

**MINI PROJECT - II**  
(2020-21)

# **Credit Card Fraud Detection**

## **SYPNOSIS**



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## INTRODUCTION

'Fraud' in credit card transactions is unauthorized and unwanted usage of an account by someone other than the owner of that account. Necessary prevention measures can be taken to stop this abuse and the behaviour of such fraudulent practices can be studied to minimize it and protect against similar occurrences in the future. In other words, Credit Card Fraud can be defined as a case where a person uses someone else's credit card for personal reasons while the owner and the card issuing authorities are unaware of the fact that the card is being used.

Fraud detection involves monitoring the activities of populations of users in order to estimate, perceive or avoid objectionable behaviour, which consist of fraud, intrusion, and defaulting.

This is a very relevant problem that demands the attention of communities such as machine learning and data science where the solution to this problem can be automated. This problem is particularly challenging from the perspective of learning, as it is characterized by various factors such as class imbalance. The number of valid transactions far outnumber fraudulent ones. Also, the transaction patterns often change their statistical properties over the course of time.

## USE OF THE PROJECT

It can be used to prevent:

- Credit Card Frauds: Online and Offline
- Card Theft
- Account Bankruptcy
- Device Intrusion
- Application Fraud
- Counterfeit Card
- Telecommunication Fraud

## IDEA

To create something that identifies and prevents fraudulent credit card transactions so that customers are not charged for items that they did not purchase. Such problems can be tackled with Data Science and its importance, along with Machine Learning, cannot be overstated. This project intends to illustrate the modelling of a data set using machine learning with Credit Card Fraud Detection. The Credit Card Fraud Detection Problem includes modelling past credit card transactions with the data of the ones that turned out to be fraud. This model is then used to recognize whether a new transaction is fraudulent or not. Our objective here is to detect 100% of the fraudulent transactions while minimizing the

incorrect fraud classifications. Credit Card Fraud Detection is a typical sample of classification. In this process, we have focused on analysing and pre-processing data sets as well as the deployment of multiple anomaly detection algorithms such as Local Outlier Factor and Isolation Forest algorithm on the PCA transformed Credit Card Transaction data.

### **Software Specification:**

- **Technology Used:** Numpy, Pandas, Scikit-learn library
- **Language Used:** Python
- **User Interface Design:** Jupyter Notebook

### **Hardware Specification:**

- **Processor Used:** Intel Pentium or above
- **Operating System:** Windows 7 or above
- **RAM:** 4GB or above
- **Hardware Devices:** Computer System
- **Hard Disk:** 256GB or above

### **Future Scope:**

Beyond the technical approach of this problem it is important to note the important role and the challenges regulation around the world. The heterogeneity across regulatory frameworks in different countries poses

great challenges for many industries to detect fraud. For instance, in countries where Electronic privacy laws are too strict it is harder to gather data, detect fraudulent patterns, and thus track and identify fraudsters. To learn more about the specific tools that are in the process of being implemented to combat fraud.