Online Auction Fraud Detection

Ashwini Kulkarni, Namrata Khabiya, Shivani Deorukhakar
Department of Computer Engineering,
Savitribai Phule Pune University
Maharashtra, India

Abstract— The internet is one of the greatest recent advancement in the world of information technology that has helped in making world a global village. When you buy a product or a service over the internet, instead of going to a traditional procedure, it is called online shopping. E-commerce is the act of buying and selling of products over internet. . It has become possible to buy any product you desire without actually touching the product manually. While starting bidding we set an initial amount which is none other than starting bidding price among the bidder capable buyers in auction bid with each other. . To buy a certain product from the online auction website they are to be validated with license number etc.

Keywords—Bidding, OnlineAuction, Fraud-Detection, Online Modelling, Online Feature Selection.

I. INTRODUCTION

To buy a product or a service over the internet, instead of going to a traditional procedure, it is called online Shopping, An increasing number of users are buying over the Internet because it is more flexible way. Since the increasing usage of internet from pocket to pocket has grown at a large extent online shopping and online auctions gained more and more popularity. While people are enjoying benefits from online trading, criminals are also taking advantage to conduct fraudulent activities against honest parties to obtain illegal profit .An online auction project that holds online auctions of various products and projects on a website and serves sellers and bidders accordingly. The system is developed to allow users to set up their products for auctions and bidders to register and bid for various products and projects available for bidding. Online auction however is a different business model where the items are sold through price bidding. Usually bidding have start price and ending time. Potential buyers in auction and the winner is the one who bids the item for highest price. To provide assurance against fraud and to give confidence to online auction services as in E-commerce sites provide payback to victims for those who loss up to a certain amount. For buying product online user have to provide his personal details like email address, license number, PAN number etc. Only the valid user will have authority to bid. This prevents various frauds according in online shopping.

II. METHODOLOGY

Our system is to detect online auction fraud where hundreds of thousands of new auction cases are posted every day. Every case which has been entered is sent to the fraud detecting system to assess the risk of being fraud. The current system is featured by:

- **Blacklist**: A list of people or groups regarded as unacceptable or untrustworthy and often marked down for punishment or exclusion. Experts with years of experience created many rules to detect whether a user is fraud or not. If the user has already done fraud he is added in blacklist to prevent the same user from bidding.
- **ThresholdScore**: The current system only supports linear models. Here frauds are detected by threshold score which is computed as the weighted sum of the feature values.
- **Selective Labelling**: By taking a value of bench mark as in on fraud score, if fraud score is above certain threshold, the case will enter the queue which will be handled by human experts for further investigation. Once it is checked, the final result will be taken as Boolean i.e. either fraud or trustable. The case is given highest priority if its fraud score is above the threshold. The cases whose fraud level is less i.e., which are below the threshold are determined as clean or trustable by the system without any human judgment.
- **Fraud Churn:** If a case is labelled as fraud by human experts, it means that the seller is not trustworthy level is less i.e., which are below the threshold are determinedand there is also a chance that he can also sell other fraud products as in. Hence all the items submitted by the seller in that online site islabelled as fraud.Once that seller is labelled to be fraudulent seller his/her cases will be removed from the website immediately. By this the fraudsellers can be blocked permanently and removed from the system.
- **User rating and complaint**: For every product bought there will be user complain and reviews, by this the buyers who has any issues while buying or selling product can register his/her complaints want to buy the product will know whether it is genuine or not by the first buyer who bought it.

III.   EXPERMIENTAL WORK

Hardware system configuration with minimum requirements are :
- Processors of Pentium-III, speed of 1.1 GHz, RAM   256MB.
- Hard Disk of 20 GB.

Software system configuration with minimum requirements are :
- Operating system with Windows 8/7/95/98/2000/XP.
- Application Server of Tomcat 5.0/6.X.
- Front end of HTML, JAVA, JSP and server side script with JSP and database of MySQL and Database connectivity is of JDBC.

Online auction is always recognized as an important issue. Websites extensively uses reputation systems and high end software's although many of websites use native approach.

IV.   PROJECT SCOPE

This Project investigates the entry threshold for providing a new auction service channel via the real options approach, where the entry threshold is established by using an Online auctioning system designed for the use of normal users (individuals), Industrialists, Entrepreneurs, Organizations and Academicians under transaction rate uncertainty.
- Customer must have to register using valid User Id and password to login to the system.
- The user will have to choose whether he will have to bid for project or product.
- For project he will have to perform following steps:
- After successfully login the user will have to verify his profile by providing his PAN card details these details will be verified by the admin.
- After the admin finds the details of the user are correct then only the user will be verified user.
- Now, the user will have to appear for knowledge test as per his/her chosen domain.
- If the user qualifies the test then he will have to do the intial amount and then he will have to perform a task given to him by the admin.
- After successfully uploading the demo the demo will be checked by the admin.
- Depending on his performance on the demo user will be allowed to bid.
- If the user has chosen for product bidding he will have to simply login and bid on the product of his/her choice.

V.   SYSTEM ARCHITECTURE
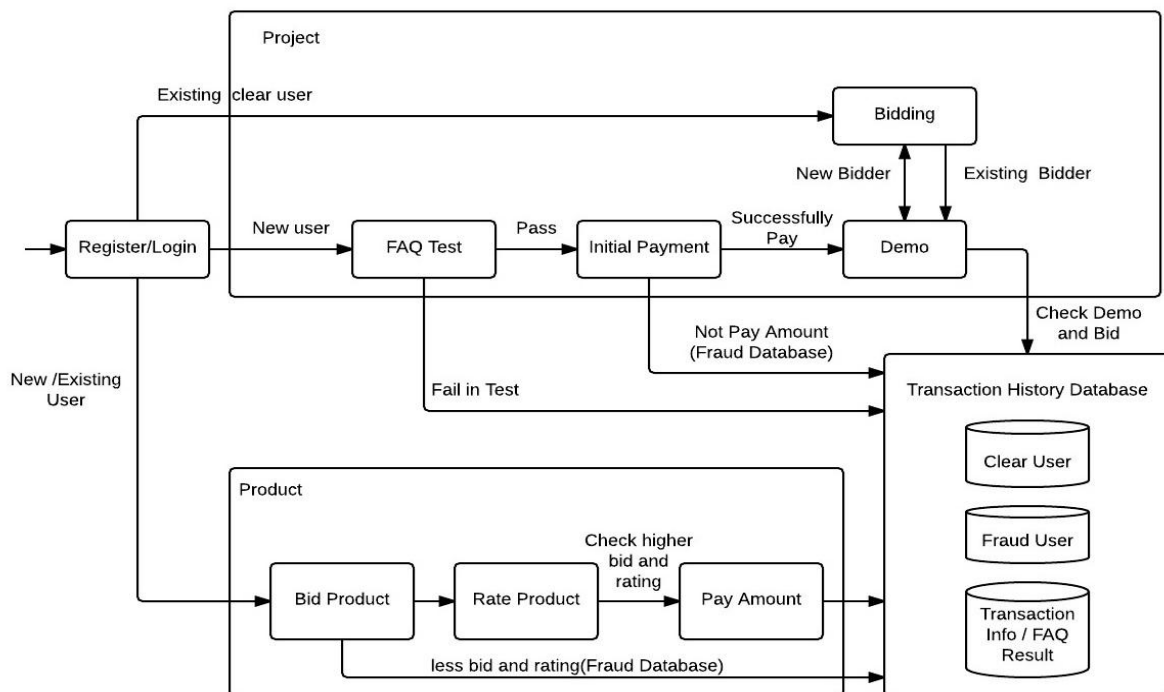
Functional Requirements:
- **Administrator:** He is the super user responsible for managing customers of the system, verifying client details, generating reports, maintaining organization details.
- **Manage Clients:** The Administrator verifies new users when a new client joins the online auctioning. Also administrator can delete an account when any of the user leave the auctioning organization. He permanently blocks the customer if he is fraud.

- **Take Bidding Backup:** The Administrator Backup the database in order to prevent loss of data on system crashes. He can backup entire database.
- **Generate Reports:** Responsible for checking the logs of different system users for auditing and maintaining the integrity of the system.
- **Validating the Demo Project:** The Administrator validates the demo project uploaded by the customer and the assigns him the actual project.

VI. ALGORITHM IMPLEMENTATION

Encryption

Encryption is the process ofencoding readable form message to unreadable form by using some character and symbol.

AES Encryption

AES (acronym of Advanced Encryption Standard) is a symmetric encryption algorithm. It is a webtool to encrypt and decrypt text using AES encryption algorithm. You can chose 128, 192 or 256-bit long key size for encryption and decryption. The result of the process is downloadable in a text file.

These operations can easily be broken down to the following functions:

- ADD ROUND KEY
- BYTE SUB
- SHIFT ROW
- MIX COLUMN

```
Cipher (InBlock [16], OutBlock[16], w[0 … 43])
{
    BlockToState (InBlock, S)

    S ← AddRoundKey (S, w[0…3])
    for (round = 1 to 10)
    {
        S ← SubBytes (S)
        S ← ShiftRows (S)
        if (round ≠ 10)   S ← MixColumns (S)
        S ← AddRoundKey (S, w[4 × round, 4 × round + 3])
    }

    StateToBlock (S, OutBlock);
}
```

Stochastic Search Variable Selection (SSVS)

Stochastic search variable selection (SSVS) algorithms provide an appealing and widely used approach for searching for good subsets of predictors, while simultaneously estimating posterior model probabilities and model-averaged predictive distributions. This article proposes a two-level generalization of SSVS to account for missing predictors, while accommodating uncertainty in the relationships between these predictors. Bayesian approaches for allowing predictors that are missing at random require a model on the joint distribution of the predictors. For regression problems with many features, proper shrinkage on the regression coefficients is usually required to avoid over-fitting. For instance, two common shrinkage methods are L2 penalty (ridge regression) and L1 penalty (Lasso). Also, experts often want to monitor the importance of the rules so that they can make appropriate adjustments (e.g. change rules or add new rules). However, the fraudulent sellers change their behavioural pattern quickly: Some rule-based feature that does not help today might help a lot tomorrow. Therefore it is necessary to build an online feature selection framework that evolves dynamically to provide both optimal performance and intuition. In this paper we embed the stochastic search variable selection (SSVS) into the online probit regression framework described in Online Probit Regression.

VII. CONCLUSION

Online auction is a separate business representation by which projects and products are sold all the way through price bidding. Online modelling considers situation that input is specified one piece at an instance, and when receiving an input batch the representation has to be modernized consistent with data and make prediction for the subsequent batch. Reputation systems are used expansively by websites towards identifying auction frauds, even though numerous of them make use of naive approaches. Applying expert information can considerably get better the performance in terms of noticing additional frauds as well as reducing customer complaint given similar workload from human experts. It is

essential to construct an online feature selection structure that evolve dynamically to make available both optimal performance as well as perception. By means of deploying a moderation system, we are competent of selecting a subset of extremely doubtful cases for additional professional investigation while maintaining their workload at a logical level. Human experts are moreover willing to observe the consequences of online feature assortment to check the efficiency of present set of characteristics, in order that they can recognize pattern of frauds as well as further put in or eliminate several features.

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