

Development and Design of the WeChat App "Forager"

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Abstract: With the rise of short videos, food short videos are rapidly capturing market share. As special short video APPs take time to download and occupy mobile phone memory, this paper focuses on the development and design of a WeChat-based applet "Forager". The app takes advantage of the full process coverage of the WeChat Forager tool and the use of the BMOB cloud database to achieve the development of each function. The development and design of "Finder" has unleashed a huge communication effect in meeting the multi-dimensional demands of the audience in terms of knowledge, emotions and values related to food.

1. Introduction

"People are food-oriented", and food short videos have a wider audience than short videos from other industries. The Short Video User Value Research Report 2021 shows that food short videos are in the TOP 10 ranks among the 30 content types involved in this survey. The "Short Video Industry Development Trend in 2022" released by ChinaReport.com in November 2022 points out that short videos are the main tool for people's daily leisure and entertainment, social and information interaction^[1]. Data shows that as of December 2021, there were 934 million short video users in China, with a usage rate of 90.5%. It is expected that by December 2022, the scale of short video users will reach 985 million, and the usage rate will reach 92.4%^[2]. It can be seen that the dividend of food short videos will continue to heat up. At the same time, with the rapid development of the Internet and the popularity of smartphones, various applications and mobile terminals are developing rapidly^[3], it is difficult to ensure the sustainable growth of new users because the installation of APP takes time and takes up mobile phone memory, the cost of customer acquisition has gradually increased, making it difficult to ensure the sustainable growth of new users. In recent years, the gradual popularization of 5G networks, the iteration of mobile phone front-end storage technology, and the maturity of html5 technology have optimized the development of mobile phone software, improved user experience, and also provided a more favorable basis and conditions for the wider development and application of applets. In 2017, applet were highly sought after their official launch. According to the official data of Tencent, as of the first quarter of 2020, the cumulative number of active users of WeChat and applet platforms in the month of consolidation has reached 1202.5 million^[4]. The applet can be used at a lower cost and higher return to realize the flow of cash^[5], and its ready-to-use advantage can avoid the downloading of APP and consuming mobile phone memory. The applet is directly embedded in WeChat, providing users with a more convenient way of operation. The food short video applet

developers use the official WeChat developer tools provided by WeChat to reduce the development difficulty and shorten the development cycle. In this article, we have developed and designed a short video app for food based on the applet - "Forager".

2. Functional Analysis of the System

Users can enter the app via WeChat swipe or search for "Forager". Users who enter the program for the first time need WeChat authorization. After obtaining user information, they can enter the applet to browse and use it. The app is divided into four functional modules.

- Gourmet map module.
- Video classification module.
- Recommended videos module.
- Personal centre module.

On the "Recommend" and "Classification" pages of the applet, users can click on different types of short food videos to likes, gifts, forwarding, comments and other functions. The "Gourmet Map" page requires authorisation for the location function, which allows you to view nearby food merchants on the map and upload self-made food videos to the applet. The "Personal Centre" page contains the user's published videos, my messages, my comments, payment, logging out and other functions. The function module of the applet system is shown in Figure 1.

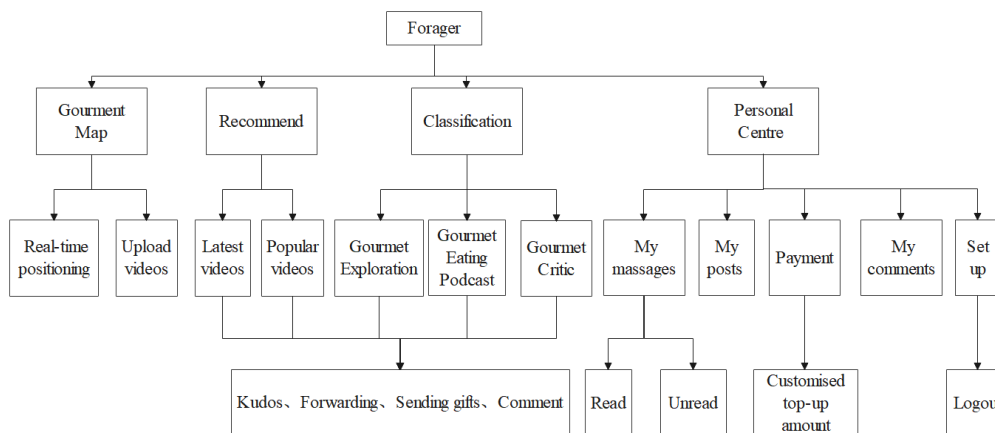


Figure 1: Functional modules of the applet system

3. General Design of the Program

The overall design of the application uses the official WeChat documentation provided by WeChat for developers. This documentation is a reference document for the development framework, rich components and APIs of the app, helping developers to develop services with a native APP experience in WeChat [6]. This WeChat applet uses the MINA framework and BMOB, a new cloud service for data storage, on the server side, and makes full use of the official WeChat documentation in the WeChat Developer Tools for full process coverage of code editing, real-world debugging, effect preview and publishing.

MIAN framework

The MIAN framework is the default application development technology framework of WeChat applet, which is divided into the App Service and the View layer. Developers write interaction logic, network requests, and data processing in the logic layer based on JavaScript [7], and include rich APIs that makes it easy to call user information, payment, sweeps, and other WeChat specific functions. In the view layer, developers use WXML files to build the basic view structure of the

page, and WXSS files to control the presentation style of the page. The core of the MINA framework is a real-time responsive data binding system ^[8], which provides a series of event listening related attributes for page components to bind with the event processing functions in the AppService, to synchronize user interaction data from the page to the AppService layer, and to maintain the synchronous update of the logical layer and the view layer ^[9].

3.1. Design of the User Authorization Login Function

Users who enter the program for the first time will perform WeChat authorisation operation to obtain the user's information. After successful authorisation, the user can browse within the applet. If they exit in a short period of time and request login again, they do not need to authorize again. When the user cancels the authorisation for the program, they cannot log in and return to the parent page.

3.2. Design and Implementation of Real-Time Location Function

After the user has successfully logged in and clicked on the "Gourmet Map" button, the location of the authorised WeChat can present the user with the nearby food merchants, and the user can choose a restaurant to dine at according to the map display.

3.3. User Upload Videos Design

If a user wants to upload the self-made food video in the applet, the correct procedure is to first authorise WeChat login and location information, then click on the "Upload Video" button in the "Gourmet Map" interface, a pop-up will appear to select the upload method. After the video is uploaded, wait for the administrator to approve it. If the upload is approved, the user will be prompted with a successful upload and it will be updated to the cloud for other users to view.

3.4. Sending Gifts Function Design

If a user wants to give a gift for a food video, the user can click into the details page of a food video, click on the option box of "Gift", and then all the gift options will pop up. The user can click on the gift to send, and the prompt box of "the gift has been sent" will pop up on the page. If the account balance is less than the actual balance, the balance will be insufficient. Then the user can enter the "Personal centre" details page and recharge in "Payment". After the recharge is complete, you can enter the details page of a video to send a gift. In this operation, there are two data comparisons: one is the amount of the gift; the other is the user's account balance. This is shown in Figure 2, which shows the sending gift order diagram.

3.5. Forwarding Videos Function Design and Implementation

Users can forward this video to their WeChat friends or circle of friends when browsing food videos, so as to share videos of interest to enhance the interactivity of the applet with other users and achieve growth in the number of users of the applet.

3.6. Database Design

The implementation of the server side of this program is based on the BMOB cloud database provided by Bimu Network Technology Co., Ltd. BMOB cloud database provides integrated back-end cloud services for applet development, greatly improves development efficiency, reduces research and development time and cost, stores a large amount of data, and is easy to add, delete,

modify and query, making background development easier [10]. The program mainly generates the browsing behaviour of users browsing food videos. Browsing videos can query video content. Each video has the time of publishing, publisher ID, video description, video type, title. As shown in Figure 3 user browsing video E-R diagram.

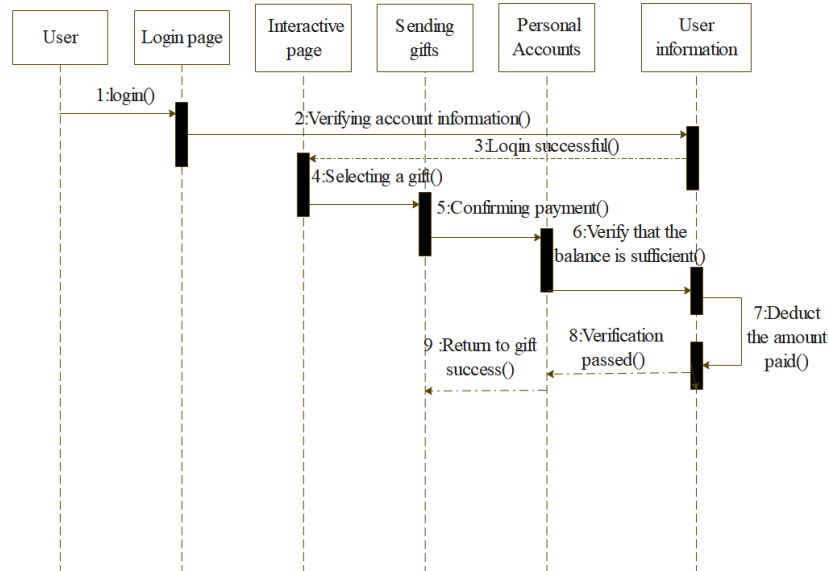


Figure 2: Sending gift order diagram

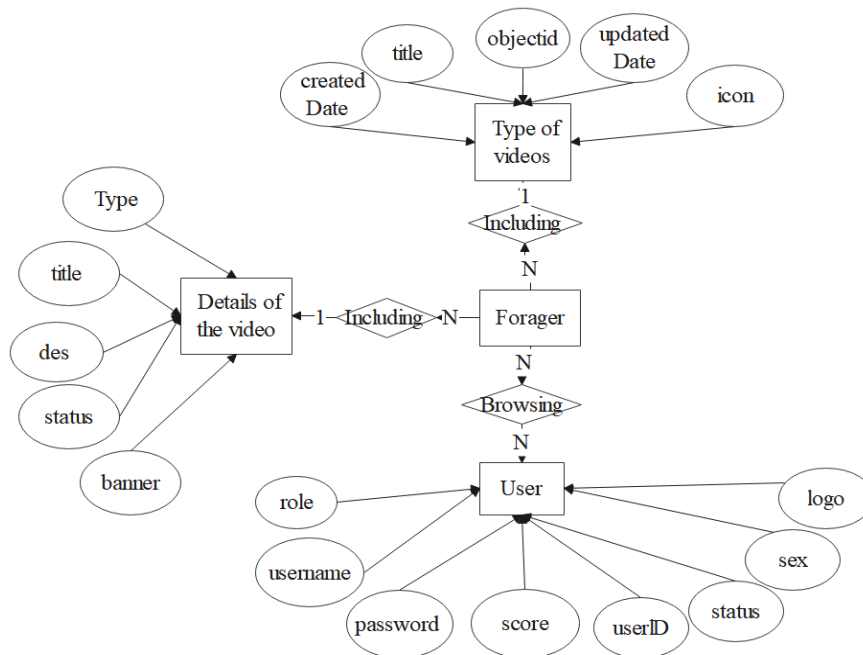


Figure 3: User browsing video E-R diagram

4. Functional Testing of the User Side of the Program

To ensure the quality and reliability of the design and implementation of this applet, functional testing of the system is an essential step to check whether various functions in the system meet the business requirements, whether they can operate normally and achieve the expected results [11].

4.1. User Login Module Testing

This test mainly tests the integrity of the user login and WeChat authorization. The test case is shown in the following table 1.

Table 1: Authorised login test form

Project	Content
Test case ID	T-01
Test case name	WeChat authorized login
Objective	Whether the applet login WeChat authorization is complete
Test case level	Functional test
Test process	1. WeChat scanning code
	2. Confirm authorization pop-up
	3. Consent to authorization
Expected results	1. Login failed because WeChat authorization was not agreed
	2. Agree to authorize, and authorize login successfully
Conclusion	Passed

4.2. Gift Giving Module Test

This test mainly tests whether the gift can be delivered successfully and whether the amount in the account changes. The test case is shown in the following table 2.

Table 2: Gift giving test form

Project	Content
Test case ID	T-02
Test case name	Video gift giving function
Objective	Test gift giving and account amount change statistics
Test case level	Functional test
Test process	1. Click to enter the video details
	2. Click the gift button to pop up the gift option
	3. Choose a gift
	4. The prompt box "Gift has been sent" pops up
	5. Decrease in account amount
Expected results	1. Gifts are sent normally
	2. Decrease in "My" account amount
Conclusion	Passed

4.3. Recharge Module Test

The test mainly tests whether the user can successfully top up the account. The test case is shown in the following table 3.

Table 3: Recharge test table

Project	Content
Test case ID	T-03
Test case name	Recharge amount function
Objective	Test whether the amount can be recharged
Test case level	Functional test
Test process	1. Manually enter/display the amount on the page for recharging
	2. Click the recharge button
	3. A prompt box for successful recharge pops up
	4. Current balance changes
Expected results	Recharge amount is correct The balance of corresponding users in the database is the same
Conclusion	Passed

5. Conclusion

The Forager applet recommends popular short food videos to users to meet their specific browsing needs. The Food Map module serves offline food and beverage shops, displays food near users and provides consumers with more choices, while users can upload their own short food videos to create a personalized creation mode and further promote the personalized services of the applet. The classification module includes three categories: food exploration, food broadcasting and food review, with diversified themes, diversified content and novel forms to meet the audience's differentiated emotional needs. Applets meet the demand of users to "go when you run out". At the same time, with the development of modern science and technology, the diversification of the market, and more needs of users, food short videos are ushering in a new development opportunity.

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