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Implementation of Credit Card Fraud Detection Technique on E-COMMERCE Platform using Collaborative Filtering Datamining Techniques

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ABSTRACT: In modern market, electronic commerce has rapidly gained a lot of attention and also provides instantaneous transactions. As credit card becomes the most popular mode of payment for both online as well as regular purchase, cases of fraud associated with it are also rising. It has been seen from the last few years that credit card fraud detection is one of the most critical issue in the credit card industry. The main motive is to identify the different types of fraud detection and to review the technique that is most effective to reduce credit card fraud.

In real life fraud has been executed with the genuine transaction and the simple matching technique is not sufficient to detect those fraud. So, for the detection of fraud in credit card recent advance in techniques based on data mining has been introduced for detecting credit card fraudulent transactions. According to the study, data mining techniques are considered as the best suitable techniques and may be considered over the other techniques successfully.

This paper presents a review of current techniques used in credit card fraud detection and telecommunication fraud. The goal of this paper is to provide a comprehensive review of techniques that have been used for detection of the fraud.

KEYWORDS: Instantaneous transactions, fraud detection, comprehensive review

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I. INTRODUCTION

The buying and selling goods and services without having cash in hand is means to be credit card. It is a simple, secured and easy way of offering credit to a consumer. It is a small plastic card having electronic chip holding access to respective user issued by a bank.[1]

We can use credit card in two ways: one is virtually and another one is physically. The virtual use can be done by simply providing respective card details to respective site by card owner to purchased items online over internet while physical use can be done by using the credit card physically. But if an attacker having details of credit card can result into a fraud.

Earlier we have noticed a significant positive change in volume of electronic transaction, mainly the reason is popularization of World Wide Web also electronic commerce, like an online product sellers (e.g., www.amazon.com, www.ebay.com, www.walmart.com).

Fraud generally refers to obtaining money and goods/services by wrongful or criminal deception or in illegal way which intends to result in personal or financial gain. Fraud deals with criminal events that needs identification which becomes difficult.

Credit Card:-A credit card is a valuable financial tool that enables cardholders to make purchases on credit. It comes with a pre-set credit limit which users can utilize to make purchases effortlessly.[3][9]

E-Commerce:-E-commerce is the activity of buying or selling of products on online services or over the Internet. Modern electronic commerce typically uses the World Wide Web for at least one part of the transaction's life cycle although it may also use other technologies such as e-mail.

Data Mining:-Definition of 'Data Mining' Definition: In simple words, data mining is defined as a process used to extract usable data from a larger set of any raw data. It implies analysing data patterns in large batches of data using one or more software. ... Data mining is also known as Knowledge Discovery in Data (KDD).[10]

II. TYPES OF FRAUD

1. Telecommunication Fraud

It is the type of theft which makes use of telecommunication service to commit fraud. Victims include in this fraud is consumers, businesses and communication service providers. The thief may access the information of a victim and may use it.[5]

2. Bankruptcy Fraud

Bankruptcy fraud is a fraud which is incurring a charges without any intentions to repay or in some cases incurring a debt that you know you can't repay. [5][4]

3. Application Fraud

Application fraud refers to fraud committed by submitting a new credit application with fraudulent details to a credit provider.[5][12]

4. Theft Fraud/ Counterfeit Fraud

In this section, we focus on theft and counterfeit fraud, which are related to one other. Theft fraud refers using a card that is not yours. As soon as the owner give some feedback and contact the bank, the bank will take measures to check the thief as early as possible. Likewise, counterfeit fraud occurs when the credit card is used remotely; where only the credit card details are needed.[5][4]

5. Assumed Identity

With assumed identity fraud, a criminal will use a temporary address and a false name to obtain a credit card. There are a number of systems in place with banks for protection against this type of fraud. For instance, they will ask new customers to provide account references and these will be check to ascertain that they are genuine. Additionally, they

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could ask for such things as birth certificates, original copies of driver's license or passports and so on. They often ask for these things before they will send a card out.[12]

6. Behavioural Fraud:

Behavioural fraud occurs when sales are made on a „cardholder present“ basis and details of legitimate cards have been obtained fraudulent basis.[8]

III. CHALLENGES IN CREDIT CARD FRAUD DETECTION

There are lots of issues that make fraud detection procedure tough to implement and one of the biggest problems associated with fraud detection is the lack of both the literature providing experimental results and of real world data for academic researchers to perform experiments.

1. Non-availability of real data set One of the biggest issues associated with credit card fraud detection is the unavailability of dataset that researchers can perform the research on as it mentioned by many authors One of the biggest issue for credit card fraud detection is that the huge datasets are not available as the banks and the other financial deny to share their sensitive data because of some privacy reasons.
2. Credit card fraud datasets are highly skewed data that is most of the data is legal and very less amount it can be fraud pruned, and the transactions between them may change multiple times. We can say that very less transactions are fraudulent compared to the genuine one.
3. The errors that are present in the personal data are called as noise. This noise in actual data decreases the accuracy of generalization that can be achieved, irrespective of how effective the fraud detection technique is.[6]
4. Many transactions may resemble fraudulent transactions when actually they are genuine transactions. The opposite also happens, when a fraudulent transactions appears to be genuine. In such cases its quite difficult to differentiate between the genuine and the fraudulent transactions.[6]
5. An efficient fraudster always find a new and innovative ways to perform his job. The systems should be able to change themselves as per new kinds of fraud. Since after a while, because of efficient fraudsters the efficiency of the applied technique may decrease.[6]
6. The system should take care of the amount of money that is being lost due to fraud and the amount of money that will be required to detect that fraud.[6]

IV. DATA MINING TECHNIQUE

Data mining is the process of extraction hidden knowledge from large volumes of raw data. Data mining has been defined as the nontrivial extraction of previously unknown, and potentially useful information from data. Data mining is used to discover knowledge out of data and presenting it in a form that is easily understood to humans.[13]

Data mining methodology will help the E-Commerce site to identify who uses credit card to commit fraud. It also helps to predict when the card is at default, and it uses the credit card to determining and analyse the behaviour and reliability of the customers.

KDD is used on very large datasets where there is no such way to get knowledge. Data mining is technically only a small part of the process. At the end of the whole process, the interesting patterns are sometimes being stored in a system knowledge base in a form of a new knowledge. This technique presents an easy and convenient way for storing and subsequently browsing, comparing and visualizing a groups related to knowledge.

V. CONCLUSION

Credit card fraud has become more and more rampant in recent years. This paper has identified the different types of fraud, such as bankruptcy fraud, counterfeit fraud, theft fraud, application fraud and behavioural fraud, and discussed measures to detect them by using data mining techniques. One aim of this study is to identify the user model that best identifies fraud cases. There are many ways of detection of credit card fraud. If one of these or combination of

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algorithm is applied into bank credit card fraud detection system, the probability of fraud transactions can be predicted soon after credit card transactions by the banks.

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