

An Analysis of Online Auction and Its Detection Using Software Development Methods

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ABSTRACT: *The internet economy now includes many people who participate in online auctions. However, there are a number of fraudulent buying and selling tactics that might be used during an auction. While experts have offered strategies for preventing this fraud, it is very difficult to gauge how successful these solutions are. This is because it is morally wrong to engage in dishonest behaviour only to elicit emotions. Furthermore, there isn't much information available about competitive auctions since it would be sensitive for an internet auctioneer to state that fraud has happened or is occurring. We created our own online retail server to conduct estate sale research so that we could monitor the evaluation of fraud deterrents. This post details our experiences developing and implementing our own estate sale system, called auction. There is still a dearth of useful information on the design of auction systems. In order to analyse and create the auction system, we use the Unified Conceptual Schema (UML) to represent the architecture, subdivisions, usage circumstances, activity workflows, state diagrams, user interactions, and system incorporating use. Our bidding methodology is based on concepts from instruments openly accessible, enabling further research on our findings.*

KEYWORDS: *Auction Fraud, Class Diagram, Domain Model, Design Class Diagram, Shill Bidding, System Sequence Diagram.*

1. INTRODUCTION

Platforms for connected commerce like Hotmail and forbidden! The popularity of auction pricing has significantly increased. The number of auctioned products offered by eBay increased from 110 million to over 266 million between July 2010 and September 2014. A seller lists a product for sale online for a certain amount of time; in order to purchase it, bidders must outbid previous sales by a set amount of time. A restricted value offer, time to plan, availability, and geographic isolation are all things to take into account. With online auctions, there are no longer any physical or logistical restrictions [1]–[6].

On the other hand, the digital world offers a variety of unique opportunities for people to cheat. Online trading dishonesty may start with item representations, the sale of white marketers, before an auction, during an auction, or just after the competition has ended. Previously, there has been a lot of investigation on thread dishonesty. On the other hand, in-auction dishonesty, which includes human behavior and techniques that aren't always obvious, is famously hard to fight. Concern troll buying is the practice of a seller bidding on their own advertisement to erroneously increase the price that the winning bidder must pay. Although it is acknowledged that this is a problem, a shill bidder may use a number of strategies. As a consequence, there is a great deal of misinformation about what shill buying really entails and how to effectively

spot and avoid it. Even more of a challenge is determining how to measure the effectiveness of in-auction fraud prevention methods. Figure 1 embellishes the fake antivirus warning signs.

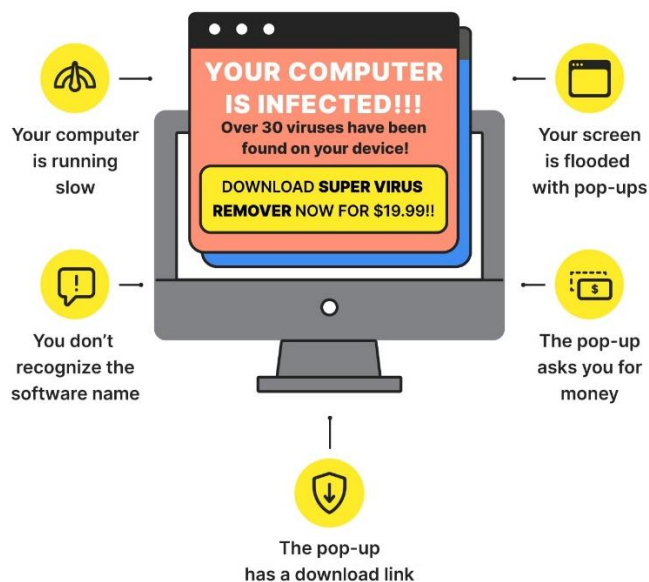


Figure 1: Embellishes the fake antivirus warning signs [7].

The difficulty of creating in-auction fraud countermeasures is significantly impacted by the dearth of professional online auction data. Online auctioneers seldom provide their auction data because of privacy concerns. But given their concern about causing damage, it will likely happen more often. If it becomes known that corporate transactions often include corruption, it will be detrimental to their reputation and image. The morality and legitimacy of fraud control evaluation is a further problem. For instance, it is prohibited for investigators to engage in cable internet transactions.

As a skill bidder all that is required is to look into fraud prevention strategies. These two major obstacles need the consideration of an alternative paradigm for in-auction fraud screening. The author were forced to create our own online marketplace system due to the dearth of quality information on auction software architecture. Additionally, the majority of the current research on auction programming does not rely on the Unified Modelling Language (UML). Although auction software may be bought, it is expensive and cannot be modified to suit our study objectives. This study presents the analysis of their auction system, known as uAuction. UML is used to express the system's design model, use cases, domain modelling, flowcharts, database schema, website administration, interface design, and computer flow. The effectiveness of our own suggestion for identifying and avoiding skill bidding was tested using UAuction.

2. DISCUSSION

There are three major participants in an online auction Seller is someone who lists a product (or a collection of things) for sale and is known as a seller. Typically, the seller is seeking the item's highest possible price (s). Auction participant is a participant in an auction who makes a bid on a product that the reseller has listed. The sums a buyer offers demonstrate the price range

in which he or she is prepared to acquire the item being offered for sale. The bidder often looks for the lowest price on the market in order to win.

The producer the presenter is responsible of conducting the sale in line with the rules of the auction, presenting the auction, and providing the required resources. The listing fee is often paid by the vendor. Depending on the prize price, there may be a fee for the presenter in certain circumstances.

The English sale is still an uncertain proposition, trying to catch up with the market trend in which bidders contend for the item up for auction by submitting opposing offers. When a deadline has passed, the buyer has defeated the marketplace and is obligated to pay the going rate. It is a typical feature of the actual antique mall. Many internet bids have their roots in the traditional English markets, but with the distinction that a sale has a deadline.

In an eBay auction, a bid normally takes the following format: bidder, bid amounts, and bid time>. A bidder may at any time ask the presenter for a price estimate on an item being auctioned. The price quote contains the bid details of the current highest bidder. The auctioned bid records are a list of every bid that each participating bidder made during the auction. The winning bid in this situation is \$65 [8]–[11].

Stockpile price is the lowest price that the owner would accept, whereas introductory price is the lowest price at which negotiations must start. In cases where the real cost is much less than the entire value, it may be necessary to split off rooms from the previous top price. Likewise, it may be necessary to modify the lowest proposal in cases where the actual cost is far less than the opening bid. If the reserve price is exceeded by the selling price. Online marketplaces provide a variety of choices as well. For instance, bidders have the option to modify or cancel their bids, confirm client bids, list new goods, participate in Buy It Anyway sales, and so on. So on. The market method was used in this situation. However, the research is restricted to English bidders with a predetermined closing time.

2.1. Controlling auctions:

A seller creates the item listing for an auction. The price, reserve value, delivery date, shipping details, payment method, auction start and end hours, auction status, and other elements are all described at this step. The auctioneer certifies that the auction listing is acceptable. Following approval, the matched seller will be permitted to finish his auction. Auction searching those who are qualified to bid may browse for specific things that are being bought.

Bidding as illustrated in the use graphic, shows how the bargaining embedded system examines the auctioned list, assembles sending values from various owned sellers, and executes the auc279 280 bid control parameters. I'm looking for a use case for this (like a foundation bid, bid amplifiers, or depositing value). The presenter ends the auction and selects the winner in accordance with the selling guidelines.

Payment this subsystem manages the repayment of auction advertising payments to the same auctioneer. The winning bidder is accountable for paying the seller when a buyer accepts an event. The auctioneer simultaneously hands the same buyer the items they have purchased the first buyer. Fraud detection this subsystem monitors an auction for indications of questionable bidding. Bidders or sellers may provide information or get warnings if fraud is found. The many types of system elements and their connections are shown in the object model class

diagram. Along with showing the restrictions that control how the objects are connected, it also shows the characteristics of a class [12]–[15].

The User class contains information about the user's attributes. A user does become a valid user after finishing the registration process and providing useful information. A legitimate user may make bids using the Bid interface and list items for auction using the Auction class. The selling price, bid time, and user who placed the bid are all included in the Bid class. Online vendors provide certain special features, such the capability to withdraw a bid. This is often acceptable when one bidder unintentionally inputs the incorrect bid amount. A bid may be cancelled by simply deleting it from the database. However, a cancelled offer should be recorded in the computer due to security reasons.

This section begins with a discussion of the selling and purchasing perspectives on the usability issues with auction software. As the software gets more versatile and allows for the implementation of a broad range of speaking methods, the task of expressing the whole set of rules for something like an auction becomes more challenging.

Using a touch screen there are two different types of user interfaces in uAuction. For both users to take part in the selling and bidding procedures, they must register with uAuction. On the Introduction homepage of our company's website, uAuction, a manipulator is set up so that a legitimate handler may register and establish a connection (login). Unsecured users will have the opportunity to creating a new account by completing out the necessary forms online or offline. Some of the additional components included in these two user interfaces are covered in this section.

- The Selling Communicate a vendor offers products for auction by providing product information (e.g., product name, beginning price, modified in order, product category, product description, product picture, etc.). After announcing an auction, a seller must wait for the auctioneer's approval. The listed items are going up for auction as soon as the seller gets a notification of permission.
- The Auction Interface: Shows how buyers navigate the auction website in the estate sale implementation. Each bubble symbolizes a website, and the presence of a hot connection from one page to the next was shown by the wings beside each page. After registering, bidders may browse or search the goods on the auctioneer site. May result in the selection of a product and the display of its description. The market parameters and purchasing history may be looked at, and bids may be put on the item if it is somehow for sale.
- A bidder may also place a bid through the menu bar. From there, you can see a list of all the flea markets that are being auctioned off, or perhaps just some of the products associated to corporate contractors and municipal authorities. An asset is added to the bidder's auction watch list whenever they do so directly from a particular eBay auction or indirectly when one buyer places his first bid. In order to see the descriptions of the item being auctioned, review the auction rules, or place a bid on the products, bidders may choose an auction from a list, all deals, or auction watching.

As indicated in Section IIB, the goal of the building auction was to test the effectiveness of our inactivity forgery detection/prevention system. Each kind of fraudster seeks to hurt one or more auction participants. We're focusing on developing techniques to recognize shill bids right now.

Shill selling is a difficult kind of fraud to spot since shill bidders may use a range of techniques. Concerning what counts as shill bidding, there is also a great deal of uncertainty. Shill bidding has been suggested in a number of ways [16]–[20].

However, these strategies often get stale. In other words, wait until the auction is completed before searching for indicators of shill bidding. This means that until an innocent bidder suffers injury, no action may be done against. Our current study's objective—which is supported by an auction is to develop a real-time shill recognition tool. A seller who wishes to bid for Shill may do so using his own items from the auction or by enlisting the assistance of friends and relatives. Protective Bids Bidders frustrate genuine bidders by raising the price using aliases before removing the high bids at the last minute to get a low offer. Backstabbing Bid a bidder's technique for avoiding being outbid is called bid sniper. In order to deny other bidders the chance to counter, a sharpshooter will place a bid in the last moments of a transaction. Taking Multiple Bids When a third party observes an auction and offers the purchasers a similar item for less money, this is known as siphoning. The legitimate seller's auction receives fewer bids because the siphoned removes all of the costs of holding an auction.

3. CONCLUSION

This article outlined the successes in developing an online retail system. Many of the materials used in current auction software are outdated and of little use to academics. Second, most of the concepts now in circulation do not adhere to sound UML principles. The author developed a user-friendly, UML-based online auction system. We showed the auction system's framework and designs, using UML diagrams to highlight key system elements. uAuction is helping our research towards detecting real shill bids. To conduct various types of testing using uAuction, we may combine individual operators, simulated auctions, and computed by multiplying the number. The auction system will be improved in the future, giving it more capabilities and maybe the capacity to manage a variety of auctions. We wish to include our real-time shill bidder detection technology as a component of such an identity verification subsystem. This will allow us to employ some of the testing techniques previously discussed to help create our recommended anti-fraud solutions.

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