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CREDIT CARD FRAUD DETECTION USING MACHINE LEARNING

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Abstract : Nowadays digitalization gaining popularity because of seamless, easy and convenience use of ecommerce.

It became very rampant and easy mode of payment. People choose online payment and e-shopping; because of time convenience, transport convenience, etc. Machine Learning has been successfully applied to finance databases to automate analysis of huge volumes of complex data. Machine Learning has also played a silent role in the detection of credit card fraud in online transactions. Fraud detection in credit card is a big problem, it becomes challenging due to two major reasons– first, the profiles of normal and fraudulent behaviors change frequently and secondly due to reason that credit card fraud data sets are highly skewed.

I. INTRODUCTION

INTRODUCTION

Credit card fraud is a growing concern with far reaching consequences in the government, corporate organizations, finance industry etc. In Today's world high dependency on internet technology has enjoyed increased credit card transactions but credit card fraud had also accelerated as online and offline transaction. credit card transactions become a widespread mode of payment, focus has been given to recent computational methodologies to handle the credit card fraud problem. There are many fraud detection solutions and software which prevent frauds in businesses such as credit card, retail, e-commerce, insurance, and industries. Machine Learning is one notable and popular methods used in solving credit fraud detection problem Fraud detection in credit card is the truly the process of identifying those transactions that are fraudulent into two classes of legal class and fraud class transactions. several techniques are designed and implemented to solve to credit card fraud detection such as genetic algorithm, data mining frequent item set mining, migrating birds' optimization algorithm. Credit card fraud detection is a very popular but also a difficult problem to solve. Firstly, due to issue of having only a limited amount of data, credit card makes it challenging to match a pattern for dataset. Secondly, there can be many entries in dataset with truncations of fraudsters which also will fit a pattern of legitimate behavior.

MOTIVATION

The use of machine learning in fraud detection has been an interesting topic now days. A credit card fraud detection algorithm consists in identifying those transactions with a high probability of being fraud, based on historical fraud patterns. Machine learning, having three types, from that also the supervised and hybrid approach is more suitable for fraud detection.

Objective – To formalization of the fraud-detection problem that realistically describes the operating conditions of frauds that everyday analyze massive streams of credit card transactions. To design and assess a new technique that effectively addresses credit card frauds. To Timely identification of fraudulent transactions can prevent the fraudsters from further committing such illicit crimes.

Problem Statement – To build credit card fraud detection system using machine learning algorithms. The major aim of this project is to perform a comprehensive review of different fraud detection methods and some innovative machine learning techniques.

EXISTING SYSTEM AND ANALYSIS

An Approach of this technique is to detect efficient credit card fraud detection using data mining techniques.

It has become more difficult to develop new fraud detection mechanisms and fraud detection methods as well.

Need good understanding of typical and abnormal behaviors for different types of fraud cases.

Not easy to process the results due to transformation of the input data.

SYSTEM ARCHITECTURE

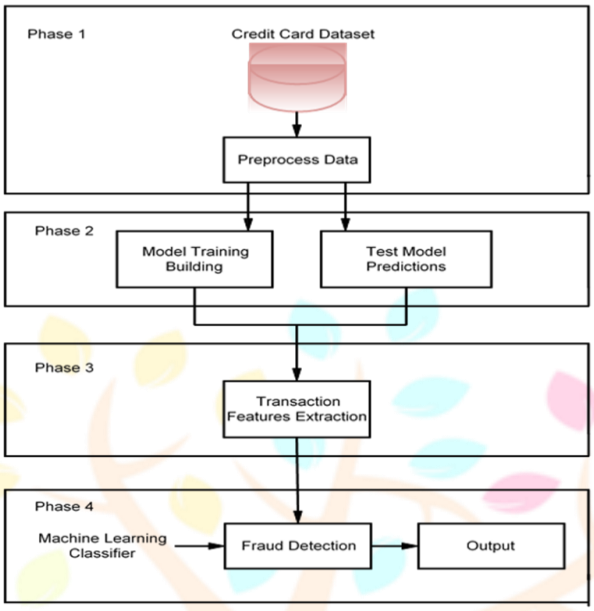

Fig- System Architecture

We divided the model into four stages,

Stage 1: We selected the European cardholder dataset with 100,000 transactions, and its performance was based on accuracy, sens itivity, specificity, and veracity. The dataset contains v1, v2, ... v28 characteristics, class characteristics, time characteristics and q uantitative characteristics. In this dataset, we pre-

process the data to improve the accuracy and quality of the dataset, making the data consistent.

Phase 2: The preprocessed data is then used for training and testing. 80% of the data is used for training the model and 20% is use d for testing the model.

The third step: Based on the trained and tested data, features are extracted from transactions, reducing the amount of redundant da ta in the dataset.

Step 4: Using a machine learning classifier and a set of transaction data, we detect fraud.

CONCLUSION

Credit card detection is a fascinating domain. From this survey, we analyzed machine learning is best in compare to prediction, clustering, outlier detection etc., that earlier used. Machine-learning techniques are mostly preferred in fraud detection, because of its high accuracy and detection rate. Still researchers are struggling to get more accuracy and detection rate. Moreover, organizations are interested in finding methods that can reduce cost and increase the profit; they can find and select the method from above studies.

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