# Credit Card Fraud Detection using Machine learning

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## ABSTRACT

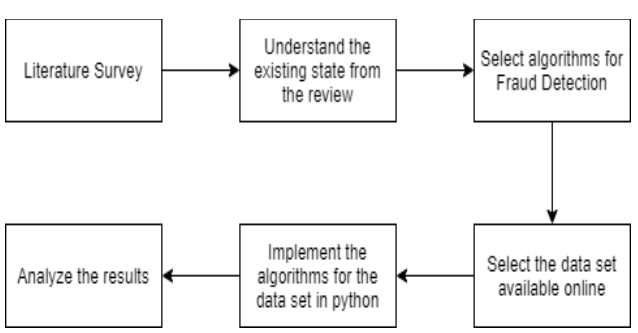
➢It is clear that people like to use credit cards. In fact, credit cards have replaced debit cards as the most preferred payment form.
➢According to a 2016 survey by payment processing firm TSYS. The latest Nilson report estimates that in 2016, worldwide credit card losses topped $24.71 billion.
➢It is important that credit card companies should able to recognize fraudulent credit card transactions so that customers are not charged for items that they did not purchase.
➢Credit card fraud is a wide-ranging term for theft and fraud committed using or involving a payment card, such as a credit card or debit card, as a fraudulent source of funds in a transaction.
➢Credit card fraud happens when consumers give their credit card number to unfamiliar individuals, when cards are lost or stolen, when mail is diverted from the intended recipient and taken by criminals, or when employees of a business copy the cards or card numbers of a cardholder.

## OBJECTIVES

➢The main objective of this project is to detect whether the credit card transaction is fraudulent or not.
➢In order to predict that we are using various machine learning algorithms.
➢To use credit card safely for online transaction.
➢To add layer of security for the system.

## INTRODUCTION

➢In recent times online shopping is much easier and handy with help of online payment using valid credit card, a debit card or an internet bank account.
➢Online transaction fraud detection is the biggest challenging issue for banking systems as it is the most prevalent criminal activities occurring in the financial industry. It is very important to detect credit card fraud.
➢Fraud detection includes monitoring and analyzing the behavior of various users in order to estimate, detect or avoid undesirable behavior.
➢In order to identify credit card fraud detection effectively, we need to understand the various technologies, algorithms and types involved in detecting credit card frauds.
➢ Algorithm can differentiate transactions which are fraudulent or not. Find fraud, they need to passed dataset and knowledge of fraudulent transaction. They analyze the dataset and classify all transactions.
➢This project The problem with the frauds is that there is no pattern as such, since every type of fraud committed is different and hence technology should also evolve to detect and stop such activities.
➢Our project addresses this problem by detecting online credit card frauds credit card fraud detection using several methods of anomaly detection. Thus, producing anomalized credit card transactions labeled as fraudulent or genuine.




High Level diagram

## MODEL RESULT

➢Fig 1 shows the number of transactions and the number of fraudulent and non fraudulent transactions out of them.
➢Fig 2 shows the importance of every parameter. Hence it is easy to know what parameters to consider for modeling.
➢The K-means clustering gives an accuracy of 54.34%.(fig3) We use the Local Outlier Method to classify the data that gives the accuracy of 96%.
➢When Logistic Regression is used to model the data, the model accuracy is found to be 90%.Naïve bayes algorithm yields a result which is 84.7% accurate.
➢Random forest gives a very high accuracy of 98% . We also obtain this ROC curve by plotting True positive Rates and False Positive rates. Hence the area under the curve (AUC) for random Forest algorithm is around 0.96.(fig3)

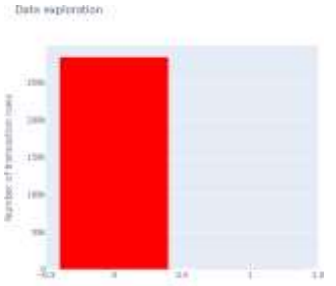
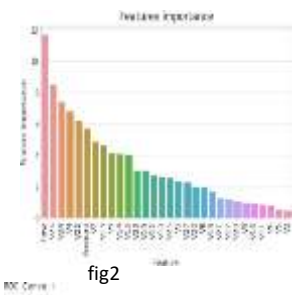


fig1



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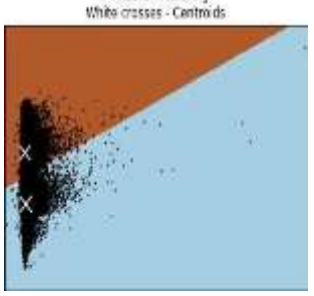


fig3

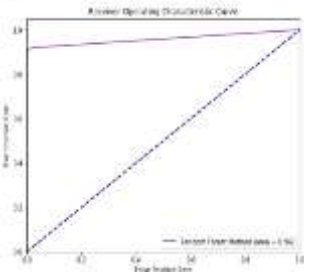

fig4

## CONCLUSION

➢Fraud detection may be a complicated issue that needs a considerable quantity of designing before throwing machine learning algorithms at it.
➢The unskilled fraudster is unlikely to control on the dimensions of the skilled fraudster so the prices of the bank of their detection could also be wasteful.
➢As the next step within the analysis program, the main focus should be upon the implementation of a suspicious card on a true dataset and it's analysis.
➢The most tasks are to make rating models to predict fraudulent behavior, taking under consideration the fields of behavior that relate to the various forms of credit card fraud known during this project, and to gauge the associated moral implications.
➢We can see that Random Forest algorithm gives the highest accuracy among the other algorithms and also it is an extremely comprehensive approach that provides great business value.

## REFERENCES

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