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Credit Card Fraud Detection Using Machine Learning Algorithms

As the world is rapidly moving towards digitization and recent advances of e-commerce and e-payment, systems have increased the use of credit. The fraud activities associated with it have also been increasing which results in a huge loss to the financial institutions. It is therefore a pressing need to analyze and detect the fraudulent transaction from the non-fraudulent ones so that customers are not purchased for items they did not purchase. In this research, we investigate the efficacy of different machine learning methods such as Decision Trees, Logistic Regression, Support Vector Machines (SVM), and Neural Networks for credit card fraud detection. The datasets contains transactions made by credit cards by European cardholders. The dataset is highly unbalanced, the positive class (frauds) account for 0.172% of all transactions. Challenges associated with classifying unbalanced data are addressed in this research. The confidentiality issues have been addressed by deauthenticating the input

variables by transforming them into numerical using PCA transformations. Due to the large size of the data, Big Data Hadoop and associated technology have been exploited to clean, transform, analyze this data.

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