浙江工业大学

本科毕业论文（设计）

开题报告

论文题目：Design and Implementation of Employee Suggestion Management System

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1 Background and Significance of the Topic

1.1 Purpose of Research and Development

Compared with the traditional mobile app, WeChat applet is more convenient, faster, more portable, no need to install, can be opened at will, does not occupy the memory of the mobile phone, and is more convenient to use. At the same time, the development process of WeChat is simpler and cheaper than iOS applications and Android applications. At the same time, the marketing cost of WeChat[1]is also very low, so enterprises of different industries and sizes will have a good market prospect in the development of WeChat ”small programs”. In order to improve the management level and efficiency of employees and reduce enterprise expenses, it is urgent to design and develop a set of software system that meets the actual needs of enterprise management. The construction of ”employee suggestion management system”[2]will effectively promote the management of enterprises.

(1) Improve the quality and efficiency of management.

If there is no employee suggestion management system, it will be difficult for employees to feed back their suggestions to their superiors, and it is difficult for managers to fully understand and grasp the needs of employees and the problems existing in the enterprise. After the establishment of the staff management system, it will be able to provide managers[3]with fast, accurate and comprehensive staff needs and implementation completion.

(2) Provide a window for employees to make suggestions.

There needs to be a window to listen to employees’ suggestions. If the employee suggestion management system[4] is not built, the employees’ demands cannot be explained, which is neither in line with the vested interests of the enterprise nor in line with the needs of the employees, and hinders the enterprise from becoming bigger and stronger. The implementation of employee suggestion management system[5] will greatly improve the management quality and efficiency of the enterprise.

(3) Transparently and publicly show the completion[6] of the proposal to enterprises

The employee suggestion management system can clearly show the completion of

employee suggestions, and can also select the person in charge of the implementation of each suggestion, so as to implement the content of the suggestions, which is conducive[7] to employees' sense of identity and cohesion with the enterprise.

1.2 Research and Development Status at Home and Abroad

In recent years, as a new light and small application, WeChat applet has attracted wide attention in the market, and its specific status has also become a hot topic. During the weak period of the App market, small applications quickly filled the gap of user demand, really connected everything, and pushed the development of light applications to a new stage. At the same time, various industrial sectors[8]around the app have also been built in the process, supporting an ecological network comparable to the App market.

The development of WeChat applets has gained a huge scale in China, and has gradually[9] begun to enter foreign markets, which has brought many developers and businesses[10] considerable economic benefits. What is the status quo of research and development of WeChat applets at home and abroad?

1. Domestic research and development status in China:

WeChat applets have formed an independent development platform in China, which allows developers to develop a series of meaningful applications. Since 2019, the number of WeChat applets developed and operated across the country has increased, especially in the new retail field, which has become a new business model.

2. Current situation of research and development abroad:

In foreign markets, due to the widespread use of WeChat, WeChat applets[11] have also received a lot of attention abroad. At present, countries such as the United Kingdom, Singapore and the United States have included the development of WeChat applets, and WeChat has also announced[9] plans to establish WeChat applets in Hong Kong. However, at present, the development of WeChat applets in foreign countries is still relatively backward, and it still needs more time to promote them in order to truly gain the acceptance of global users.

2 Basic Content and Objectives of Research and Development, and Main Problems or Technical Keys to be Solved

2.1 Research Objectives

On the basis of learning from many cases of WeChat applets, this paper puts forward[12] its own design and implementation. In the current situation where WeChat applets are so widely used, it aims to build a WeChat applets to help enterprise employees

give feedback to their superiors, and enable them to handle suggestions in a timely manner, so that administrators can easily manage background data. The research goal of this topic is to use WeChat developer tools to implement employee suggestion management system.

2.2 Basic Content of the Research

Because of the huge structure of the whole system and the heavy workload of development, the basic content of this study is not oriented to the design and implementation of the whole system. On the contrary, the basic content of this study is to upgrade the employee management module, suggestion management module and background management module[13] in the employee suggestion management system.

The main function of the employee management module is to add the sign-in function and the ability to search for employee names by alphabetic sorting.

The upgrade of the suggestion management module[14] is aimed at the optimization of the suggestion status, comments and content modules.

The main function of the background management module is to conduct more operations based on the best suggestions.

The specific contents of this study include:

(1) Employee Management Module

The main functions of the employee management module are

1. Add sign-in function and sign-in reminder.

2. The personnel of each department shall add a search bar to sort and search according to pinyin;

(2) ”Suggestions” Status Management

1. The suggestions are divided into the following: submission status, implementation status, completion status to be confirmed, 7 days from the planned implementation deadline, and extension status.

2. When applying for extension, add the extension expiration date. Then after one week in this state, it will automatically enter the ”implementation” state.

3. Every step of the status change of the work proposal needs to be notified to the relevant personnel;

4. When the proposed status changes, the system will automatically send a reminder to relevant personnel;

5. When the work proposal is pushed to the ”stage to be implemented”, there must be an implementer;

6. Do not submit suggestions repeatedly within 1 minute.

7. Add the best suggestion type. Once it is classified as the best suggestion in the background, it can be displayed on this page.

(3) "Suggestions" Comment Module

1. The person in charge of each step can send the status back to the previous status and add comments/comments.

2. People in each step of status can see all comments/remarks in this status.

(4) "Suggestions" Content Management

1. When submitting suggestions, employees must upload multiple photos, and the system must allow them to be viewed by sliding left and right;

2. The implementer can upload photos to support the proposed implementation.

(5) Background Management Module

1. Reminder content can be customized in the background;

2. In the report pulled out from the background, it is necessary to include suggestions[15] in all statuses (if it is construction return now, it is in the status of pending approval and cannot appear in the report);

3. When a suggestion is selected as the best suggestion, the display of the suggestion needs to be different from other suggestions, or a column of display content is added, and the comments are the best suggestions. (At present, even if washing is the best suggestion, it is no different from other suggestions);

4. When selecting the best suggestion in the background, you need to add (the best suggestion type, year and month options), and you can pull out the best suggestion report separately;

5. Add the information notification function, that is, input the notification content later and send it to all users in groups).

6. The main color of the interface is changed to Cytiva green.

2.3 Technical Difficulties to be Solved

1. Integrated use of WXML, WXSS and JavaScript languages.

3 Research and Development Methods, Technical Routes and Steps

(1) System Platform: Microsoft Windows 10

(2) System Architecture: B/S Architecture

Browser/Server Architecture is a common software architecture. It is a change or improvement of the C/S structure with the rise of Internet technology. It uses browsers and servers to build Web applications. Users can connect and browse the content on the server through browsers.

The B/S architecture can be used to implement many common Web applications. It enables communication between servers and applications to provide functions and content provided on servers. Some applications (such as databases and website management programs) are running on the server. The browser is only a window through which users can view the functions and contents provided on the server.

Advantages of B/S architecture:

1. Allows users to use Web applications to browse the content on the network at a faster speed;

2. You can access the server directly through the browser

3. It can save the time and cost of installing, updating and maintaining the program;

4. Make network development easier and deploy Web applications faster and more accurately;

5. Content and applications can be shared between different browsers and operating systems;

6. It can effectively improve network security;

7. It can reduce the delay of accessing the server;

8. It can save cloud computing resources, such as bandwidth and network traffic;

9. It can load websites faster and improve user experience.

(3) Programming Languages: WXML, WXSS, and JavaScript

WXML (WeiXin Markup Language) is a markup language, similar to HTML, used to define[16] the layout and components of applets. WXML uses labels to represent components and attributes to set the style and behavior of components. For example, you can use the<view>tag to represent a container component, and use the class attribute to specify the style class name of the component.

WXSS (WeiXin Style Sheets) is a style sheet language, similar to CSS, used to add styles to the layout and components of applets. WXSS uses selectors to match components, and uses declarations to set the style properties of components. For example, you can use the. red-text selector to match all components[17]with red-text class names, and use color: red; Declare to set the text color to red.

JavaScript (”JS” for short) is a lightweight, interpretive or instant-compiled programming language with function priority. Although it is famous as a script language[18] for developing Web pages, it is also used in many non-browser environments, such as in conjunction with WeChat applet development. JavaScript is a dynamic script language based on prototype programming and multiple paradigms, and supports object-oriented, imperative, declarative and functional programming paradigms.

(4) Architecture Used: MVVM

MVVM (Model View View Model) is an improved version of MVC (Model View Controller). Model represents the data analysis model, in which you can define the service logic for data analysis, while View represents the UI (user interface) module, which can convert the data analysis model into an interface for display. The main function[19] of ViewModel is to synchronize the process objects of View and Model. MVVM is a framework for building complex applications and interfaces in a complex user interface development environment. It combines UI and application logic, making it easier for developers to build reusable high-performance models and interfaces.

MVVM features:

1. Support MVC mode:

MVVM supports MVC mode, which separates model, view and controller, thus making UI extensible, maintainable and testable.

2. Easy programming:

MVVM makes programming easier because it introduces more advanced data binding and instruction technology, and allows the use of third-party frameworks and tools to complete tasks.

3. Modularization:

MVVM's modular feature enables the view to be divided into multiple modules, so developers can modify and reuse modules more easily, thus reducing development time and reconstruction costs.

4. Decoupling:

MVVM decouples the business logic and UI, making the UI more concise and testable, and can use the same technology on different platforms.

In short, MVVM is a powerful framework. It supports MVC mode, makes development easier, supports modularization and decoupling, and makes the whole application more concise, extensible and reusable.

(5) Server Software: Tomcat

Tomcat server is a free and open source Web application server, belonging to lightweight application server. It is widely used in small and medium-sized systems and where there are not many concurrent users, and is the first choice for developing and debugging JSP programs. Because Tomcat is advanced in technology, stable in performance, and free, it is deeply loved by Java enthusiasts and recognized by some software developers, becoming a popular Web application server.

(6) System Development Tool: WeChat Developer Tool

With the rapid development of mobile internet, WeChat is the most popular application on smart phones. WeChat developer tools are constantly developing and improving, and become an important tool for more and more developers and enterprises to realize rapid application development.

WeChat developer tool is a powerful mobile application development platform launched by WeChat company, mainly for WeChat applet development. It not only includes the development and compilation environment for the front-end development of the applet, but also provides the visual page editing function, as well as the component library[20] and API documents and other resources, which can help the developer to quickly complete the development and release of the applet, and can also provide the developer with data analysis, intelligent debugging and other utility tools, which is convenient for the developer to debug and optimize the applet, and also allows the developer to timely feedback problems during the use process, Continuously improve and optimize the product to improve the user experience of the applet. At the same time, the WeChat developer tool can also manage the applet code, support the multi-terminal debugging of the applet, and release the applet with one click, making it easier for developers to develop and launch the applet.

WeChat developer tool is based on nw.js. It uses node.js, chrome and system API to implement the underlying modules, and uses front-end technical frameworks such as React and Redux to build the user interaction layer, so as to realize the use of the same set of code across Mac and Windows platforms.

(7) Database Software: MySQL

MySQL is a relational database management system. The relational database stores data in different tables instead of putting all data in a large warehouse, which increases speed and flexibility.

4 Overall Arrangement and Schedule of Research Work

Table 1: Paper work arrangement

任务序号	起始时间	阶段任务要点
1	2023.1.20-2023.2.10	了解课题相关内容，查找中、英文资料
2	2023.2.11-2023.2.27	查阅文献资料，完成文献综述、开题报告和外文翻译
3	2023.3.1-2023.3.10	学习微信开发者工具的使用和相关技术
4	2023.3.11-2023.3.21	进行系统的设计
5	2023.3.22-2023.4.30	进行系统的开发
6	2023.5.1-2023.5.10	进行系统的测试
7	2023.5.11-2023.5.20	整理资料，完成毕业论文
8	2023.5.21-2023.6.10	上交毕业论文，准备毕业答辩

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