

Online Payments Fraud Detection with Machine Learning

In this project, I focus on detecting online payment fraud using machine learning techniques. With the rise of digital transactions, it has become increasingly important for financial institutions to accurately identify fraudulent activities. To address this challenge, I utilized a dataset sourced from Kaggle, which contains historical information about online transactions, including key features such as transaction type, amount, originating and destination account balances, and a binary indicator of whether each transaction was fraudulent.

The project began with data preparation, where I explored the dataset and addressed any missing values. I applied encoding techniques to convert categorical variables

into numerical formats suitable for machine learning algorithms. After preprocessing the data, I split the dataset into training and testing subsets.

I implemented various classification models, including Logistic Regression and Random Forest, to categorize transactions as fraudulent or non-fraudulent. Each model was trained on the training dataset and evaluated on the test set using performance metrics such as accuracy, precision, and recall, with a particular emphasis on minimizing false negatives.

Through this analysis, I aimed to improve the accuracy of fraud detection systems, contributing to a more secure online payment environment. The findings highlight the effectiveness of machine learning in combating financial fraud and provide a solid foundation for future research in this vital area.