



Design and Implementation of Sina Micro-blog Client

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Abstract: As rhythm of people life accelerate, it is imperative to develop micro-blog client of a mobile phone. This paper adopts architecture thoughts of MVC, uses Java and Eclipse to achieve sina micro-blog client of Android mobile phone and gives the detailed needs analysis, system design and main function flow charts. It can achieve login automatically, view micro-blog, publish micro-blog and other basic functions.

Keywords: Android; Micro-blog; Java; Eclipse.

1. Introduction

With the advent of the 3G era, a new form of network application of weibo was born. Weibo has become a new synonym for the Internet age with its convenience, the way of the back to the face and the originality of the Internet. Sina weibo is launched by sina.com, which allows users to post messages or upload pictures via web pages, WAP pages, SMS messages. The mobile phone sina weibo has the mobility of weibo, allowing people to publish their own original micro blog anytime and anywhere. It is an ideal choice for people to communicate online.

2. Background and significance

2.1 The background of this research

With the development of Mobile communication and the popularization of the Internet to the Mobile terminal, the user is more and more high to the requirement of Mobile terminals, and Symbian, Windows Mobile, PalmOS Mobile platforms such as too closed, so the market urgently needs an open platform. The Android system developed by GuGe was born on November 5, 2007. Android is a set of open platform for mobile devices integrated in the true sense, it includes operating system, middleware, and some key application platform, allowing all vendors and individuals on the basis of its development.

According to the latest Gartner data, Android's market share has exceeded 50%, reaching 52.5 percent, exceeding the iOS and BlackBerry systems. In the first quarter of 2011, Android surpassed Symbian for the first time in global market share, ranking first in the world. Android accounted for 52.5 percent of the global smartphone operating system market in February 2012, with 68.4 percent in China. On August 14, 2009, Sina Weibo began to be tested, and so far Sina Weibo has exceeded 300 million users. The penetration rate of Weibo has increased from 13.8 percent to 40.2 percent. Since the end of 2010, the percentage of users using mobile phones has risen from 15.5% to 34%.

2.2 The significance of this research

Along with the accelerating rhythm of life, people no longer satisfied only use the computer to make Twitter, and more hope that through mobile terminals, to see, hear, think of things written as one word or send a picture, via their mobile phones to share with friends anytime and anywhere. In order to meet the needs of the new era, it is imperative to develop a convenient micro blog to realize the mobility of microblog.

2.3 The main content

- (1) Build Android development environment: install JDK, Android SDK, Eclipse and ADT;
- (2) Made a detailed study of the basic components of Android application, and made a detailed analysis of the application of the basic components of Android application on Sina Weibo.
- (3) Detailed requirements analysis and functional module analysis of Sina Weibo account;
- (4) Detailed study on the design and development mode of Sina microblog.

3. System related technology

Android applications is one of the biggest characteristic each application consists of several components, and various application components can also call each other (permissions) need to be set in the code. For example, let's say we need to write a program that has a web page embedded in it, so we don't have to write the browser ourselves, but we can directly call the Chrome Lite browser component that comes with the system. As if we write again two applications, one of the list is a component of the image in the program, then we can use in another application that component, and does not need to write the function. In other words, unlike the programs we normally write, Android apps are not a single entry, but can be started from different locations

in the code. This depends on the component. Here are two main components of mobile phone sina weibo:

(1) Introduction of the Activities

An activity actually shows the interface of a program. This interface may have many different forms, such as list form, text form, image grid, etc. An application may also have more than one activity. For example, a program with a short message needs to have a list of activities to display all messages, and at least one activity (interface) to edit short messages, and may also need to set up, menu, and other interfaces.

(2) Introduction of the Services

Service is a kind of no interface components, in Windows or Linux system with our usual understanding of "service", the service on the Android is running in the background, operation time start from system to system shut down. Service components are critical to many applications. In the case of the download manager, the user would definitely want to be able to download from the background while switching to other programs, which requires the service to complete the download. While the download progress, downloaded files and other information are completed by the activity, we also hope to control the download process, such as stop and continue, which requires communication between the activity and service. Android allows an activity to connect to or bind to a service, allowing the user to control the behavior of the backend service on the interface.

4. System analysis and design

4.1 System demand analysis

Mobile micro-blog is a set of functional software, including user login Settings and micro blog application. The microboden module saves user login information to realize automatic login. The micro-blog application setting module achieves the basic functions of Posting weibo, forwarding weibo, commenting on microblog and collecting microblog.

4.2 Functional module analysis

(1) Micro-blog entry module: the user enters the account password and saves the user information to the database after verification to realize the automatic login later;

(2) Microblog application module: it is mainly divided into five parts: weibo post, weibo comment, microblog retweeting, microblog collection and microblog refresh.

Weibo Posting features: Posting your own microblog on your personal homepage;

Weibo comment function: comments and replies to users concerned;

Weibo forwarding function: retweeting the micro blog posted by the users concerned;

Weibo collection function: collecting and paying attention to users' weibo;

Weibo refresh function: refreshing the micro-blog of the personal main interface.

(3) microblog background service module: continuously listens to the request of the microblog application module, obtains the public API of sina weibo through the Internet, and returns the data to the application module.

5. Sina weibo user end design

5.1 Sina weibo user design idea

The mobile phone sina microblog account adopts the MVC design pattern. The Model in this design refers to the micro blog interface module, network communication module, local data processing module and so on. These functional modules have been encapsulated in the SDK for sina weibo, and we just need to download and call the relevant modules. View in this design, various View Windows, including welcome window, login window, main window, release window, query window, information window, and so on. The Controller in this design refers to the business logic system scheduling module, which is used to manage the operation of various view Windows, interface calls, data storage, and so on.

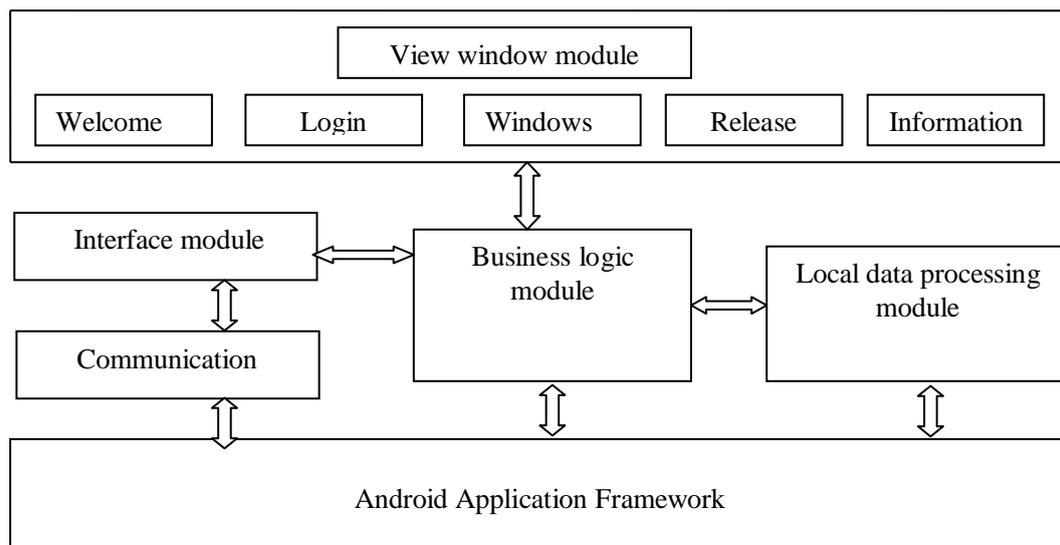


Figure 1. The MVC architecture diagram of sina weibo.

5.2 Analysis of sina weibo user - end architecture

It can be analyzed from the structure diagram of the MVC system that the design and development takes the view window module as the main line and realizes the corresponding functions of each window and keeps improving. The view window module needs data to issue a request to the business logic module, waiting for the response of the business logic module. When it receives data from the business logic module, it updates the page in time.

Business logic module is the microblogging is the core, it has been in the background constantly listening to the request of each view window, sina weibo calling through the Internet open API interface, and returned to the requester will download data, so as to provide service for various modules.

5.3 Database design

This database USES SQLite database. SQLite is an embedded database engine that provides an efficient database engine SQLite database for resource-limited devices such as mobile phones, pdas, and mp3s. It does not have a server process, and all of the content is contained in the same single file, which is a cross-platform free copy. Based on its inherent advantages, SQLite has been widely used in embedded field.

The purpose of the database is to save the user's UserID, Access Token, Access Secret for automatic login. First, establish the database iweibo. Db, and then set up the table UserInfo to store the user's basic information. Details of the UserInfo are shown in table 1:

Table 1 the structure of the database table UserInfo.

Attribute	The data type	Instructions
_id	LONG	Automatically increases the primary key
userId	TEXT	User ID number
userName	TEXT	User name
token	TEXT	User Access Token
tokenSecret	TEXT	User Access Secret

6. Specific implementation of sina weibo account

6.1 Request certification

The OAuth protocol provides a secure, open, and easy standard for user resource authorization. Request authorization does not make the third party touches the user's account information, namely a third party without using the user's user name and password can apply for the authorization of the user resources, so the request is safe. Weibo provides request certification is to guarantee the safety of the user account and password, through the establishment of a regular user request here, sina microblogging the trust relationship between procedures, weibo, let the client program does not need to know account and password can also browse, weibo, effectively protect the safety of the user account that does not need to give the client program account password revealed, reached through the client program to write weibo again look at weibo purposes.

To develop mobile phone first need to log in to sina sina microblogging households end open platform to create an application, sina will share the only App for each developer Key and App Secret, so that in the development process to invoke the sina weibo microblogging households end API.

6.2 The implementation of the login interface module of sina microblog

Android every visual interface, has its unique layout configuration file, the file there are all kinds of layout and various resources such as images, text, color reference, program at runtime, can be read through the code for each configuration file. This will create a different visual interface with gorgeous effects.

Sina microblogging load interface end after the start, first began to check whether has been hold in the sqlite library users of sina weibo UserID, Access Token and Access Secret records, if no record shows that the user is the first time to use this software, then jump to certificate authority for authorization operation interface, certification of success at the same time to obtain the three values stored in the database. If there have been records, then read these records UserID, Access Token and Access Secret value, then according to these three values call sina API interface in order to get the records corresponding user nickname and the information such as avatars.

6.3 The implementation of the application module of sina microblog

When the user login successfully enters the personal main interface, the main interface will load the user's latest micro blog information. The list of microblogs in the main interface is mainly implemented by the ListView. First to design the main. The layout of the XML file, and then through the setContentView main. The XML loaded into the screen, and then call the sina weibo API to get attention of the user's weibo message and send these information to fill into the layout file, and focus on the user's weibo in the form of a list of weibo.

In the personal main interface, users can post weibo, comment on weibo, retweet weibo and collect weibo, each of which defines an Activity. An Intent component is used on the main page to achieve communication between activities. For example, when a user posts a microblog, the click button is transferred to the event of the Activity that publishes the microblog. This Activity calls sina weibo to publish the API of weibo and sends the published content to the server.

6.4 The implementation of the business logic module of sina microblog

The business logic module runs in the background, so you need to inherit the Service class and implement the Runnable interface. Start the service on the mobile micro blog when the app is started. Business logic module has been in the background constantly monitored each view window requests, sina weibo calling through the Internet open API interface, and create a child thread continuously receiving task, performed after the data back to the view window. Because downloading data on the Internet is a time-consuming task, it is necessary to update the view window through the Handle asynchronously.

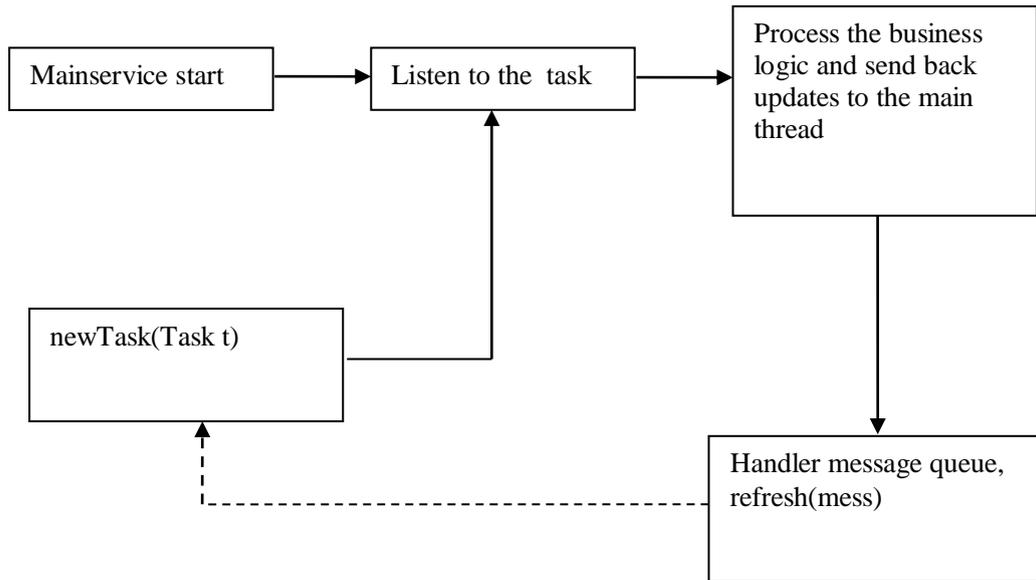


Figure 2 Business logic module flow.

7. Conclusion

Based on the development of the Android platform sina micro-blog, this paper has carried out theoretical research and project development. The main work and research achievements are:

- (1) analyze the Android development platform. This article focuses on the Android application components and the main advantages, and can clearly understand the advantages of Android platform through research.
- (2) introduce the software development process of sina open platform and explain the OAuth certification in detail.
- (3) the demand analysis and function module of micro-blog are discussed, and the detailed realization process of functional modules is given.

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