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Auction system based on Java language

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***Abstract*—In the past a period of time, we use the Java language wrote a auction system, the whole auction system involves the following Java technology: a graphical user interface, the use of each container components, use of layout, and beautify the window, the use of the event listener, connect to the database, query the database, input data, multi-thread parallel, thread to sleep, thread synchronization locks, sending and receiving packets. Next we will introduce the development process of the system.**

Keywords—Java, Socket, App, Thread, SQL, Event listeners, Databse.

I. INTRODUCTION

Computer network opens up new space for business activities, provides new means, and at the same time provides more opportunities for the company's business development, which makes computer network become the trend of modern business. Online shopping is a new mode of e-commerce based on electronic network technology. The marketplace becomes a website where the sellers and auctioneers' responsibilities are fulfilled by the website's procedures. This transaction mode greatly improves the efficiency, reduces the transaction cost, and enables the sale and auction of small commodities.

Traditional shopping and auction is a form of transaction in which sellers sell goods to consumers or the bidder with the highest bid through open bidding. Due to the restrictions of geographical location, physical space and means of communication, traditional buying and selling auction has limited number of traders and low efficiency of manual operation. The automation and spatial extensibility of e-commerce provide a new development space for traditional purchase transactions. Through the electronic auction platform, a large number of widely distributed traders can conduct zero-distance communication and commodity trading on the Internet, so as to achieve the purpose of unimpeded information, expanding the market and reasonable allocation of resources.

Therefore, we have developed an auction system, which is a mobile terminal application with the function of auction items. Administrators can auction items, users can buy items. The auction system is a boon to both sides.

II. THE WAY TO DEVELOP THIS WEBSITE

A. Feasibility Analysis

Now a variety of computer software has been full of our work, life and learning environment, we need software to provide us with convenient management, to reduce our burden. Therefore, in order to facilitate customers to participate in the auction and reduce the workload of auction staff, it is necessary to develop a simulation auction system.

- Technical feasibility:

We have learned Java programming language, can use Java for small program project preparation and development. And through Java interface programming to achieve the function of the auction system is relatively simple, so, using Java language to write the auction system is technically feasible.

- Market status analysis:

The rapid development of the Internet in China has promoted the application of electronic commerce and computer networking.

The number of online shopping consumers is large, and tend to be younger and more highly educated.

B. Demand analysis

Online auctions have become increasingly popular, with various auction platforms springing up like mushrooms.

Auction is through a seller (auction house) and multiple buyer (bidder) trading site, make different buyer around the same articles or property rights are racing to pay a high price, thus in the auction is to discover its real price and scarcity, avoid subjective randomness of trading, more directly reflect the market demand, finally achieved the great value of the goods.

The group carefully collected information, carefully designed, closely verified, tailored design of this auction system.

This subject studies the application of database and strives to bring the best experience to users with user-friendly interface.

C. Functional design

The auction system has the functions of logging in, inputting data, inquiring auction results, online auction, automatic bidding at the end of the auction, and automatically putting the bidding results into the database.

D. Database design

Database name: Auction.

Database tables: auctions, items, users.

There are item number and transaction price in the auction table.

There are three columns in the list: item number, item name and starting price.

Username and password are two columns in the user

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table.

E. Key codes

▪ After the administrator's first speech, that is, after the first packet sent, the program starts the Receive thread. For the next two minutes, we bid freely, and the Receive thread starts two minutes later, its job is to intercept the final price.

The Receive thread1 = new the Receive ();

Thread1. Start ();

Thread1. Sleep (1200000);

Thread1. Start ();

▪ Introduce the Receive thread:2 minutes after the end of the auction, the auction manager immediately automatically reply, announce the auction results.the program automatically put the auction results into the database.

For (I = 1;I<= 100;I++)

{preparedStatement1 = connection. PrepareStatement (" insert into bidding (item number, clinch a deal valence) "+" values (?,?,?,?,?,?)");// Predefined insert statements

While (true) {

Try {byte b[]=new byte[1024];

The DatagramPacket packet = new DatagramPacket (b, b.l ength);

MulticastSocket. The receive (packet);

String MSG = New String(packet. GetData (), 0, packet.

Int a = Integer. ParseInt (MSG);// Get the final transaction price of the item numbered I

Area.append (item No. I is sold as "+a+ yuan "+"\n");// Auto reply to buyers

Area. SetCaretPosition (area. The getText (). The length ());

PreparedStatement1. SetInt (1, I);

PreparedStatement1. SetInt (2 a);// Put the results in the auction table

▪ The auction results are directly displayed on the window

The Statement Statement = connection. CreateStatement ();

ResultSet =statement. ExecuteQuery ("select * from auction ");

The ResultSetMetaData metaData = the resultSet. For getMetaData ();

Int n = metaData. GetColumnCount ();//Gets the number of record fields in the result set

For (int I = 1;I & lt;= n;I++) {

Area. Append (metaData) getColumnName (I) + "\ t");}

System. The out. Println ();// Displays the name of each column in the auction table

While (resultSet. Next ()) {

For (int I = 1;I & lt;= n;I++) {

Area. Append (resultSet. Get string (I) + "\ t");}// Displays the results of each row of the auction table

F. The development tools

The tools used in this development are described below. Experience has taught us that different tools lead to different development processes and methodologies. So here is a clear description of the tools used in this development.

The operating system	Windows10 64 - bit
JDK	jdk1.8.0_73
Eclispe	Oxygen.1a Release (4.7.1a)
Database	mysql-installer-community-5.7.18.1

Figure 1. System development environment

III. SYSTEM OPERATION

This system is developed on the basis of user - friendly interface.

▪ "Login" interface: users can register an account, retrieve password, select the account status, choose whether to remember the password and whether to automatically log in. In addition, by clicking three buttons at the bottom of the interface, three different users can enter three different interfaces.

▪ The various interface of the introduction

"Input data" interface: enter the account password in the "login" interface and click the "Input data" button to enter the interface. In this interface, the manager of the auction system adds items to be auctioned by filling in the item number, item name and starting price. Then the data of the items can be entered into the database system.

▪ Query result interface: Users can enter this interface after clicking the "query result" button in the "login" interface.After entering this interface, the auction administrator can clearly see the final price of each item.

▪ Auction main interface: After logging in, we can enter the official auction interface.Under this interface, ordinary users can choose the auction time, fill in their own number in the field, and then bid on the items, bidding with other bidders;After logging into the auction venue, the administrator can release the information of the auction items and automatically announce the final result after the auction.

(Auction rules: bidders are free to bid within two minutes. When the two minutes are up, the administrator will take the final bid result of one person as the final result and publish the result.

Note: Each bid shall not be lower than the price given by the previous bidder, or the bid will be sealed as deliberately disturbing the auction order.)

IV. Conclusion

A. Technical Summary

With the continuous development of computer network, the network has penetrated into everyone's daily life. At the same time, with the gradual change of people's consumption concept, online auction is gradually penetrating into people's life. There are also opportunities for online auction systems to develop. An excellent online auction system must overcome the shortcomings of other auction systems and management negligence, in order to be recognized by people. Simple and clear interface, safe and reliable auction environment and timely service attitude are the fundamental requirements of online auction system. This system is designed in accordance with the above principles. We take customer first, credit - based philosophy so that customers rest assured online business.

After the system is put into use, it will greatly reduce the labor of the management department of ordinary auction companies, and improve the management, scheduling and resource allocation within the enterprise and all links of the entire supply chain, which will make the management more rational and standardized. Reasonable adjustment of the relationship between customers and managers can improve their work efficiency. The efficient and timely updating of goods addresses also improves customer satisfaction with the auction process.

B. Design experience

This system not only considers the demand of the system, but also takes into account the efficiency of operation and the future function expansion of the system.

Due to the relationship between time and team technology, this system has some shortcomings and is worth improving. For example, bidding function, we can not achieve the latter bid at least less than the former function. Through this design, we improve the overall design ability of the system, increase the experience of analyzing and solving problems, and have a deeper grasp of some knowledge. It can be said that this design not only exercises our ability to use brain to analyze problems, but also exercises our ability to solve practical problems with hands. We will use the valuable experience to guide our future study and work, continuous practice, continuous learning, to become more fulfilling.

C. System is introduced

After our efforts, we use the Java language to develop such an auction system. After the user enters the account and password and clicks the "login" button, our auction system will automatically let different types of users enter different operation interfaces according to the query results of the database. The manager of the auction system fills in the key information such as item number, name, starting price and so on in the "Input data" interface to complete the entry of information about the item. Users can clearly see the final purchase price of each item. The most important part of the auction system is the auction master interface. After logging in, all types of users can enter the official auction interface. Under this interface, ordinary users can choose the auction time, and then fill in their own number in the field. After the completion of the user can bid on the item, and other bidders bidding together. The administrator can post information about the items to be auctioned by logging into the auction venue, and the program will automatically announce the final auction results after the auction.

We did a lot of thinking before developing the system. First, how should the database be designed? How many threads are we going to set? What role does each thread play? What kind of interface are we going to design? Which technology do we choose to send and receive packets? What listener do we want to set up? In the end, we chose mysql database. We chose to have multiple threads run in parallel, and then apply synchronization locks to specific threads. We chose a user-friendly system interface. We choose socket technology to send and receive packets. We have a specific monitor for each specific event.

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