

Fraud Detection of Credit Card by using Random Forest

Approach

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ABSTRACT

In this essay, we primarily focus on real-world credit card fraud detection. Then the detection of credit card fraud is supported by fraudulent transactions. In general, there are online and offline conditions for credit card fraud. However, in today's world, the number of online fraud sale conditions is increasing everyday. Therefore, the system has been designed to use vivid styles to identify online scam deals. In the suggested system, we employ the Random Forest Algorithm (RFA) to gamble on the delicateness and fraudulence of the agreements.

This method is based on supervised literacy, which use decision trees to bracket portions of the dataset. A confusion matrix is formed after dataset bracketing. Based on the confusion matrix, the performance of the Random Forest method is calculated. The results of reusing the dataset show a delicacy of roughly 90. Then, for greater delicacy, we've included two additional algorithms, namely the SVM and decision tree method.

INDEX TERMS: *RFA(Random Forest Algorithm), Credit Card Fraud discovery, literacy algorithm ,SVM ,machine learning..*

I. INTRODUCTION

The use of stolen credit cards is on the rise. It is possible to commit credit card fraud in both online and in-person purchases. In order to engage in unlawful or fraudulent operations one needs physical cards for offline transactions whereas virtual cards are needed for internet ones. As a result, many fraudulent transactions may occur with credit cards without the cardholders' knowledge. Identity theft occurs when criminals gain access to financial details such as a credit card number, bank account number, or other personal information that can be used to make purchases. Fraudsters need the victim's stolen

credit card information in the case of offline transactions, and the victim's stolen identity and online details in the case of online transactions.

Thus, in today's modern world, where there is a significant problem with bank transactions, credit card fraud has become the major concern. Many fraudulent transactions result in the disclosure of private information since they are both difficult for the user and the financial authorities to detect. A variety of models, such as supervised learning and unsupervised learning algorithms, are used to detect fraudulent transactions by analysing the behaviour of the transactions. In the current system, techniques like Cluster Analysis, Support Vector Machine, Nave Bayes Classification, etc. are employed to determine how accurate fraudulent activities are. In order to accurately identify fraudulent transactions, this article employs the Random Forest Algorithm.

II.RELATED WORKS

The main end of this exploration work is to classify the emotional expression from the mouth region of the mortal face. As the original task is to prize the mouth region from the facial image, a check on colorful being exploration workshop to member the face expression images is reviewed and bandied.

Reference and year	Approach and Method	Performance
Andrea Dal Pozzolo, Giacomo Boracchi, Olivier Caen, Cesare Alippi, Gianluca Bontempi, 2018	"Credit Card Fraud Detection: A Realistic Modeling and a Novel Learning Strategy	Detecting frauds in credit card transactions is perhaps one of the best testbeds for computational intelligence algorithms.
Lutao Zheng, Guanjin Liu, Wenjing Luan, Zhengchuan Li, Yuwei Zhang, Chungang Yan, Changjun Jiang, 2018	A new Credit card fraud detecting method based on behavior certificate	Along with the popularization of electronic commerce (e-commerce), the problem of credit card fraud become more and more serious
Sahil Dhankhad, Emad Mohammed, Behrouz Far, 2018	"Supervised Machine Learning Algorithms for Credit Card Fraudulent Transaction Detection: A Comparative Study	The goal of data analytics is to delineate hidden patterns and use them to support informed decisions in a variety of situations.
Navanshu Khare and Saad Yunus Sait, 2018	"Credit Card Fraud Detection using Machine Learning Models and Collating	Finance fraud is a growing problem with far consequences in the financial industry and

shown as a confusion matrix. The classification of the above data will be used to conducting performance analysis. The accuracy of transactions involving credit card fraud can be derived from this study and will then be graphically displayed.

MODULES DESCRIPTION:

Upload credit card dataset: we collected the credit card fraud data from Kaggle website. Generate train and test model: we have to pre process the collected data like cleaning null values, unwanted rows, unwanted columns. After that we have to separate the data into two parts training part with 80% and testing part with 20%.

Run Random forest algorithm: we have to train the training data for RF algorithm and test with test data to get accuracy.

Detect Credit card Fraud from test data: by using random forest we can detect the fraud signatures.

Clean and fraud graph: we can display the clean and fraud transactions with graph.

III. DATASET DESCRIPTION

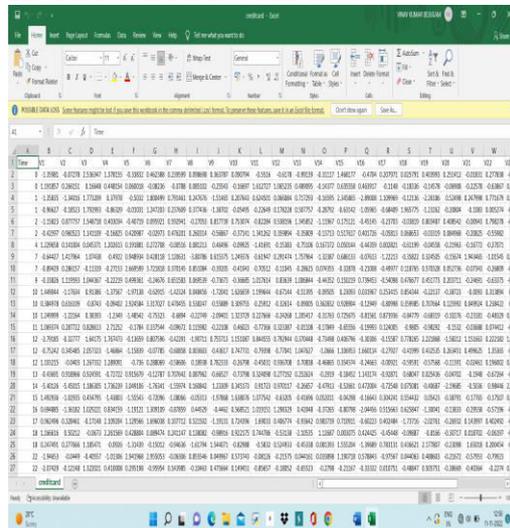


Fig 1:Dataset Values

collected dataset from kaggle website

IV. METHODOLOGY

The Random Forest algorithm and neural networks are used in the proposed system to classify and predict data. First, a dataset for credit cards will be collected, and only then will it be processed. After dataset analysis, dataset cleaning is required. Any dataset will generally have a large number of duplicate and null values; as a result, cleaning is necessary to remove all of these entries. The dataset must then be classified into two parts trained dataset and the testing dataset—for comparison and analysis. The Random Forest Method must be applied after the dataset has been divided; this algorithm will provide us with an improved level of accuracy regarding credit card fraud transactions. The Random Forest Algorithm will be used to divide the dataset into four groups, and the classification results will be

V. EXPERIMENT, RESULTS, AND ANALYSIS

To run project double click on 'run.bat' file to get below screen



Fig 2:In above screen click on 'Upload Credit Card Dataset' button to upload dataset

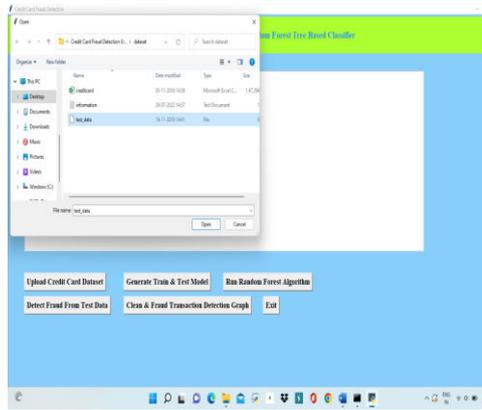


Fig 7: I am uploading a test dataset in the screen above, and once it has been downloaded, the following prediction data will display.



Fig 8: Test data applications

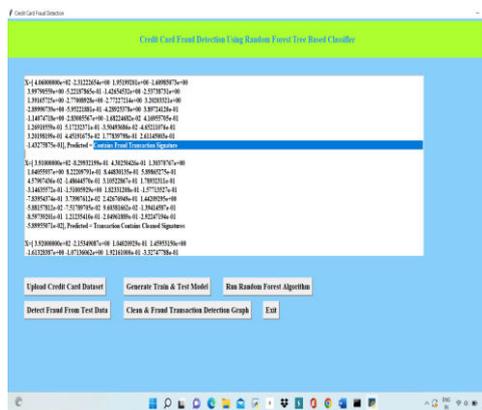


Fig 9: On the screen above, the application will show next to each test result if the transaction has authentic or fraudulent signatures. To view the total test transaction with clean and fraudulent signatures in graphical style, click the "Clean & Fraud

Transaction Detection Graph" button. See display below

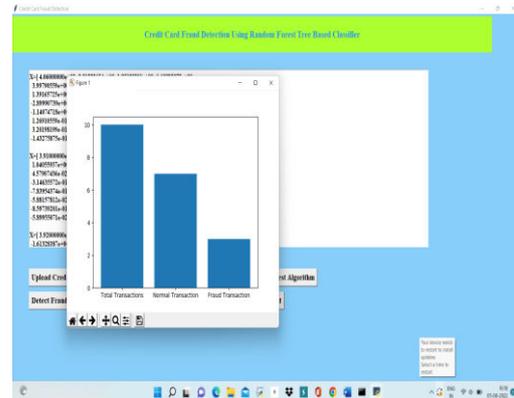


Fig 10: Above graphs showing the Results

VI. CONCLUSION AND FUTURE WORK

The Random forest algorithm will perform better with more training data, but testing and application time will be shorter. Additional pre-processing techniques would also be beneficial. The results shown by the SVM method are excellent, but they could have been better if more preprocessing had been done on the data. The SVM algorithm still has the imbalanced dataset problem. Here we got highest accuracy using decision tree algorithms.

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