# Design of Flower Trading Application Software Based on Cloud Computing to Solve the Problem of Manual Information Entry

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**Abstract.** With the progress of science and technology and the improvement of traffic levels, China's flower industry has entered an era of rapid development. However, there are still some problems to be solved in the flower supply chain, among which the tedious process and slow information processing will affect the quality of flowers. The design of flower trading application software based on cloud computing proposed in this paper can solve the problems of low efficiency and high error rate in the process of filling in the flower trading order note manually, and the application of cloud computing can improve the speed of information processing, simplify the trading process to the greatest extent and ensure the quality of flowers.

**Keywords:** Cloud computing · Trading application software · Supply chain

## 1 Introduction

With the development of China's economy, people's living standards have been significantly improved; people no longer only pay attention to the satisfaction of material life but also pay more attention to the sufficiency of the spiritual world. Flowers, not only as a symbol of beauty but also as an expression of emotion, are becoming more and more common in our daily life. With the growth of people's demand for flowers, enterprises in the flower supply chain should strive to improve their products or services to meet people's higher requirements, for example, to ensure good quality of flowers, quick supply of flowers, and convenient purchasing methods. In 2017, China became the world's largest flower production center with the largest flower planting area, as well as an important flower consumption and import and export country [1].

Nowadays, Yunnan has developed into one of the three emerging flower-producing areas globally and the second-largest fresh-cut flower trading center in the world, with a domestic market share of about 70% [2]. Although the planting technology in Yunnan flower producing areas has been relatively advanced, there are still many problems in the supply chain of the flower industry, such as low quality of flower products due to backward logistics technology, high cost of cold chain transportation [3], and imperfect supply chain structure. The imperfect structure of the supply chain is mainly reflected

in the imbalance of all links in the supply chain; that is, in the process of flowers from production to consumption, some links do not have a value-added effect and may bring many disadvantages [4]. Through the study, we found that cumbersome transaction processes and slow information processing speed not only cannot increase the value of flowers but also may lead to the decline of flower quality. For example, manual input of flower transaction information is inefficient, and the error rate is high. Therefore, this paper designs a flower trading software based on cloud computing, which can not only simplify the traditional trading process now applied and remove the link of manual input information but also quickly process all kinds of information about flowers. Through the application of this software, the supply chain of the flower industry is more perfect, the statistics of information flow in the supply chain is more convenient, remove redundant processes, reduce the use of manual labor, improve the efficiency of the flower industry, and then improve the profit of the flower industry.

In recent years, cloud computing has been widely used in all walks of life in China. Cloud computing is a distributed computing, which can decompose data processing programs into multiple servers for processing by using the Internet, and then synthesize the processing results and return them to users. Through the cloud computing technology, we can complete the centralized processing of the required targets in a short time, and further achieve the powerful output effect of the network [5]. Cloud computing has many characteristics, such as virtualization, high flexibility, scalability and strong reliability. The software designed in this paper applies cloud computing to deal with flower trading information, which not only simplifies the trading process but also makes the information storage more orderly and efficient.

Under the above research background, this paper analyzes the application of flower trading application software and the operation process and deficiency of the flower trading market and puts forward a solution based on the above analysis, namely the flower trading application software based on cloud computing. In this scheme, we first introduced the function of the application software in the three different trade links and then elaborated the application software function, the necessity of using the application software, and the advantages of the application software. Finally, we summarize the whole paper and think that the application software can effectively solve the problems of low efficiency of information processing and high error rate in the current flower trading market.

## 2   Current Situation

### 2.1   Research Status of Flower Trading Application Software

In recent years, although people in the flower industry or some scholars have found some problems existing in the flower trading market, such as cumbersome transaction processes and chaotic flower information, there are few literature about the design of flower trading application software. Ye Huiling [1] designed an application software for flower merchants and customers in Zhangzhou city, which can be used in wholesale, retail, and packaging of flowers. This software effectively integrates local flower resources, reduces sales cost, and saves transaction time. The interface function module of this application software consists of shopping places, payment management, and delivery

management, while commodity management needs to be modified by managers in the background. Dong Ling [6] analyzed the supply chain structure of the Yunnan flower industry and proposed a supply chain structure with the online trading platform as the core. Through the application of the online trading platform, the trading activities of the supply and demand parties become more convenient, and the transaction cost is reduced to a large extent. However, the trading platform is based on industry associations or existing flower shops rather than an independent trading platform. Sun Haifang [7] designed an application software of flower recognition based on the Android system, which can accurately recognize the photographed flower pictures, and also has the functions of user communication and flower knowledge learning. Jiao Hejun, Sun Li, and others [8] put forward a management service system of flower information based on Web application technology, which realized data sharing. Like the application software for flower merchants and customers in Zhangzhou city mentioned above, the platform page is aimed at consumers, and commodity management needs to be operated in the background.

### 2.2 Present Situation of Flower Market Trade

#### 2.2.1 Flower Trade Link

There are four main trade links in the flower market, as shown in Fig. 1.

The first trade link: the vendor, that is, the origin of flowers, such as flower farmers' homes, flower planting bases, flower cooperatives, etc., supplies to wholesalers in the origin, such as wholesale markets in the origin, flower auction centers, etc. After the vendor sends the flowers to the wholesaler in the place of origin, the quality inspectors of the wholesaler in the place of origin grade the flowers of different varieties and registers the graded flowers of different varieties by manually filling in the flower trading order note, and then puts them in storage.

The second trade link: many flowers are purchased from wholesalers at the place of origin to wholesalers at the place of sale. The wholesaler at the place of sale also provides the wholesaler at the place of origin with information on the type, quantity, and quality of flowers to be purchased. Then the wholesaler of the place of origin will supply flowers according to the order note required by the wholesaler of the place of sale.

The third trade link: The retailer of the place of sale undertakes to replenish stock to the wholesaler. Similarly, it will be submitted to the wholesaler at the place of sale after filling out the order note, and the wholesaler will supply it according to the demand on the order note.

The fourth trade link: the retailer at the place of sale directly sells flowers to the end consumers [9].

#### 2.2.2 Disadvantages in the Present Trading Process

By observing the above trade links, we can easily find that these trade links need to fill in the order note manually to record the information. This not only causes a lot of labor waste but also makes flowers have to stay for a long time in every trade link, waiting for the handover confirmation between buyers and sellers. Eventually, it may lead to serious consequences, such as flower quality decline or damage. It makes the operation
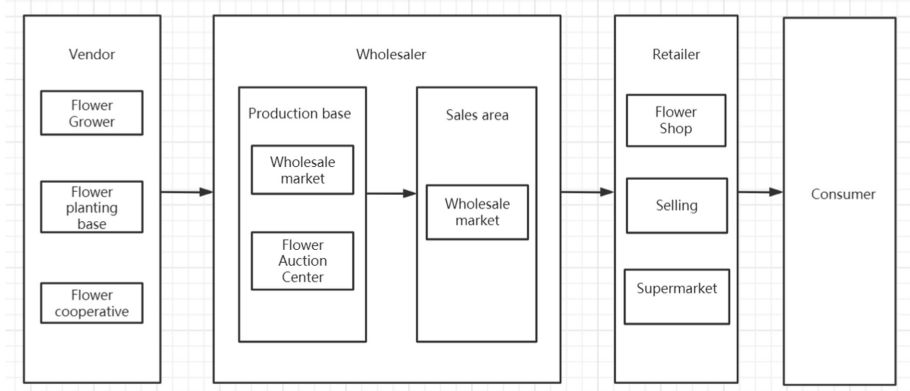
**Fig. 1.** Analysis of current flower trade

efficiency of the whole trade link low and increases the operation cost, which is not conducive to the development of the flower industry.

Secondly, when wholesalers purchase flowers, they may be different from vendors in terms of the appearance and pricing of flowers, and they spend a lot of time looking for suitable vendors. Vendors also have the situation that wholesalers depress prices through defective flowers, which leads to losses for vendors.

## 3   The Proposed Solutions

### 3.1   Solution of Flower Trading Application Software Based on Cloud Computing

Given the current lengthy flower market transaction process, we believe that the disadvantages of the first three trading links mentioned above can be solved by designing targeted, professional, and diversified flower trading application software based on cloud computing among different trading links. By directly uploading the relevant flower trading information in the application software, each trading link does not need to fill manually in the paper flower trading order to improve the efficiency of flower trading and reduce the possible mistakes in the trading link. At the same time, the flower trading application software based on cloud computing has the advantages of fast processing and integration of information, so that buyers and sellers in each link can get sufficient, accurate, true, and effective information in time, so that improve the circulation efficiency of flowers and the utilization of resources.

#### 3.1.1   The Function of Flower Trading Application Software Based on Cloud Computing in the First Trade Link

The buying and selling behavior in this link occurs between flower vendors and the wholesaler in the place of origin. For the establishment of the platform, firstly, flower vendors can register with the application software and upload photos and basic information of the flowers they sell on the platform, including flower types, flower names, flower

grades, flower colors, flower specifications, and flower prices, as shown in Fig. 3. Then the staff of flower trading software can check and review the photos and information uploaded by flower suppliers through the background of the software. Only after the approval, the information will be displayed to wholesalers at the end of the sale. At this time, wholesalers can know the relevant information of flowers on the platform. For flowers that fail the platform review, the information will not be released to the platform at the first time. Still, feedback will be given to the flower vendors to explain the reasons for the failure and make them upload the information again or modify the information as shown in Fig. 4. Wholesalers can log in to the application software, filter the information of flowers in the sale that has been integrated by the platform, and quickly and accurately find the flowers they want to purchase. Wholesalers can also publish the purchase information, so that vendors meeting the purchase requirements can contact them actively, thus realizing quick purchase, as shown in Fig. 5. Figure 2 shows the application process.

### 3.1.2 The Function of Flower Trading Application Software Based on Cloud Computing in the Second Trade Link

The buying and selling behavior in this link mainly occurs between the wholesalers in the place of origin and the wholesalers in the place of sale. Wholesalers of origin can upload the information of flowers they sell in the application software, including the origin, species, names, grades, colors, specifications, and prices of flowers. Wholesalers at the place of sale can log in to the platform, select the integrated, effective information through the platform, and purchase the flowers they want in time. In addition, wholesalers at the
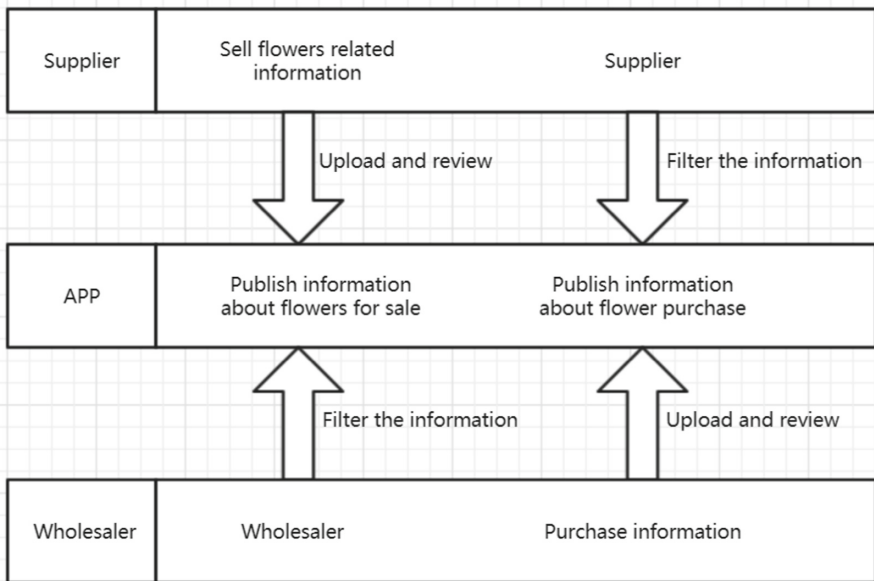


**Fig. 2.** Application process

**Fig. 3.** Application interface of flower review (step 1)



**Fig. 4.** Application interface of flower review (step 2)

**Fig. 5.** Application interface of quick purchase

place of sale can also publish their purchase information on the application software, and both parties can freely choose suitable trading partners.

### 3.1.3 The Function of Flower Trading Application Software Based on Cloud Computing in the Third Trade Link

The buying and selling behavior in this link mainly occurs between wholesalers and retailers in the place of sale. Wholesalers upload their flower information on the application software, and retailers can also publish their purchase information on the application software, and both parties can make free choices.

## 3.2 The Role of Flower Trading Application Software Based on Cloud Computing

### 3.2.1 Service Function

The application software can replace filling in paper flower trading orders manually, thus reducing the workload of buyers and sellers in the trading process, and also enabling buyers and sellers to achieve direct and effective communication through the platform.

### 3.2.2 Media Function

The flower trading application software based on cloud computing provides a trading platform for buyers and sellers, making the trading process more convenient and quick.

### 3.2.3 The Integration of Information

The flower trading application software based on cloud computing has the advantage of fast processing and integrating information. Cloud computing can quickly process and integrate the miscellaneous and numerous flower information uploaded from different regions, providing the optimal market information for suppliers or wholesalers.

## 3.3 The Necessity of Building Flower Trading Application Software Based on Cloud Computing

Under the background of the "Internet+" flower industry, flower trading application software based on cloud computing is an important measure to promote the development of the flower market. Using flower trading software based on cloud computing to replace filling in paper flower trading orders manually can reduce the workload and waste of time in the trading process, thus improving the trading efficiency. The ability of cloud computing to process and integrate information quickly allows buyers and sellers to get more information through the application than just a few established suppliers or wholesalers. The widening of trading channels not only solves the problem of selling flowers to the seller but also provides a convenient way for the buyer to buy, thus fully stimulating the vitality of the market, reducing the burden on both sides and increasing income, and promoting social and economic development. Therefore, it is necessary to develop flower trading application software based on cloud computing.

## 3.4 Advantages of Flower Trading Application Software Based on Cloud Computing

Through the establishment of flower trading application software based on cloud computing, the information of flower market sales can be effectively integrated, and the information of different flowers can be displayed in the application software, as shown in Fig. 6. Flowers sold by vendors can be quickly and fairly audited by the application software, and the information they sell can be published on the application software, which improves the sales efficiency, avoids the possibility of being depressed by wholesalers, and protects their interests. Two-way publishing of information can make buyers and sellers find suitable trading partners quickly. After making information transparent, the operational efficiency of both parties can be effectively improved. In addition, all the processes mentioned in the above links can be completed by application software, and there is no need to record the information related to flowers by manually filling in the order note like the traditional method and then input the information into the database of the computer for storage. The application software can provide vendors with electronic documents that facilitate the vendors to store useful information directly into their databases. In this way, the labor cost is greatly reduced, the operation efficiency is improved, and the time is saved.

**Fig. 6.** Application interface of the flower market

## 4  Conclusion

With the development of logistics technology and equipment, the transportation capacity of the flower industry has high timeliness. However, in the process of transaction, both parties may have differences in the quality of flowers, and enterprises have low efficiency in entering transaction information, which affects the quality of flowers. Therefore, an urgent problem to be solved in China's flower market is the problem of information, which requires a lot of manual input into the enterprise's information system, resulting in low efficiency and high error rate. The application software of flower trading based on cloud computing proposed in this paper can unify both parties to identify the quality of flowers in advance and trade directly on the software. After the buyer confirms the purchase order from the application software to the seller, the enterprise can directly store the details of the order transaction in their information system. Thus, the link of manual

entry of transaction information is reduced, and the efficiency of flower transactions is greatly improved.

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