Credit Card Fraud Detection

(Batch 1)

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Abstract:

With many research works focusing on tackle frauds of credit card transaction or insurance, only few mentioned the identity fraud of credit card application. So, in this project we will be building a model with few machine learning models to detect such fraud.

Introduction:

When your card is lost or stolen, an unauthorized charge can happen; in other words, the person who finds it uses it for a purchase. Criminals can also forge your name and use the card or order some goods through a mobile phone or computer. Also, there is the problem of using a counterfeit credit card – a fake card that has the real account information that was stolen from holders. That is especially dangerous because the victims have their real cards, but do not know that someone has copied their card. Such fraudulent cards look quite legitimate and have the logos and encoded magnetic strips of the original one. Fraudulent credit cards are usually destroyed by the criminals after several successful payments, just before a victim realizes the problem and reports it.

The traditional approach to identify frauds is expert system, which is a set of rules made by experts, and will determine whether a transaction is fraudulent or not. However, as financial systems get more and more complicated, the number and complexity of rules grow to a point where no one could construct and maintain such complex system. As a result, more and more attention has been focused on machine learning and data mining.

Instead of writing rules by hand, computers can learn the patterns and signals of fraudulent activities and identify potential frauds based on some relatively simple algorithms. And with the development of more powerful and tailor-made hardware for training such models, handling huge data sets containing billions of records became plausible. Researchers have

been building such models with a wide range of algorithms and achieved excellent accuracy. Most research, though, focused on credit card payment or transactions, but the area of identity theft, especially for credit card application, remains open. In this project, we investigate the performance and possibility of machine learning algorithms to detect fraudulent credit card applications.

Methodology:

First, we will be understanding and exploring our dataset followed by data cleaning. Then we will perform Exploratory data analysis. Later we will prepare our data for modelling by checking the skewness of the data and mitigate it for fair analysis. Following this, we will split our data into train and test set and scale the data (normalization).

Next, we will build our model which will detect the fraud with various algorithm such as Decision tree, Random Forest, SVM, etc. Lastly, we will evaluate our model running the dataset to our model.

References:

1. Journal of Physics: Conference Series, Volume 1693, The 2020 3rd International Conference on Computer Information Science and Artificial Intelligence (CISAI) 2020 25-27 September 2020, Inner Mongolia, China