Credit Card Fraud Detection using Machine Learning

SABARIMANI (2116210701218)

SANDISH K P(2116210701227)

ABSTRACT

- The aim of this research is sort out credit card fraud. The cost of fraud has dramatically increased over time. Money is taken from people by criminals by multiple means or fictitious information. The main aim of the scheme is devise machine learning models which would detect fake transactions preventing losses.In this system one can find most essential elements required to determine illegal and criminal activities. The advances in technology hinder monitoring of illegal dealings including movement patterns. Release solutions that support growth in machine learning, artificial intelligence, and other IT-related technologies, and save some of the hard work of credit card verification. We first get the user's credit card data and split it into training and testing data, using decision trees and the logistic regression. With this technique, we can examine more data, including the data already being used by the users.

PROBLEM STATEMENT

- Credit card fraud is a significant and growing problem worldwide, costing billions of dollars annually. Detecting fraudulent transactions swiftly and accurately is crucial for financial institutions to minimize losses and protect consumers. Traditional rule-based fraud detection systems often struggle with the complexity and evolving nature of fraudulent behavior. Machine learning offers a promising solution by leveraging data to detect patterns and anomalies indicative of fraud. The objective of this project is to develop a machine learning model that accurately detects fraudulent credit card transactions, maximizing fraud detection while minimizing false positives to ensure a balance between security and customer experience.

EXISTING SYSTEM

- **Scalability**: Ability to handle millions of transactions per second.
- **Real-Time Processing**: Immediate scoring and alerting for transactions.
- **Privacy**: Protecting sensitive customer data during processing and analysis.

PROPOSED SYSTEM

- **Alert and Case Management**:

  Develop an alert prioritization system based on risk scores and potential impact.

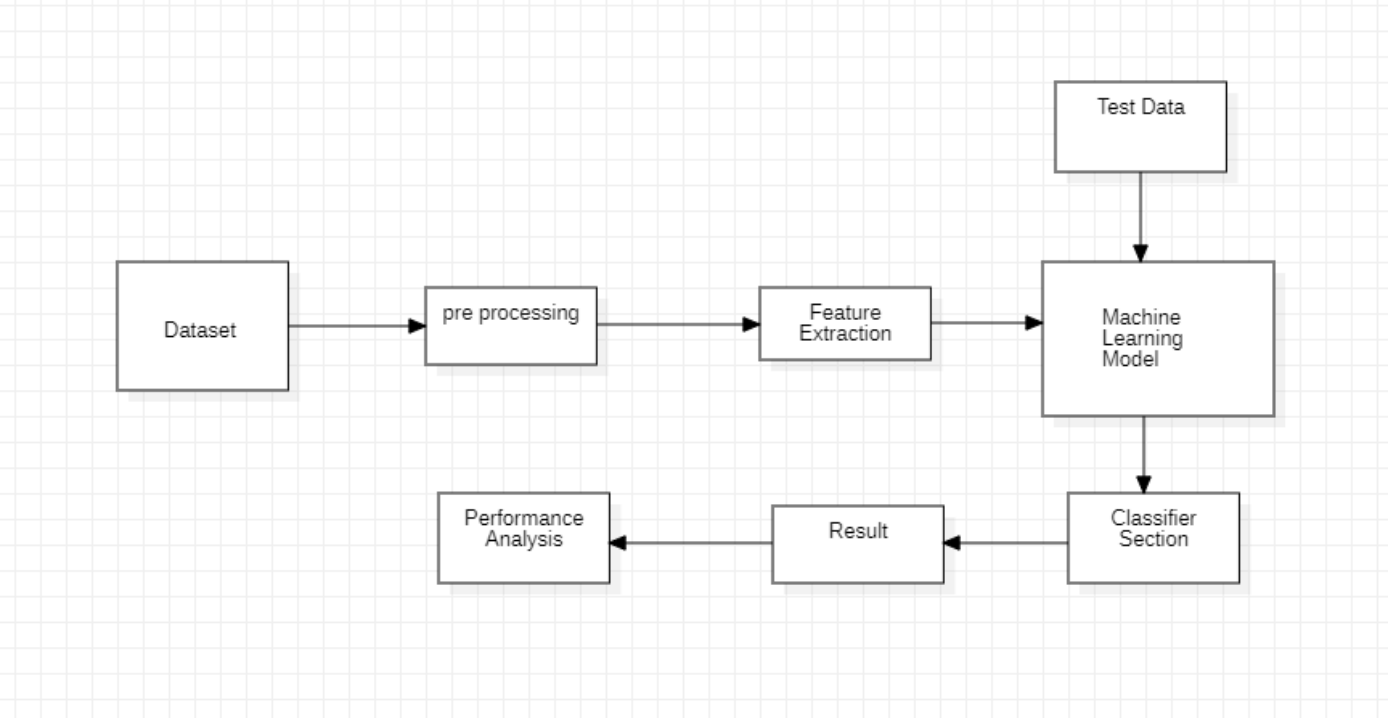
Improved Detection Rates:

Enhanced accuracy and reduced false positives/negatives.

Security and Privacy:

Adherence to data privacy regulations and secure data handling.

SYSTEM ARCHITECTURE



CONCLUSION

- Using Random Forest for credit card fraud detection leverages its strengths in handling large and complex datasets, providing robust and accurate predictions, and allowing for easy interpretation of feature importance. By carefully implementing and tuning the Random Forest model, financial institutions can significantly enhance their ability to detect and prevent fraudulent transactions in real-time.