*International Journal for Modern Trends in Science and Technology*, 8(03):115-117, 2022

ISSN: 2455-3778 online
DOI: https://doi.org/10.46501/IJMTST0803023
Available online at: http://www.ijmtst.com/vol8issue03.html

# Detection of Deception in Credit Cards

**Dr. D. Suneetha[1] | O. Rama Varshita[2] | S. Pravinya[2] | D. Sowmya[2] | B. Pulla Rao[2]**

[1]Professor & HOD, Department of CSE, NRI Institute of Technology, Vijayawada, A.P., India.
[2]Department of CSE, NRI Institute of Technology, Vijayawada, A.P., India.

**To Cite this Article**
Dr. D. Suneetha, O. Rama Varshita, S. Pravinya, D. Sowmya and B. Pulla Rao. Detection of Deception in Credit Cards. International Journal for Modern Trends in Science and Technology 2022, 8(03), pp. 115-117. https://doi.org/10.46501/IJMTST0803023

**Article Info**
Received: 08 February 2022; Accepted: 10 March 2022; Published: 16 March 2022.

## ABSTRACT

***As the number of users opting for credit card payment is increasing daily worldwide, the threats posed by internet fraudsters on this type of payment are also on the increase. Banks, merchants and consumers globally have lost billions of dollars as a result of this type of fraud. The shortcomings of many of the existing credit card fraud detection techniques include their inability to effectively detect fraud transactions, the high false alarm rate, and high computational cost. These necessitated the development of more efficient credit card fraud prevention measures.***

***Many machine learning algorithms can be used for detection. This research shows several algorithms that can be used for classifying transactions as fraud or genuine one. Credit Card Fraud Detection dataset was used in the research. Because the dataset was highly imbalanced, SMOTE technique was used for oversampling. Further, feature selection was performed and dataset was split into two parts, training data and test data. The algorithms used in the experiment were Logistic Regression, Random Forest and Naïve Bayes Results show that each algorithm can be used for credit card fraud detection with high accuracy. Proposed model can be used for detection of other irregularities.***

## 1. INTRODUCTION

Credit card is a small thin plastic or fibre card that contains information about the person such as picture or signature and person named on it to charge purchases and service to his linked account charges for which will be debited swiping machines. Due to increasing popularity of cashless transactions, one of the most common frauds are credit card frauds. Credit card fraud refers to the situation where fraudster uses credit card for their needs while owner of that credit card is not aware of that. Fraudulent transactions conducted using credit cards acquired worldwide amounted to €1.8 billion in 2016. However, fraudsters are constantly coming up with new ways to steal information. There are two types of credit card frauds. One is theft of physical card, and other one is stealing sensitive information from the card, such as card number, cvv code, type of card and other. By stealing credit card 3 information, a fraudster can broach a large amount of money or make a large amount of purchase before cardholder finds out. Because of that, companies use various machine learning methods to recognize which transactions are fraudulent and which are not.

**Checklist: Parts of an Abstract**

**Motivation:**

The main motivation for this project over the years, along with the evolution of fraud detection
methods, perpetrators of fraud have also been evolving their fraud practices to avoid detection.
Fraud detection system is to identify suspicious events and report them to an analyst while
letting normal transactions to be automatically processed.

**Problem Statement:**

Credit card frauds are increasing heavily because financial loss is increasing drastically. The Credit Card Fraud Detection Problem includes modelling past credit card transactions with the knowledge of the ones that turned out to be a fraud. This model is then used to identify whether a new transaction is fraudulent or not.

**Approach:**

The approach of Fraud detection in Credit card is to track the pattern of all transactions and if any pattern is abnormal then the transaction should be aborted.

**Results:**

This project detects those transaction as fraud where user belongs to low category and highcategory payment is made or vice versa. To determine accurately the transaction as fraud or not and which algorithm is most suitable for the problem of detecting fraud transactions

**EXISTING SYSTEM**

According to the research done by A. Mishra and C. Ghorpade Logistic Regression, SVM and a combination of certain classifiers which were used led to High precision and recall were achieved only after balancing the dataset by under sampling the data However, these models are computationally expensive.

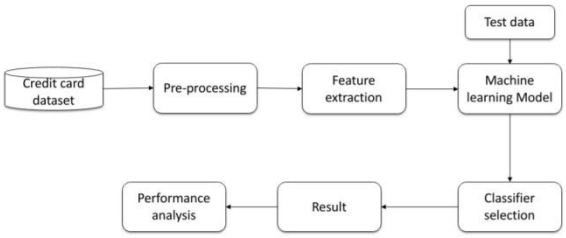
**2. PROPOSED SYSTEM**

In proposed system, we use random forest algorithm to classify the credit card dataset. Even for large dataset this algorithm is extremely fast and can able to give high accuracy.High precision and recall were achieved by SMOTE over sampling method.

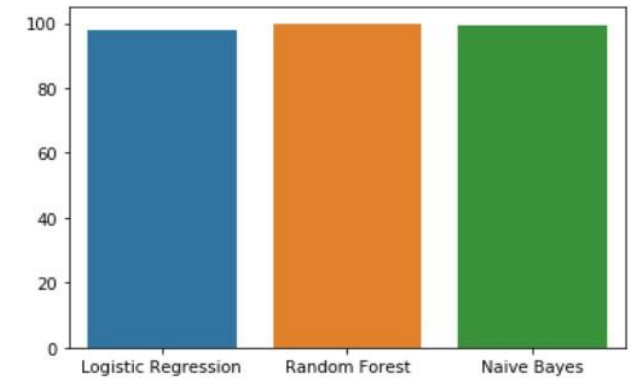
**Modules:**

1. Python – 3.x
2. Numpy – 1.19.2
3. Scikit-Learn -0.24.1
4. Matplotlib – 3.3.4
5. Imblearn -0.8.0
6. Collections, Itertools

**System Architecture:**




**SAMPLE RESULTS**




```
[ ] # Number of unique values in the class feature and count of the unique values
    print("Unique values in Class feature:",data['Class'].unique())
    print("Count of unique values in the CLASS attribute \n",data['Class'].value_counts())

    Unique values in Class feature: [0 1]
    Count of unique values in the CLASS attribute
     0    284315
    1       492
    Name: Class, dtype: int64
```

Random forest :

```
a2=accuracy_score(y_test,y_pred2)*100
print("Accuracy: ",accuracy_score(y_test,y_pred2))
print("Precision: ",precision_score(y_test,y_pred2))
print("Recall: ",recall_score(y_test,y_pred2))

Accuracy:  0.9994967405170698
Precision:  0.8698630136986302
Recall:  0.8410596026490066
```

Logistic Regression :

```
[ ] a1=accuracy_score(y_test,y_pred)*100
    print("Accuracy: ",accuracy_score(y_test,y_pred)*100)
    print("Precision: ",precision_score(y_test,y_pred)*1000)
    print("Recall: ",recall_score(y_test,y_pred)*100)

    Accuracy:  97.72128787612795
    Precision:  67.4373795761079
    Recall:  92.71523178807946
```

Naïve Bayes :

```
[ ] a3=accuracy_score(y_test,y_pred3)*100
    print(accuracy_score(y_test,y_pred3))
    print(recall_score(y_test,y_pred3))
    print(precision_score(y_test,y_pred))

    0.992252144704657
    0.06622516556291391
    0.0674373795761079
```

## 3. CONCLUSION

Credit card frauds represent a very serious business problem. These frauds can lead to huge losses, both business and personal. Because of that, companies. invest more and more money in developing new ideas and ways that will help to detect and prevent frauds. The main goal of this paper was to compare certain machine learning algorithms for detection of fraudulent transactions. Hence, comparison was made and it was established that Random Forest algorithm gives the best results

### Conflict of interest statement

Authors declare that they do not have any conflict of interest.

## REFERENCES


[1] Global Facts (2019). Topic: Startups worldwide. [online] Available at: https://www.statista.com/topics/4733/startups-worldwide/ [Accessed 10 Jan. 2019].

[2] En.wikipedia.org. (2019). Credit card fraud. [online] Available at: https://en.wikipedia.org/wiki/Credit_card _fraud [Accessed 24 Jan. 2019]

[3] A. Mishra, C. Ghorpade, "Credit Card Fraud Detection on the Skewed Data Using Various Classification and Ensemble Techniques" 2018 IEEE International Students' Conference on Electrical, Electronics and Computer Science (SCEECS) pp. 1-5. IEEE .

[4] S. V. S. S. Lakshmi, S. D. Kavilla "Machine Learning For Credit Card Fraud Detection System", unpublished

[5] N. Malini, Dr. M. Pushpa, "Analysis on Credit Card Fraud Identification Techniques based on KNN and Outlier Detection", Advances in Electrical, Electronics, Information, Communication and BioInformatics (AEEICB), 2017 Third International Conference on pp. 255- 258. IEEE.

[6] N. Kalaiselvi, S. Rajalakshmi, J. Padmavathi, "Credit card fraud detection using learning to rank approach", 2018 Internat2018 International Conference on Computation of Power, Energy, Information and Communication (ICCPEIC) ional conference on computation of power, energy, Information and Communication (ICCPEIC) pp. 191- 196. IEEE