

# Design of "Miao Housekeeper" App based on Android Platform

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## Abstract

"To protect the ecological environment is to protect the productive forces, and to improve the ecological environment is to develop the productive forces," Xi said during a visit to Hainan. Seedling provides a strong support for urban green ecology, and the seedling information management App can promote the planned, organized and effective use of seedling information resources. After feasibility analysis and demand analysis, this project has designed function modules such as login, registration, release of supply or demand information, management of release information, etc. The system has a friendly interface and is easy to operate and easy to use, providing a useful reference for the future development of formal nursery information sharing app.

## Keywords

Information management; Seedlings; Android.

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## 1. Introduction

The progress of science and technology constantly promotes the development of social information, and smart phone is undoubtedly one of the important tools. According to the latest mobile phone tracking report released by INTERNATIONAL Data Corporation (IDC), the shipments of Chinese smart phone market in 2019 were about 370 million, and the number of Chinese smart phone users is still increasing [1]. The increasing number of third-party service providers and developers also makes more and more services provided by smart phones. In the seedling industry, because of the particularity of seedling commodities, it is more difficult to obtain the information of seedling commodities than ordinary commodities, so the management of seedling supply information and demand information is particularly important. Obtaining information on the supply and demand of seedlings is of great help in promoting the trade of seedlings. For this reason, the information management system of seedlings provides a platform for the suppliers and buyers of seedlings information management, to help the suppliers and customers of seedlings more convenient access to a variety of supply and demand information.

As a commodity, seedling has its particularity. It is different from ordinary commodities and cannot be purchased directly in the store or market. Basically, all seedling commodities are in the soil, which increases the difficulty for buyers to find sources of supply. For suppliers, the demand for seedlings is to do the greening site, the site is also not fixed, changing at any time, which also increases the difficulty for suppliers to find customers.

The traditional way of trading seedlings is that the suppliers take their samples to the seedling market for display, and then the buyers of seedlings will come to the market to look at the samples, select the appropriate seedlings and then communicate with the suppliers. This traditional way of trading has many disadvantages. First of all, there are few seedling markets and limited opening hours.

Secondly, in addition to small and medium-sized seedlings, some large seedlings are difficult to bring goods to the market, the demander can only find suppliers, and then go to see the goods, the whole process is very cumbersome and consumes a lot of time. Now is the Internet era, a lot of things can be solved through the Internet, so the emergence of the supply of seedlings on the Internet and find

seedlings related demand information, further design of seedlings information management client idea.

## **2. Research status**

### **2.1 Development status of Android**

The design of the seedling information management platform client is based on the Android platform. At present, the two mainstream mobile operating systems in the smartphone operating system market are Android and iOS. iOS has many advantages. Its combination of software and hardware, integrated app store, high fluency and security bring users a good experience. However, with the development of Android, the gap between Android and iOS in this aspect was very small after the introduction of Android 4.1. In addition, Android's biggest advantage over closed iOS should be its openness. Open source code base, free development software, community and third-party open source sharing have brought it a large number of developers and users, making Android easily and quickly cover the middle and low-end market of mobile devices, not only the mobile market, but also rapidly expand in smart home, car navigation, smart watch and other fields.

### **2.2 Development of the seedling industry**

With the sustained, rapid and healthy development of China's economy and the acceleration of urban construction, the demand for urban greening tree species is becoming higher and higher, and the demand for seedlings is also increasing. In recent years, with the enhancement of China's economic strength and the continuous development of economic construction, the process of social urbanization is also constantly promoted. In this context, according to the national urban planning policy, local governments pay more attention to the coverage rate of landscaping and greening when carrying out urban construction. At the same time, with the development of economy, people's living standards are also improving, and the requirements for living environment are constantly rising, which stimulates the greening construction of real estate, which creates favorable conditions and background for the development of the seedling industry.

### **2.3 Development of seedling information management platform**

At present, the number of seedling information management platforms available on the Internet is very small. Platforms for information management about seedlings have a high proportion of websites, compared with fewer clients on smartphones. Most of these platforms are e-commerce platforms, not information management platforms. Although e-commerce platforms can meet the needs of customers and merchants, for merchants, the purchasing power of seedlings is in the hands of buyers and suppliers are passive. The seedling information management platform solves this problem. For the buyers of seedlings, they can publish the demand information of seedlings on the seedling information management platform, or search and check the supply information of seedlings, so as to select the appropriate supplier. For the suppliers of seedlings, they can release supply information on the seedling information management platform, search and check the demand information of seedlings, contact the buyers of seedlings, and actively promote their own seedlings. Both the purchaser and the supplier of seedlings can take the initiative, increase the contact between the supplier and the purchaser of seedlings, it will be easier to promote the transaction of seedlings, improve the transaction success rate of seedlings.

In the current mobile application market, seedling information management platform can be found very few, "Seedling treasure" is one of them. Miao miao bao has complete functions. Users can view all kinds of miao miao knowledge and release the supply and demand information of miao miao on this platform, which is similar to WeChat circle of friends. In addition, users can also communicate with other users in the industry on this platform. Although there is such a seedling information management client in the market at present, according to the field investigation, the suppliers and some buyers in the surrounding market of seedlings do not use such software, and the use scope and users of apps such as Seedling Treasure are very few in the surrounding area. Secondly, since the

supplier integrity information sharing mechanism and expert sharing mechanism have not been established [2], they want to independently design an Android-based seedling information management platform to realize the intelligence of nursery resources [3].

### 3. System requirement analysis

#### 3.1 Functional requirement analysis

Karl E. Wiegers[4] understood requirements as the conditions that a product must have in order to provide value to stakeholders. Product is designed to provide convenience to users, when the product does not fit with the user, should find problems from the aspects of the design of the product [5], nursery stock information management platform based on the Android system starting from the character design, the whole system could be divided into three types of user roles, respectively is ordinary users (visitors), members and administrators. The following analyzes the functional requirements from the perspective of user roles.

##### 3.1.1 The average user

Role description: Users who are not registered as members.

Functional requirements:

- (1) Check the knowledge of nursery stock, check the cultivation knowledge of nursery stock.
- (2) Search the knowledge of seedling cultivation.
- (3) Check seedling news and information.
- (4) Check the released supply and demand information (only see the name, size and quantity of the seedlings, not the details).
- (5) Search supply and demand information.

##### 3.1.2 members

Role description: Registered regular users.

Functional requirements:

- (1) It has the functions of ordinary users.
- (2) Login client.
- (3) Fill in supply and demand information.
- (4) To view the supply and demand information, you can view the details (including contact information and address).
- (5) Manage the supply and demand information filled in by myself (check and delete).

##### 3.1.3 administrator

Role description: System manager.

Functional requirements: Ability to manage.

- (1) Management of seedling knowledge (view, add, delete).
- (2) Manage cultivation knowledge (view, add, delete).
- (3) Manage seedling news information (view, add and delete).

#### 3.2 Performance requirements analysis

According to the above functional analysis, performance requirements analysis can be considered from the perspective of user convenience and system reliability.

A good user experience has the following aspects:

- (1) friendly interface: human-computer interaction interface, it is the interaction between the user and the machine and the information exchange medium [6], mobile phone interface design should take the user as the center, according to user's cognitive characteristics and habits to carry on the design of [7], users in the use of miao, housekeeper client is the user interface to clean and tidy, function

module is simple and clear, easy to use a variety of functions, and meet the needs of most users on UI design aesthetic.

(2) Practicality: Consider the performance requirements of the software from the actual needs of users, respond quickly to users' operations, and improve the use efficiency.

#### 4. Design of main functional modules

##### 4.1 Login registration module

Login and registration is a mechanism to distinguish between ordinary users and members. Only after the successful registration of ordinary users can they become members, and only after the successful registration can they perform operations such as filling in the supply information, checking the details of supply and demand information, and managing the supply and demand information, etc. The registration interface consists of several text boxes and two buttons. Click the registration button to submit registration information, and click the back button to return to the login page.

To register, you need to fill in your personal information, and the second time you are asked to input your password is to ensure that the two passwords are the same, which is more considerate to users and will not make mistakes. After registration, you can enter the login page to log in. You only need to enter the user name and password. You don't need to enter other user information. The logon registration flowchart is shown in Figure 1. After successful login, the login icon of the user page will change, and the user name will be displayed. Click the login exit of the user page to restore the status of not logged in, and the user name and icon will also be displayed by default.

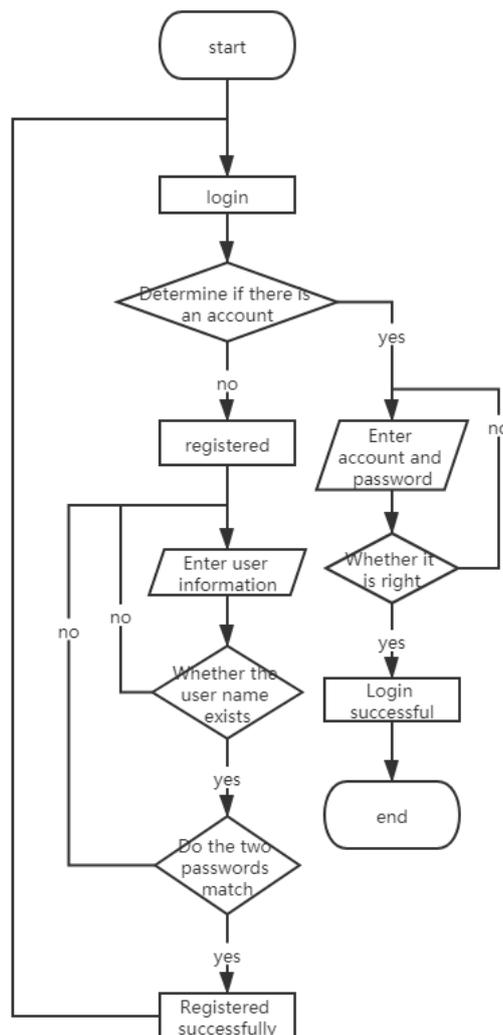
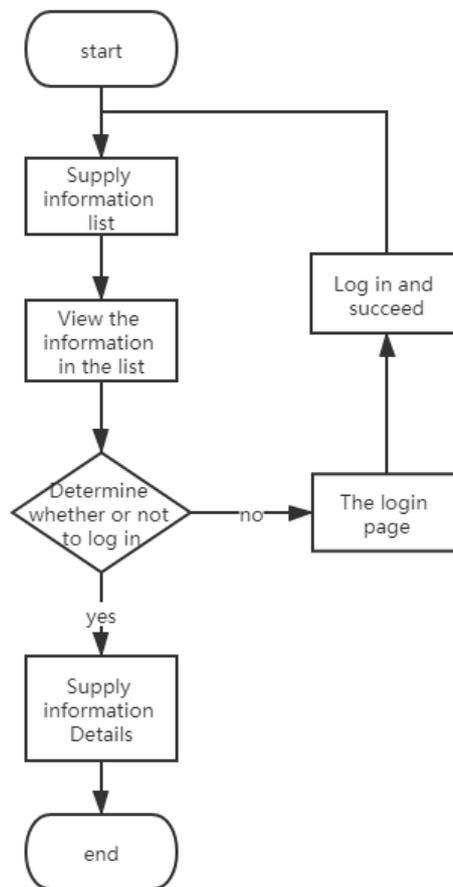


Figure 1. Logon registration flowchart

**4.2 View the seedling knowledge cultivation and supply and demand information module**

The seedling butler classified and managed the seedling knowledge, cultivation knowledge, supply information and demand information, respectively corresponding to the seedling knowledge icon, cultivation knowledge icon, supply information icon and demand information icon on the home page. Click the icon of seedling knowledge, then go to the seedling knowledge list page, and the seedling name is displayed in the seedling knowledge list. Click on any plant knowledge in the plant information list and go to the plant details page. Check the operation of cultivation knowledge, supply information and demand information as well as seedling knowledge. Click the icon of corresponding information to enter the corresponding page. Supply information and demand information details can only be viewed after logging in. View the flow chart of supply information as shown in Figure 2.



**Figure 2.** shows the flow chart of the supply information

**4.3 Search module**

In order to manage seedling knowledge, cultivation knowledge, supply information and demand information more efficiently, it is a good solution to find target information through searching. Seedling and cultivation knowledge search button at the top of the page, click on the search button, will turn to the search of seedling and cultivation knowledge search page, enter a keyword in the search box, case insensitive keywords in both Chinese and English letters, input lowercase, still search the results of the case, no input any characters in the input box, click search nursery stock of knowledge, is the result of the following list shows all the knowledge of nursery stock, click search cultivation knowledge, displays all the cultural knowledge. Enter the key word in the input box, click the button to search seedling knowledge, and the list of seedling knowledge containing the key word will appear. Click the button to search cultivation knowledge, and the list of cultivation knowledge containing the key word will appear.

Search for supply information and demand information on the supply information page and the demand information page respectively. The supply information page consists of a search box, a search button, and a supply information list. The supply list displays all the supply information by default. Enter the keyword in the search box, click the search button, and the supply list displays the results containing the keyword. The search for demand information is similar to the search for supply information, which is also by entering keywords in the search box of the demand information page. The flow chart of search supply information is shown in Figure 3.

**4.4 Fill in the supply and demand information module**

Members can fill in the supply and demand information of seedlings and post it on the supply and demand pages of the client.

Click to fill in the supply information on the user page, and enter the fill in the supply information page. Confirmed by the input box and fill in the supply information page, cancellation of two button, fill in the information supply needs to operate only after the login, after entering fill in the information page, the specifications of the need to fill in the name of seedling, seedling size, the number of nursery stock, contact number, address, in which each can not empty, empty, a reminder. The completed and confirmed supply information is stored in the database and displayed on the supply page. The operation of filling in the demand information is the same as that of filling in the supply information. Click to fill in the demand information. Fill in the flow chart of supply information as shown in Figure 4.

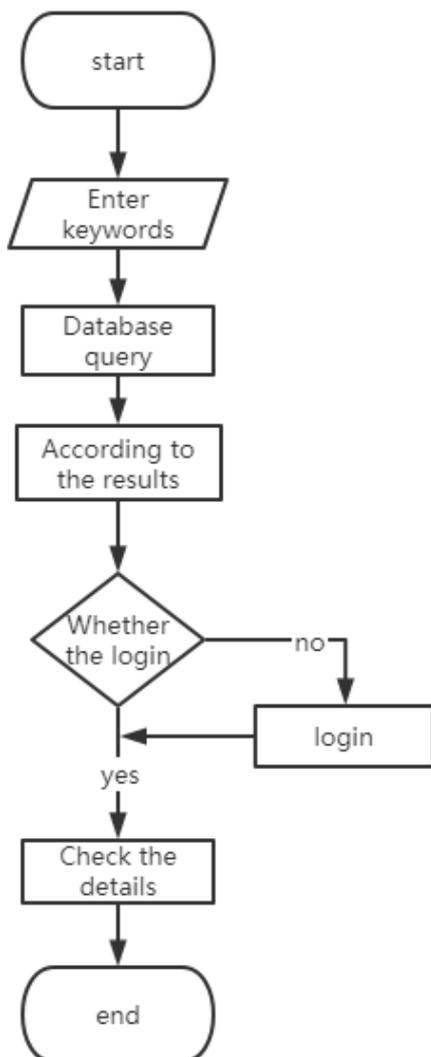


Figure 3. Query flow chart

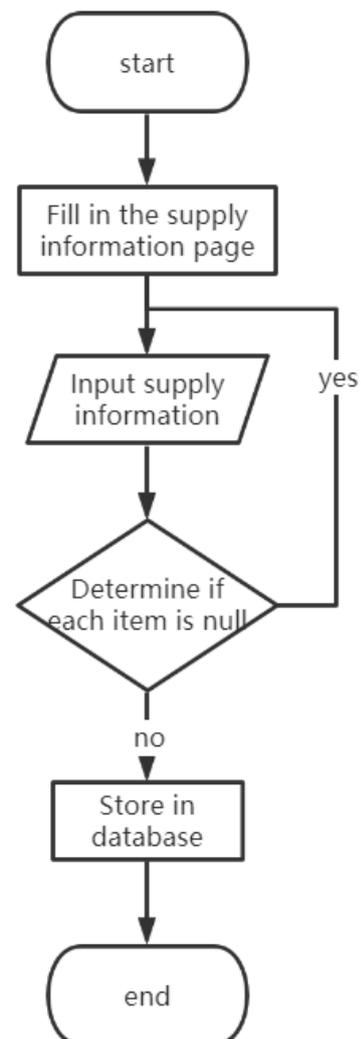


Figure4. fill in the flow chart of supply information

## 5. Conclusion

The widespread popularity of smart phones depends on the rapid development of information technology. With the development and improvement of smartphone chips, the processing power of smart phones is getting stronger day by day. With the increasing number of third-party service providers and developers, smart phones provide more and more services, which can do everything from satisfying People's Daily life to satisfying people's entertainment needs. Smart phone has gradually become a new interface of the Internet, connecting the information world as deep as the sea, becoming a new platform for information services and a transportation hub connecting Internet resources.

In all walks of life, there are their own information management platform. In the seedling industry, because of the particularity of seedling commodities, it is more difficult to obtain the information of seedling commodities than ordinary commodities, so the management of seedling supply information and demand information is particularly important.

Obtaining information on the supply and demand of seedlings is of great help in promoting the trade of seedlings. For this reason, the information management system of seedlings provides a platform for the suppliers and buyers of seedlings information management, to help the suppliers and customers of seedlings more convenient access to a variety of supply and demand information.

The current Android development trend and the prospect of the seedling industry provide a good market environment for the Seedling butler client. Starting from the seedling, this paper designs a seedling information management system, which can enable users to find the information related to the seedling on Android phones and realize the release of seedling supply and demand information and other functions.

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