

BidTo online E-Auction

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Abstract— In the modern era, online bidding leads to a new trend in the field of business where everyone acknowledges the efficiency and advantage of e-bidding. Today online bidding is the need for many people. The bidding system helped the users in every way where we were lacking in the traditional system. The traditional bidding system fails the user requirement and is inadequate in terms of the transactional process. The online bidding system provides the best and secure environment to make transactions. It helps the users to find the best bid whenever they want. In the online bidding system, buyers/sellers both will be benefitted irrespective of their location. Thus, we are focusing on an online bidding system that helps the users to find the best deal on the platform with simple and secure transactions.

I. INTRODUCTION

Besides having a good amount of money users are still not able to buy new, unique, and ancestral products over the internet, or having a product, users are not getting a good amount for that product. By considering the gap between users (buyer/seller) we are proposing the solution of an online bidding system that limits the gap to buyer and seller with safe and secure transactions.

By using this application users: -

- 1) Can initiate any bid whether public or private.
Public bid: bid which will be shown for all the registered users.
Private bid: bid where the seller allows participation for this bid.
- 2) Can participate in any public bid.
- 3) Join the bidding competitive live in real-time.

The bidding system is categorized as.

1. **Forward auction** is also known as (English auction). In this, the lowest bid is mentioned at first and it keeps increasing with every higher bid and at the end, after a particular time, the last bid is the final bid, and the product is sold to that bidder.
2. **Reverse auction** is also known as (Dutch auction). This is similar to forward auction but the only difference is that this bidding process starts with the highest bidding amount and if nobody is ready to pay then they decrease the amount and when any user is ready to pay, that is the final bid, and that user won.
3. **Sealed bid auction** in this bidding prices for particular products are set and all bids are given to

the auctioneer and the winner would be the one who bid with the most amount.

II. THE PROBLEM OF TRADITIONAL BIDDING

Traditional auctions take place at the locations where all the bidders have to be present there for the time duration depending on the bidding process.

Downsides of this system:

1. In Traditional auctions, we have to travel to the location with products and cash. Travel adds extra cost to your bidding process.
2. For sellers, it limits the market of buyers and requires moving their products.
3. Buyers may or may not buy products but still, they have to spend money on traveling.

To overcome the problems, target more audience and with no fee traveling, we proposed an online bidding system- BidTo.

III. PROPOSED SOLUTION

As we discussed, this research paper helps us to develop applications that help the buyers and sellers to get more benefits. In the online bidding system, we don't have to be present physically.

Advantages over the traditional system:

1. In the online bidding system, no physical presence is required and both the buyer and seller can participate from anywhere.
2. Online Bidding system Target large audience and smaller time commitment to auctions participants.
3. For buyers, this means a greater variety of options to bid on with zero travel or lengthy time commitment.
4. For sellers, simply posting photos and details are sufficient until products have been sold.

To develop this application, we used:

1. React.js

1. React.js is a single-page open-source front-end JavaScript Library.
2. Used React.js for building user interfaces based on the components that manage the complex structure of UI.

3. This application must handle too many requests and for this, we use state management that helps us to update the Bidding Page where bidding is going on.
4. The components in React.js manage their state and render the components when data changes.

2. Node.js

1. For handling requests from the front-end and responding accordingly, we have many backend stacks that help us to create APIs, but In this application, we are using Node.js.
2. Node.js is Asynchronous and Event-Driven, which means all the APIs are non-blocking.
3. Node.js has lots of packages that we use without building from scratch.
4. Node.js is a single-threaded model but the concept of event looping helped us to create APIs in a non-blocking way.

3. Redis

Since this application has too many frequent updates while bidding and for that, too many requests will be sent to the server. To avoid making so many requests we have used Redis. Redis is an in-memory Data Structure store that provides Data Structures like Strings, Hashes lists, and sets, etc.

We have used Redis to store cache while bidding like storing **User Id**, **productid**, and **amount**. so that we don't need to request the user that has some history while bidding.

4. Socket

HTTP requests and responses took much time while frequent operation. to avoid this we go for Socket where Socket allows us to create a handset. This handset easily communicates between the backend and the frontend.

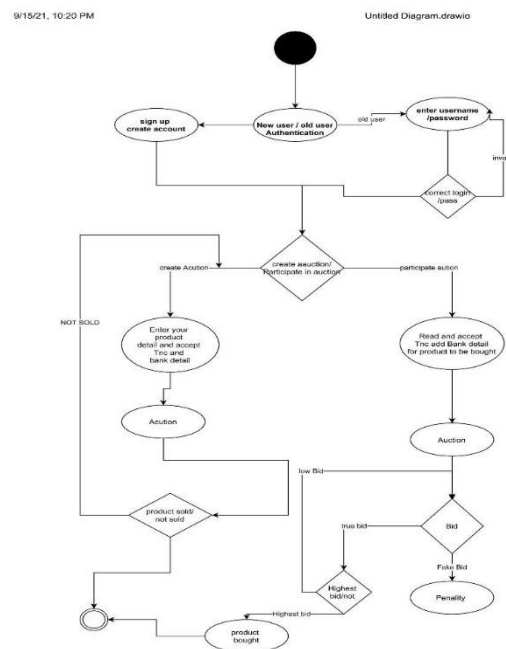
5. PostgreSQL

To store data of the users, products and ongoing bidding we have used the PostgreSQL database. You can create Indexes to search fast and make relations between the Tables.

1. First each and every user must be authenticated to participate in the bidding process.
2. Users can start public or private bids according to their preference.
3. Users can participate in any public ongoing bidding.
4. Penalty will be imposed on fake users.

The below flowchart is describing how this platform handles things. After a successful bid, the buyer can make payment through the payment gateway till the last date. If the buyer or bidder will not make a payment, he/she will be considered as a fake bidder/buyer, after that 5% of the actual bidding amount will be deducted from the credit card which was saved during registering of his/her account on the platform.

Flow chart



IV. PROCEDURE

Authentication

There might be a possibility that many fake accounts could be created and they could be a threat to many other users. By considering this fact we will only allow the authenticated user to participate in any bidding process.

How will we do that? The application will allow users to fill the new registration form and ask for any government id proof and take a snap at the time of registration. After 2-3 days of successful verification, user Id and a random password will be sent to their email.

Data Flow

BidTo – a great way to help our environment. We can help them to buy and sell their products online with the best deal. We often want to sell our product as well as we often want to buy some new and unique products. ‘BidTo- an online bidding platform’ helps us to do that.

How to proceed?

V. RESULT

The result of this research paper is that we can implement this e-Auction online bidding system, where people can easily sell or buy products. With this platform, we can centralize the bidding process in one place. Also, the main issue of trust and security is under this research paper. The penalty of fake bids is also considered. This platform is implemented mainly using React.js at the Frontend, Node.js at the Backend, and Material UI for styling, etc.

VI. CONCLUSION

This research paper reduces the gap between buys and sellers while considering the security concern of the users over the platform. Different auction categories were discussed including the most common bidding category e.g., Forward auction and reverse auction. Workflows through the platform are discussed.

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