International Journal of Innovative Research in Engineering
Volume 3, Issue 6 (November-December 2022), PP: 126-127.
www.theijire.com
ISSN No: 2582-8746

E-card Generation & virtual Gateway Using Framework

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How to cite this paper:
Aftab Alam[1], Ahtesham Khan[2], Arshad Ansari[3], Imran Khan[4], Aaisha khatun[5], "E-card Generation & virtual Gateway Using Framework", IJIRE-V3I06-126-127.

Abstract: *Because of the increasing volume of daily electronic transactions, credit cards are the most widely used electronic payment method, making them more vulnerable to fraud. Card fraud has cost credit card companies a lot of money. Credit card fraud detection is currently the most common issue. Credit card companies are looking for the right technologies and systems to detect and reduce credit card fraud. There are several methods for detecting credit card fraud that have been reviewed and highlighted in this paper, as well as their advantages and disadvantages.*

Key Word: *Supervised Machine Learning Techniques, Support Vector Machine, and Naïve Bayes.*

I. INTRODUCTION

Today, due to the rapid growth of e-commerce, online shopping or online transactions are increasing by the day. Credit cards are accepted as payment. Credit card users are increasing on a daily basis. According to reports, nearly 430 million credit and debit card users exist throughout Europe. As the number of credit/debit card users grows, so does the number of fraudulent users. Credit cards are classified into two types. 1. Physical identification card 2. A virtual credit card. When using a physical card, the user must present the card when making a payment. In this case, a fraudulent user only needs to steal the card in order to gain access to it. The fraudulent user of a virtual card must be aware of the details information.CVV number, Secure code, and credit card number are examples of credit card information. As a result, a secure payment gateway is required to identify the user and confirm whether the user is legal or an attacker. Behaviour and Location Analysis is the most effective and appropriate technique for detecting fraud (BLA). For a long time, online transaction fraudsters and detectors have played a complex role. Transaction fraud is more prevalent than ever before, particularly in the Internet age, and it causes significant financial losses. The Nilsson study examined the global scenario surrounding online transaction fraud in depth. Online transaction fraud cost the economy about $21 billion in 2015, $24 billion in 2016, and more than $27 billion in 2017. Year in and year out,The global rate of online transaction fraud is expected to rise to $31.67 billion by 2020. As a result, banks and financial institutions may be required to create an automated online fraud detection system to detect and monitor online transactions. Fraud detection systems are designed to detect and track incoming transactions by separating anomalous activity patterns from large amounts of transactional data. Machine learning has been shown to be extremely effective at detecting these patterns. Alternatively, a large number of transaction records could be used to train a high-performance fraud classifier. Despite the fact that supervised learning has been shown to be extremely effective in detecting fraudulent transactions, transactional fraud analysis technology will continue to advance.Small changes can also save a company a lot of money. There are some flaws in the novel technique of unsupervised and controlled online fraud detection.

II. LITERATURE REVIEW

Prajal Save et al. [1] proposed a model based on a decision tree and a hybrid of the Luhn and Hunt algorithms. The Luhn algorithm is used to determine whether or not an incoming transaction is fraudulent. It validates credit card numbers using the credit card number as input. Address Mismatch and Degree of Out lierness are used to assess each incoming transaction's deviation from the cardholder's normal profile. Finally, the general belief is strengthened or weakened using Bayes Theorem, and the calculated probability is recombinated with the initial belief of fraud using an advanced combination heuristic. Vimala Devi Three machine-learning algorithms were presented and implemented by J et al.

[2] to detect counterfeit transactions. Many metrics are used to assess the performance of classifiers or predictors, including the Vector Machine, Random Forest, and Decision Tree. These metrics can be classified as either prevalence-dependent or prevalence-independent. Furthermore, these techniques are used in mechanisms for detecting credit card fraud, and the results of these algorithms have been compared. Popat and Chaudhary

[3] presented supervised algorithms. Deep learning, Logistic Regression, Nave Bayesian, Support Vector Machine (SVM), Neural Network, Artificial Immune System, K Nearest Neighbour, Data Mining, Decision Tree, Fuzzy logic based System, and Genetic Algorithm are just a few of the techniques employed. Credit card fraud detection algorithms identify transactions

that are likely to be fraudulent. Machine-learning algorithms were compared to prediction, clustering, and outlier detection. Shiyang Xuan and colleagues.

[4] The Random Forest classifier was used to train the behavioural characteristics of credit card transactions. Random forest-based on random trees and random forest-based on CART are used to train the normal and fraudulent behaviour features. Performance measures are computed to assess the model's effectiveness. Geetha S. and Dornadula

[5] The transactions were aggregated into respective groups using the Sliding-Window method, i.e. Some window features were extracted to discover cardholder behavioural patterns. There are options for displaying the maximum amount, the minimum amount of a transaction, the average amount in the window, and even the time elapsed. Sangeeta Mittal and colleagues.

[6] Some popular machine learning algorithms in the supervised and unsupervised categories were chosen to evaluate the underlying problems. From classical to modern supervised learning algorithms have been considered. Tree-based algorithms, classical and deep neural networks, hybrid algorithms, and Bayesian approaches are among them. The ability of machine-learning algorithms to detect credit card fraud has been evaluated. A number of popular algorithms in the supervised, ensemble, and unsupervised categories were evaluated using various metrics. It is concluded that unsupervised algorithms handle dataset skewness better and thus perform well across all metrics in absolute and comparative terms. Akila and Deepa

[7] Anomaly Detection Algorithm, K-Nearest Neighbor, Random Forest, K-Means, and Decision Tree were among the algorithms used to detect fraud.Presented several techniques and predicted the best algorithm to detect deceptive transactions based on a given scenario. The system used various rules and algorithms to generate the Fraud score for that specific transaction in order to predict the fraud result. Xiaohan Yu et al.

[8] proposed a deep network algorithm for detecting fraud. The paper describes a deep neural network algorithm for detecting credit card fraud. The neural network algorithm approach as well as deep neural network applications have been described.

III. CONCLUSION

Credit card fraud has become a major global concern. Fraud causes enormous financial losses around the world. This prompted credit card companies to invest money in developing techniques to detect and reduce fraud. The primary goal of this research is to develop algorithms that can be used by credit card companies to identify fraudulent transactions more accurately, in less time and at a lower cost. Logistic Regression, Decision Trees, Random Forest, Artificial Neural Networks, Logistic Regression, K-Nearest Neighbors, and K-means clustering are among the machine learning algorithms compared. Because no two scenarios are alike, a scenario-based algorithm can be used to determine which scenario is best suited to that scenario.Each of the fraud detection techniques discussed in this survey article has benefits and drawbacks. The researchers employ various performance measures (techniques) and algorithms to predict and identify fraudulent transactions. Studies are refreshed and encouraged to improve the fraud detection basis in order to determine the appropriate weight for cost factors, tested accuracy, and detection accuracy. Such surveys will enable the researchers to develop the most accurate hybrid approach for detecting fraudulent credit card transactions.

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