Fraud Detection

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Abstract— *One of the most commonly used payment methods nowadays is the credit card payment method. It plays a very important role in today's economy. In order to detect such frauds, the credit card fraud detection system has been introduced. The aim of fraud detection system is to detect fraudulent activities before it has commenced and it is necessary to identify the types of credit card fraud as the card can either be stolen by a person or the information can be misused for his personal use. A number of research works has been done to develop to solutions for detecting fraud activities. Modelling of the past data along with credit card transactions can be done to detect any fraudulent activities that has taken place.*

Keywords: *Credit card transactions, anomaly detection, Fraud detection*

I. INTRODUCTION

Fraud can be defined as access of an account by someone unauthorised or someone who is not owner of the account. The consequences of such frauds affect not only the financial institutions but also the consumers the number of fraudulent transactions may be small as compared to legitimate or genuine ones There has been growing interests in applying machine learning and data mining approaches for credit card fraud detection. Anomaly detection can be applied to detect the fraud transactions that has been done using a credit card., it is very difficult to get a labelled dataset in the area of anomaly detection and when the labelling is performed by humans it becomes an expensive process.

The technique to identify such types of fraud is by analysing and figuring out any inconsistency found in the patterns on every card with respect to the "usual" spending patterns.

II. LITERATURE SURVEY

[1] The authors proposed a model where large sample of labelled credit card account transactions was trained using neural network which included users account activities for over two months. [2] A multi-classifier meta-learning approach was proposed by the authors where the problem of huge databases with skewed class distributions and non-uniform cost per error and was also addressed. [3] The authors creates a model of typical card holders behaviour using the self-organising map algorithm and also finding suspicious transactions. By analysing the deviation of transactions. [4]The authors proposed model shows the highest number with high accuracy of new transactions using a credit card fraud detection system in real time it also compares different unsupervised techniques for such fraud activities. The authors proposed a model using a series of data mining techniques such as the automatic design of user profiling methods. [5]The authors provides a comprehensive review of different techniques to detect different types of frauds such as credit card fraud, telecommunication fraud, and computer intrusion proposes by conducting a survey about the techniques for identifying them.[6] The authors formalises the main types and subtypes of known fraud, and describes the type of data that has been collected within the affected industries. [7] The authors proposes to provide a systematic and comprehensive overview of the issues and challenges that effect the performance of Fraud detection systems in some of the e-commerce sectors such as the credit card, telecommunication, healthcare insurance and online auction.. [8] The authors compare the performance of the leading supervised and unsupervised techniques and evaluates them by using various types of standard performance measures. [9] The authors does a comparative analysis for credit card fraud detection using supervised and unsupervised techniques by evaluating machine learning algorithms on a dataset with credit card transactions information.

[10] The author proposes a model where three unsupervised methods like g autoencoder, one-class support vector machine, and robust Mahalanobis outlier detection are applied for credit card fraud detection. [11] The authors tried to group existing techniques into different categories and provide a structured and comprehensive overview of the research on anomaly detection. [12] The authors tried to group existing techniques into different categories and

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III. CONCLUSION

In this paper an analysis of credit card fraud identification was described on a publicly available dataset utilizing Machine Learning techniques such as Isolation Forest algorithm and Local Outlier Factor. The result has shown that the isolated forest is very efficient and outperforms in detecting anomalies in the case of the credit card. The use of this algorithm in credit card fraud detection system results in detecting or predicting the fraud probably in a very short span of time after the transactions has been made. This will eventually prevent the banks and customers from great losses and also will reduce risks.

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