses B/S architecture.

3.3 Platform feasibility analysis

The hardware of the platform uses personal computer to build the server, and the requirement of hardware is not high. It can realize the smooth operation of the server, the smooth operation of the web page, and the smooth writing of the code. The feasibility of the platform in software, the community micro service platform using Oracle database and eclipse, wechat developer tools to develop, are relatively mature and stable platform development software. The operational feasibility of the platform is the key to judge whether a project is successfully completed. There are two roles for the use of the community micro service platform. Both parties can enter the account password information into the concise home page. The owners can enter the community micro service platform on the wechat end through the wechat applet, and view the relevant information and fill in the message and personal information by clicking on each module, Convenient access to community services. The property administrator can enter the community micro service platform of the management end through the web page, and operate each function module more conveniently through the function navigation, and can integrate each data to view and manage. For the operation of the platform, each function has a clear

definition and high degree of information visualization.

4. Introduction of related technologies

4.1 B/S framework

B/S structure is a kind of network structure mode after the rise of web. It is a kind of interactive structure mode of browser and server and Brower and server. B/S The architecture is widely used. It can not only be directly placed on the wide area network and realize multi client access through certain permission control, but also use the mature web browser technology, combined with a variety of script languages of the browser, the general browser is used to realize the powerful functions that originally need complex special software, which saves the development cost. Strong interaction, easy to maintain and upgrade the client.

4.2 Javatechnology

Java language is one of the most used programming languages, and it is in a mature stage. Java language has the characteristics of object-oriented, which can be designed in line with people's thinking mode, and can use encapsulation to wrap and hide the objects and attributes, so that others can not judge how to achieve, and can access and interact with data through the interface when calling.

Java as a programming language, it has many characteristics, the main characteristics are object-oriented, platform and distributed operation. Java language project not only has high security and stability, but also can run concurrently.

In order to improve the speed and efficiency of development, it is necessary to reuse the code and simplify the complexity of the program, in this way, information encapsulation can be achieved to a great extent, code reuse rate can be improved, redundancy can be reduced, and efficiency can be improved.

4.3 Mysql database

MySQL is a relational database management platform. As a data storage warehouse, MySQL organizes, stores and manages data according to the data structure. Each database has one or more different APIs for creating, accessing, managing, searching and copying the saved data. Compared with Oracle, DB2 and other databases, MySQL has the advantages of small size, fast speed and low cost.

The community micro service platform adopts MySQL database, and establishes multiple data tables, such as owner management table, property payment table. In the database, insert, delete, update and select are used to add, delete, modify and query.

4.4 Spring Court framework

Spring cloud is a framework based on spring boot, which is suitable for building distributed platform quickly. As the development framework of microservice, its integration enhances the components commonly used in microservice architecture, such as Eureka, zuul, etc., which are fully functional, out of the box and suitable for various environments. In addition to the advantages of spring framework itself, such as simplifying the development steps and reducing the coupling degree between codes, it also simplifies the steps of construction and development, We can use it to quickly deploy web applications. It can use thymeleaf and FreeMarker template engines, and has jar packages needed for Maven and gradle management, and does not need to deploy web containers. It completely cancels the configuration file, the configuration task can be annotated with Java, and supports MVC design model.

4.5 Wechat developer tools

Wechat developer work is the official wechat development tool designed for wechat applets, focusing on development, debugging, preview, upload and other functions. Wechat team released wechat applet developer tool, wechat applet development document and wechat applet design guide, a new developer tool, integrating development debugging, code editing and program release functions, to help developers develop wechat applet simply and efficiently.

5. Conclusion

This system uses the SpringCloud framework development tool, uses the lightweight database Mysql to store the data of the system server and wechat. Through the test of each function of the system, the function of the small program of the Residents Community micro service platform is basically perfect and executable. Whether it is the function of the Residents Community service, or the simple design of the interface, it is convenient to serve the residents' life.

References

[1] Hu Yuan, Diao Shouqi, Zhu Yiping, Zhang Faliang. Design and implementation of digital library community service push platform based on knowledge aggregation [J]. Information science, 2017, 35 (11).

[2] Liang Yiqiong, Zhang Yuan. Empirical Study on user satisfaction of o2o smart community platform— Taking Fangzhuang community in Fengtai District of Beijing as an example [J]. China management science, 2016, 24.

[3] Xu Baoda, Zhao Shukuan, Zhang Jian. Based on social network analysis, WeChat official account information dissemination research [J]. Intelligence magazine, 2017, 36 (1).

[4] Zhang Yan, Yu Qingze. Research on the construction and application function of China's smart cloud community public information platform [J]. Science and technology management research, 2015,13.