Credit Card Fraud Detection by Machine Learning and ANN

Summary

Credit cards are one of the most targets of fraud but not the only one. It can occur with any type of credit products such as personal loans, home loans, and retail. For this credit card fraud detection, I am going to use the transactions of the credit card as a dataset. From a perspective, it can be argued that banks and credit card companies should attempt to detect all fraudulent cases.

Introduction

Saving people income from any fraudulent activity is one of the most important things in the present day. Also, I hope to detect credit card fraud for many people, banking sectors, and online retailers. This model detecting whether the transaction is fraud or not that can help in saving a vast amount of money and security. The project will be a chance for me to perform and apply data mining analysis on real-world credit cards datasets.

The Goal

The main aim of this project is to figure out how to execute machine learning and AI-based on financial datasets. So far, I have learned supervised and unsupervised machine learning algorithms and ANN, and, now this is the time to see that practical implementation on credit card fraud detection by using some selective algorithms to find out the best accuracy result before the transaction is approved.

Data Sources

The Credit card fraud data gathered for this project was collected from the Kaggle web site, which was saved in CSV format.

(https://www.kaggle.com/mlg-ulb/creditcardfraud)

The aim is to discover a mere 492 false transactions from 284,807 transactions in total. The datasets are exceptionally unequal, the positive category (fraud) represent zero. 172% everything being equal. It contains only numerical input variables that area unit the results of a PCA transformation.

Methodology

I plan to separate fraud and non-fraud transactions by obtaining a decision boundary in the feature space defined by input transactions. Each transaction can be represented as a vector of its feature values. I have built binary classifiers using artificial neural networking, Logistic regression, and Random Forest through python programming language.

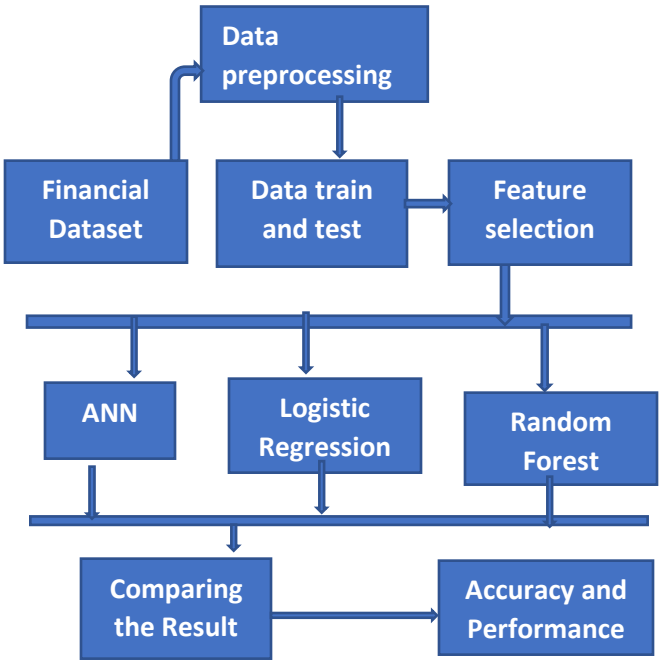

Figure 1 overall project steps

Reference

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2, Machine Learning and Deep Learning with Python, scikit learn, and TensorFlow Third Edition – Includes Tensor-low 2, GANs, and Reinforcement Learning Sebastian Raschka & Vahid Mirjalili.

3, Machine Learning Group – ULB, Credit card Fraud Detection (2018), Kaggle https://www.kaggle.com/mlg-ulb/creditcardfraud.