

The Development of Enterprise Instant Messaging System based on Android

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Abstract

An instant messaging was a communicate software for the company's internal staff in specially. The server side of the software is based on the SSH framework structure, that implement data addition, deletions, corrections and checks; The client side was based on the SSH framework structure of the hybrid development mode, The client was design of login, registration, announcement, online chat, user information management, message management module and other functions. It was mainly uses HTML5 and JavaScript to realize the interface. Java to achieve logical business and other functions. After the server starts, The client APP operates on the database by accessing the server. The system meets the daily office needs of enterprise management personnel.

Keywords

Instant Messaging System; SSH Frame; Java.

1. Introduction

1.1 Development background and significance

With the development of Internet technology, instant messaging systems have been greatly developed. For example, QQ, TIM, WeChat and other software have become necessary communication tools for individuals and social groups at home and abroad. Flexible and efficient communication bridges have been built between the groups. However, these software are suitable for communication in the whole network environment. Enterprises or social groups use these software for office communication. From time to time, uninvited guests break into the office group, which seriously interferes with the office and communication of the enterprise. Therefore, the development and design of an Internet-based instant messaging system within an enterprise can facilitate corporate communication and office work, and can also prevent others from intruding and protecting the company's confidential information.

1.2 Development method

There are mainly two subsystems: server and client. Both adopt a three-tier architecture model: the presentation layer, the business layer and the data layer respectively. The top layer is the presentation layer, whose main function is to request the server to perform data processing based on standard API; the middle is the business layer, that is, the business logic layer obtains data from the data layer and displays it in the presentation layer after business logic processing; the bottom layer The architecture is the data layer.

- (1) The presentation layer uses technologies such as Android, JavaScript, Html5, and asynchronous requests.
- (2) The business layer is based on SSH and C/S framework.
- (3) The data layer uses MySQL lightweight database.

(4) The processing of the relationship between the server and the client. The client sends instructions to the server, and the server operates the database. For example, an instruction to initiate a login request is sent to the server. After receiving the instruction, the server will retrieve the user data information in the database. If it is a compliant user, it will be allowed to log in, otherwise it will be blocked.

The system uses the Eclipse development platform to complete the entire project, which can store and query data efficiently, thereby ensuring the normal operation of the client APP.

2. System analysis

2.1 Demand analysis

The core functions of the client of this system:

- (1) Point-to-point communication function.
- (2) Group communication function.
- (3) Address book management function.
- (4) Secondary functions include file transfer, location positioning, personal center management, settings management, and Moments release dynamics, etc.

The core functions of the server:

- (1) Check the addition, deletion, modification, and modification of the user's personal information id.
- (2) Publication, deletion and modification of announcements and notification information.
- (3) Sensitive word list-the addition, deletion and modification of popular words.
- (4) Management of user receiving and sending messages.
- (5) User dynamic list management.

The instant messaging system can meet the user's information exchange and communication in terms of function and performance requirements.

2.2 Functional requirements

The client needs to register a new user. After registration, log in to the system, and the user can view friend information, communicate and chat with online friends, dynamic information, friends of map, publish information, and can also edit and view personal information[1]. As shown in Figure.1.

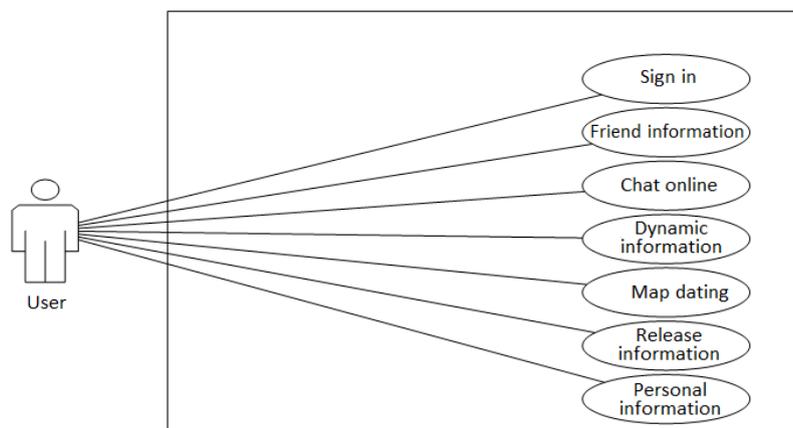


Figure 1. Enterprise user use case diagram

According to the actual operation requirements of the corporate communication administrator, the server has very simple functions and practical operations. After the administrator is required to log in to the system, the administrator can modify and operate the announcement notice, as well as sensitive words (hot words) [2]. Adding, and the management of messages, related dynamic management operations and user management. As shown in Figure.2.

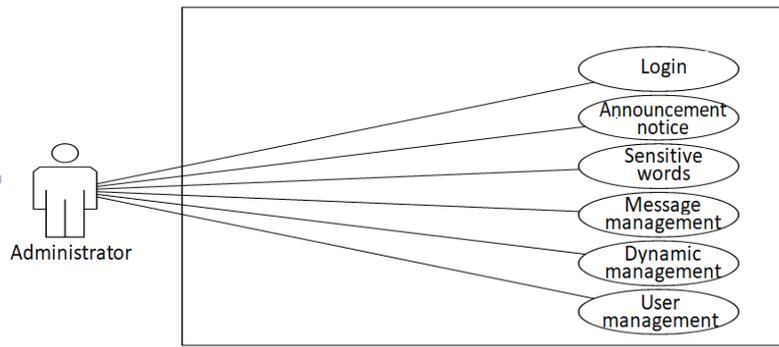


Figure 2. Use case diagram for enterprise administrators

3. Outline design

3.1 System function display

According to demand analysis, the overall system architecture can be divided into client and server. Users can log in using the client APP, while the administrator logs in to perform operations in the server background [3]. As shown in Figure.3.

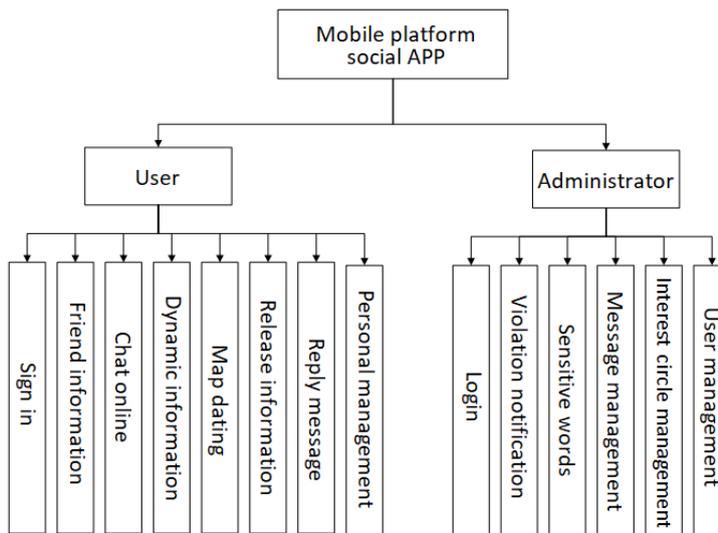


Figure 3. System function diagram

3.2 The logical composition of the database

The entire system contains two main levels of frameworks, client and server, and the data accessed by the client and server needs to be stored separately.

Table 1. Enterprise Group Table

Column name	type of data	length	Logo	Primary key	Foreign key	Allow empty	illustrate
ID number	integer	11	√	√		×	increase
title	variable string	50				√	
user ID	variable string	10				√	
username	variable string	200				√	
Login date	variable string	50				√	
picture	variable string	255				√	
position	variable string	255				√	

Table 2. Posting form of enterprise users

Column name	type of data	length	Logo	Primary key	Foreign key	Allow empty	illustrate
ID number	integer	11	√	√		×	increase
type	int	11				√	
title	variable string	50				√	
note	variable string	500				√	
user number	variable string	10				√	
User name	variable string	200				√	
Login date	variable string	50				√	
Picture	variable string	255				√	
Address	variable string	255				√	
Latitude	variable string	255				√	
Longitude	variable string	255				√	
Picture album	variable string	500				√	

Table 3. User remarks table

Column name	data of type	length	Logo	Primary key	Foreign key	Allow empty	illustrate
ID number	integer	11	√	√		×	increase
User ID	integer	11				√	
Title	string	500				√	
Total	integer	11				√	

Table 4. Announcement form issued by the administrator

Column name	data of type	length	Logo	Primary key	Foreign key	Allow empty	Defaults	illustrate
ID number	int	11	√	√		×		increase
Title	string	50				√		
Date	string	50				√		
type	string	50				√		
Picture	string	200				√		

4. Detailed design and completion of the system

4.1 Client functional model design

Enterprise users can use common functions such as conversation, viewing my friend information, information publishing, communication, posting friend circle dynamics, and self-management.

4.1.1 Client user login and registration

The login page module is divided into two parts: login and registration. The interface is shown in Figure.4.

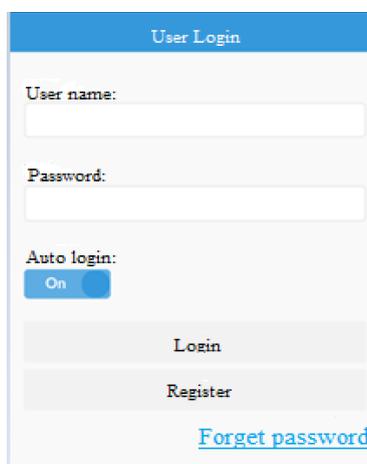


Figure 4. Client user login and registration interface diagram

4.1.2 Client Homepage

Enterprise users can use common functions such as conversation, viewing my friend information, information publishing, communication, posting friend circle dynamics, and self-management. The client home page interface is shown in Figure.5.

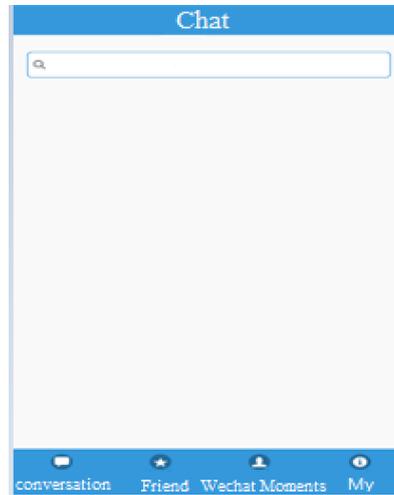


Figure 5. Client home page interface diagram

4.2 Server functional model design

The functions included on the server side mainly have five modules:

- (1) Add, delete, modify and check the client user's personal information id.
- (2) Announcement notice list-release, delete and modify announcement information.
- (3) Sensitive word list-the addition, deletion and modification of popular words.
- (4) View and delete the list of messages received or sent by the user.
- (5) Add, modify, delete and view the user dynamic list.

5. Conclusion

This design completed the requirements of the system from topic selection, demand analysis, outline design, specific design and completion, coding to the final test. The development of an intelligent enterprise instant messaging system based on Android mainly completes the following tasks:

- (1) Combining the analysis of system requirements, analyzing various SSH and C/S-based instant messaging systems and office systems, and adopting the idea of "concise, convenient and beautiful" to divide the functions of the system into modules. The connection between the three modules of the server, the client and the data layer is realized. The main functional modules of the client include login and registration, information publishing, group management, peer-to-peer communication, etc.; the server has five modules that include user information additions, deletions, and modifications Check, add popular words, announcement notification, news and dynamic list.
- (2) Using the MySQL server, Google Chrome, Firefox, and IE browsers can be used to simulate the function of an administrator to modify and operate database information on the server side.
- (3) Support online sending and receiving messages, and administrators can perform common operations such as adding and deleting user information.

Shortcomings of the system:

- (1) Due to insufficient in-depth understanding of the two major positioning methods in mobile phones: satellite positioning and network positioning, the map positioning function is not accurate enough to obtain the specific location of the user's mobile phone.
- (2) Compared with many mature software such as WeChat and QQ, many functions of the system are not perfect, and the interface is very monotonous and boring.

(3) The core of the system is instant messaging for internal employees of the enterprise, including communication and information release, but the user information management module needs to be further improved, it lacks the function of batch deletion and batch increase.

Improve the security of the system, prevent information delay and leakage; improve system functions.

References

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