An Real Time E Commerce application to Find Credit Card Fraud

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ABSTRACT

Credit card fraud detection is one of the prominent problem in today's world. It is due to the extensive rise in both online and e-commerce transactions. The fraud happens when the users' accessible card gets stolen from any unauthorized source or the use of credit card for fraudulent purposes. The present scenario is facing this kind of problem. So to detect the unethical activity, the credit card detection system was introduced. The main aim of this research is to focus on machine learning methods. So the algorithms used are unsupervised learning algorithms.

Keywords : Credit card fraud detection, e-commerce platforms, and Machine learning algorithms

I. INTRODUCTION

The Credit card fraud is a raising issue in the present world, with increasing frauds in the corporate industries, government offices, finance industries, and many other institutions. The massive dependency on internet in today's world is the main cause for the elevated raise of credit card fraud transactions, but the fraud has increased rapidly not only on online also continues to witness in offline transactions. Even though we use data mining techniques the results are less accurate in detecting credit card frauds. The best possible way to reduce these losses is the detection of fraud using more efficient algorithms which is an assured way in reducing the ongoing credit card fraud. As the use age of the internet is increasing rapidly, a credit card is distributed by banks and finance companies. Using a credit card which means we can borrow funds to make transactions. The condition which involves in the credit card is that the user should have to payback the principle amount which they borrow along with the additional charges they agreed to pay.

A transaction is considered to be a fraud when an unauthorized person uses your card without your permission. Fraudsters steal the account details and credit card PIN of the users to perform unauthorized transactions without stealing the original physical

card. By using fraud detection we can find out that the transactions performed is genuine or fraud ones.

The committed fraud involves card such as a credit card. Card here works as a deceptive medium for the transaction. Credit cards have been a major target for fraudulent. The main motive is that a lot of money can be earned in a short amount of time without any risks, and the following crime takes more amount of time to get detected.

There is a rapid growth of the internet usage nowadays, the probability for fraudsters in committing the fraud is more. The majority of cases that are trending nowadays are from e–commerce platform. People in this generation are showing more interest in purchasing things online rather than purchasing them offline. As a result of increase in e-commerce sites the probability for many fraudsters to commit frauds is also increasing. To minimize the frauds we must determine the most effective method for reducing credit card fraud.

II. Literature Survey

MasterCard Fraud Detection Using Machine Learning YEAR OF PUBLICATION: 2020 by Ruttala Sailusha, V. Gnaneswar, R. Ramesh, G. Ramakoteswara Rao. DESCRIPTION: The MasterCard fraud detection system was introduced to detect fraudulent actions. The purpose of this study is to focus on machine learning techniques. The random forest algorithm as well as the Adaboost method were used.
Supervised learning techniques used (Random Forest, Adaboost) LIMITATIONS: Supervised learning algorithms used. Less accurate results. Takes longer for processing data.
A conceptual model for the use of artificial intelligence for credit card fraud detection in banks. YEAR OF PUBLICATION: 2020 by Busisizwe Kelvin Nkomo, Thayne Breetzke.

According to recent surveys, money is being fraudulently withdrawn from accounts at an increasing rate. The goal of this essay is to look at the credit card fraud detection technologies that banks use, as well as the obstacles that come with using them. The study recommends leveraging artificial intelligence, geolocation, and data minimization to mitigate the vulnerabilities in current credit card fraud detection systems. Regression is used for implementation.

Limitation
The Regression techniques Produce graphical outputs the distinguishing will be difficult in the graphical method.
Not suitable for e-commerce

III. Proposed Work

The Proposed system aims at identifying auto credit card frauds and classifies transactions into "legitimate or malicious" using data science techniques. Here we use machine learning algorithms to analyse the credit card transaction data. Data downloaded from many sources such as https://www.dataworld.com, https://www.data.gov.in,https://www.kaagle.c om. We have a certain anomalies and rules for creating the raw data. They depend upon the set of attributes. This system aims at developing a real-time application for cybercrime offices and identifying auto credit card fraud (legitimate/malicious).Credit card fraud detection are used in Unsupervised Learning Technique.
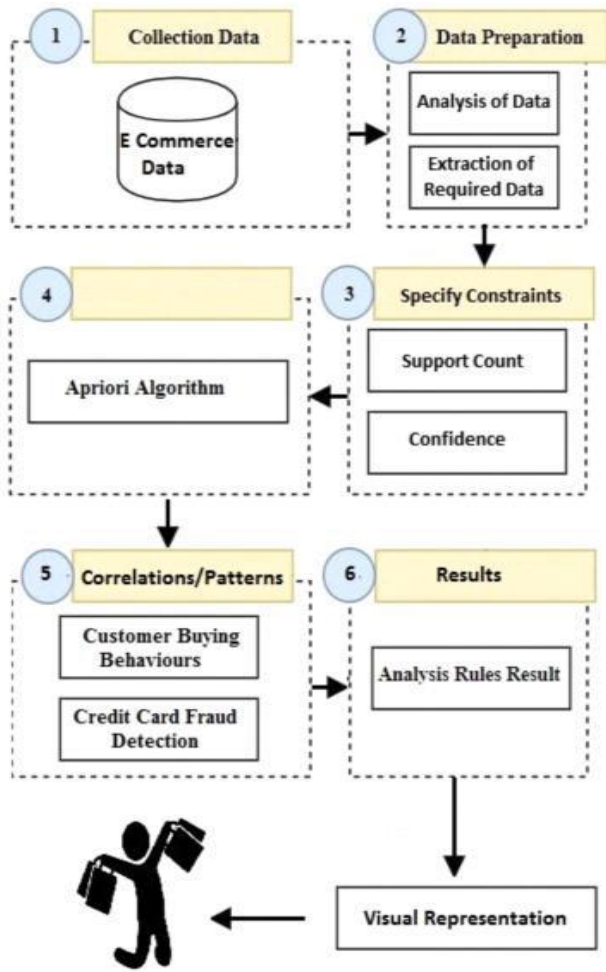
IV. Functional Specifications

1. Project is a real-time application, wherein real-time the entire application accessed by 3 types of users, Administrator, Visitors, and Members.
2. Administrator and Members gets login to the application by inputting credentials such as user id and password.
3. Administrator will manage product categories, subcategories, and product details.
4. Administrator will manage the transaction details done by the customers.
5. Administrator can view the ratings and feedback given by the customers.
6. Members can browser the products and add the products into the cart and can place the orders using credit cards.

7. Members use credit cards for transactions, the system will identify the transaction as fraud or genuine using a data science algorithm.
8. Members can post the rating for the purchased products and feedback for the entire application.
9. Credit card fraud detection is performed by using data science algorithm such as "apriori algorithm". This algorithm is used to predict the customer purchasing patterns and the new transaction compared with these patterns in order to identify the frauds.

V. Non Functional Specifications

1. Usability- our application will be useful to customers where the system is and e- commerce application where customers of the website can shop online and gets the services as per their requirements. A System satisfies the customers to a better extent. The System finds credit cards frauds using a data science algorithm. As it'as a browser-based application it can be accessed worldwide.
2. Reliable-our application serves the services as user friendly and interest and are customized according to user specifications. Hence the application is reliable
3. Maintainability-as the software is updated regularly this helps in knowing the future advancements and can be enhanced easily
4. Efficiency - The application provides efficient results as it uses data science techniques for fraud detection. The Algorithm takes less time for predictions.
5. Re-usability – The system is a web-based application, once the user creates an account; a user can access the system multiple times.

VI. Methodology

ML is the system which is the study and development of all the systems, which we can learn from data. In E-mail messages, for example, they are used to learn and also to differentiate between spam and inbox messages.

The types of machine learning are:

i. Under Supervision of ML
ii. Unsupervised of Machine Learning
iii. Semi-Supervised of ML

Machine Learning that is both supervised and unsupervised.

A. Unsupervised Learning

For tasks that would benefit from the knowledge acquired from summarising data in novel and intriguing ways, a descriptive model is utilized. Unsupervised learning approaches do not use pre-existing labels. The idea is to look into the data and see whether there is any structure there. Unsupervised learning works well on transactional data.
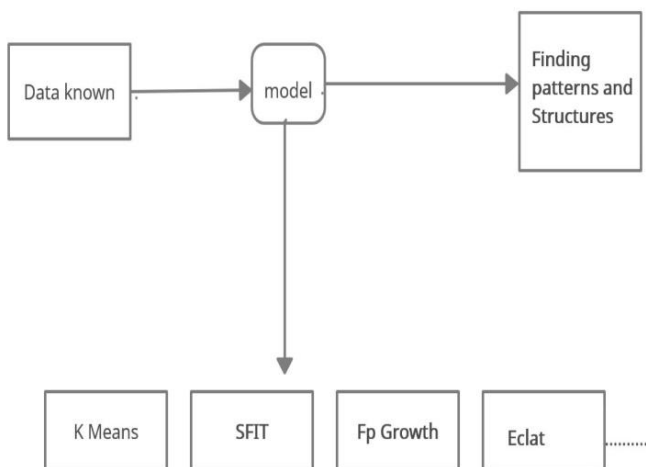
The Descriptive model developed using clustering techniques and association learning techniques. We have many efficient algorithms such as "Apriori Algorithm", "cclat algorithm", "AIT algorithm", "K Means algorithm" , "STEM Algorithm", "FP Growth algorithm", SFIT algorithm", "Means Fuzzy C algorithm "and so on.

Unsupervised learning

In the project, we use the "Éclat algorithm or Apriori Algorithm" to find the relationship between the objects or for recommendations or to find the complicated patterns. These algorithms are efficient algorithms and take less time for processing data. The algorithms will work absolutely perfect for small and large data sets. Algorithms also support all different formats of data.

B. Experiment Results

LHS	RHS	Count
Coffee	–	200
Tea	–	200
Milk	–	300
Sugar	–	150
Milk	Coffee	100
Tea	Sugar	80
Milk,Coffee	Tea	40
Milk,coffee,tea	Sugar	10

C. Data Visualization
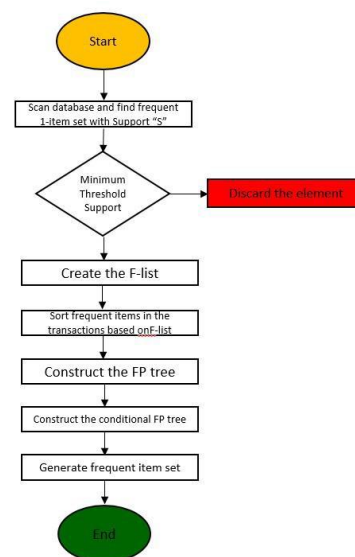
VII. Conclusion

Despite the fact that there are numerous fraud detection approaches, we can't say that our algorithm is 100% accurate in detecting fraud. Various consumer actions in an e-commerce application can also contribute to credit card theft, according to our findings. The System is an e-commerce real-time application that identifies credit card frauds based on the customers purchasing patterns. The System uses data science techniques to predict results in a better way. The System is an innovative solution for credit card fraud identification in e-commerce applications.

VIII. Future Enhancements

Additional methods like the éclat algorithm, the FP growth method may be used to assess the model's efficiency. Deep learning techniques such as CNN (Convoluted Neural Networks) can be used to test how well a model performs on supplied datasets.

Because the number of replies in our situation is constrained, a lot more specialised and extensive dataset may be utilised as a training model.

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