



CAPSTONE PROJECT

FRAUD DETECTION IN FINANCIAL DATA

Final Project

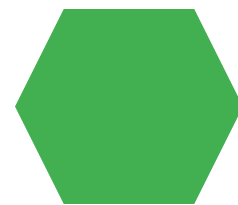
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PROJECT TITLE

Fraud Detection in Financial data using Artificial Neural Networks

AGENDA

1. Problem Statement
2. Project Overview
3. End Users
4. Solution and Value Proposition
5. The Wow Factor in Your Solution
6. Modelling
7. Results



PROBLEM STATEMENT

- Create Artificial Neural Networks are a powerful tool for fraud detection because of their ability to recognize intricate patterns in financial data.
- ANNs are able to identify fraudulent activity in real time, allowing for prompt loss prevention.
- These networks are capable of handling high data volumes by adapting and scaling, which guarantees precise fraud detection in a range of financial situations.



PROJECT OVERVIEW

- Create a system for real-time fraud detection that analyzes financial data and spots fraudulent activity by utilizing Artificial Neural Networks (ANNs).
- The project's components include preprocessing and data gathering, ANN-based model creation, performance evaluation, real-time transaction monitoring for suspicious activity, and scalability optimization.
- A trained ANN-based fraud detection model, a real-time monitoring system, a preprocessed dataset, a performance evaluation report, and thorough documentation of the project methodology and implementation processes are all part of the project's deliverables.



WHO ARE THE END USERS?



- Financial Institutions: The main end users are banks, credit card issuers, and investment organizations. They rely on the system to keep them in compliance with regulations, safeguard their assets, and identify and stop fraudulent activity.
- Government Agencies: Law enforcement and regulatory organizations can potentially be end users. They monitor bank transactions, look into questionable activity, and take legal action against fraudsters using the system.



YOUR SOLUTION AND ITS VALUE PROPOSITION



- Our approach uses artificial neural networks (ANNs) to evaluate financial data and spot intricate patterns, making it possible to accurately detect fraudulent activity that conventional methods would miss.
- Real-time monitoring enables the system to quickly identify suspicious transactions as they happen, enabling prompt intervention to reduce risks and stop financial losses.
- Large data quantities may be handled by the system, which can also be tailored with movable alert thresholds and customizable notifications to fit the unique fraud detection requirements of various organizations.

THE WOW IN YOUR SOLUTION

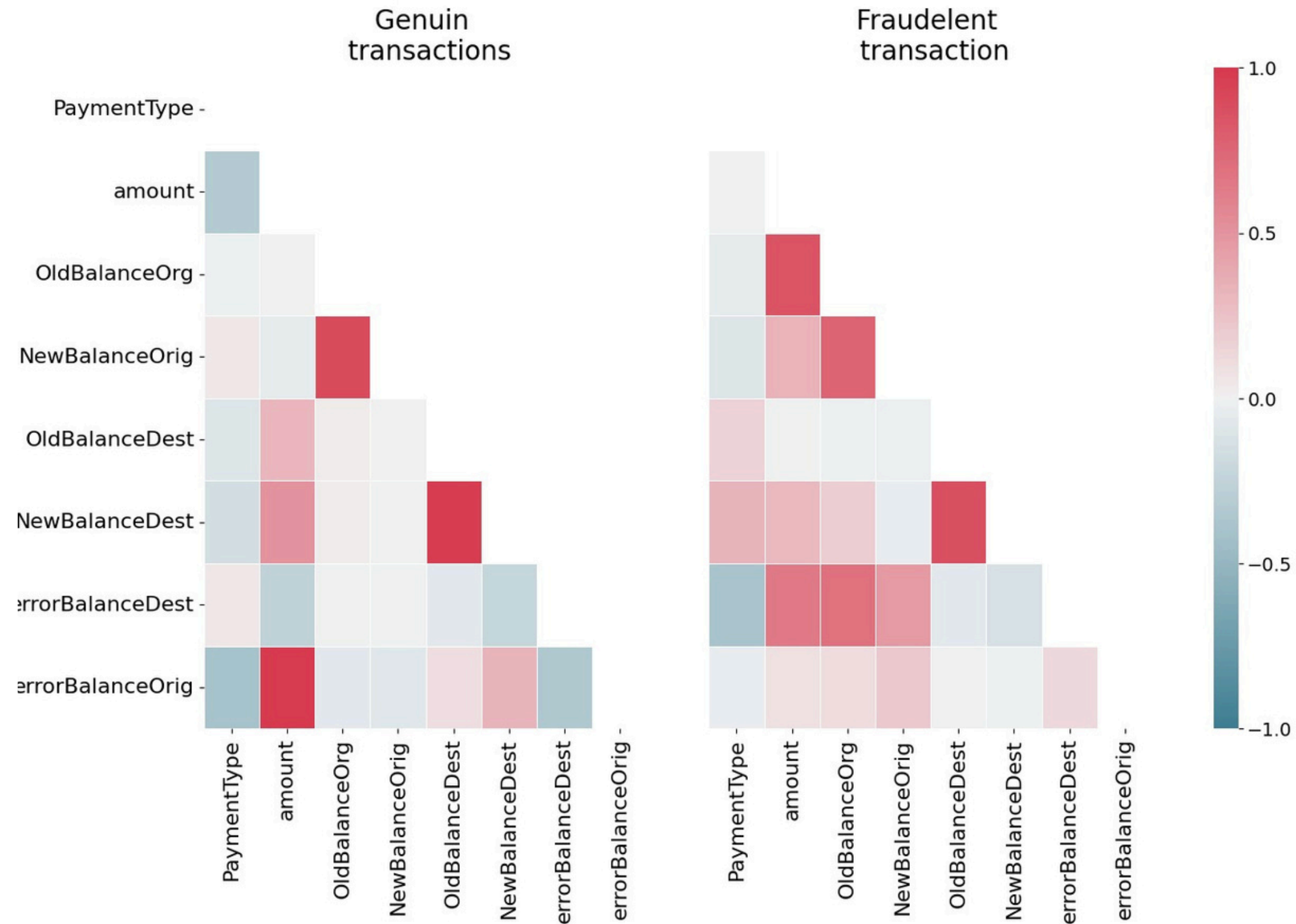
- Using ANNs, our technology improves the identification of sophisticated fraudulent actions by identifying intricate patterns in financial data that conventional approaches would overlook.
- The system continuously learns and adjusts in real time to maintain high accuracy rates even in dynamic financial situations and to keep ahead of evolving fraud strategies.
- Our technology enables firms to proactively address emerging threats before they escalate by offering predictive insights into prospective fraud trends through the use of machine learning algorithms and advanced analytics.



MODELLING

- It is essential to investigate and comprehend the data, including its structure, quality, and correlations between variables, prior to modeling. Making educated decisions during the modeling process is aided by this phase.
- In order to enhance the prediction capabilities of the model, feature engineering entails the identification, manipulation, and creation of pertinent features from the raw data. It covers methods including scaling numerical features, managing missing values, and encoding categorical variables.
- It is crucial to select the appropriate machine learning method or model type based on the nature of the problem and the properties of the data. Using labeled data, model training teaches the model to identify patterns and make judgments or predictions.

RESULTS



bit.ly/4a0Ilnh

3/21/2024 Annual Review