TresVista
Catalyzing Your Impact

# TresVista Data Intelligence Group (DIG)

## Alternate Data

March 2024

# Machine Learning

## Tools/Technology used: Azure Services(Azure data lake, Data Factory, Blob Storage, ML Workspace), Python

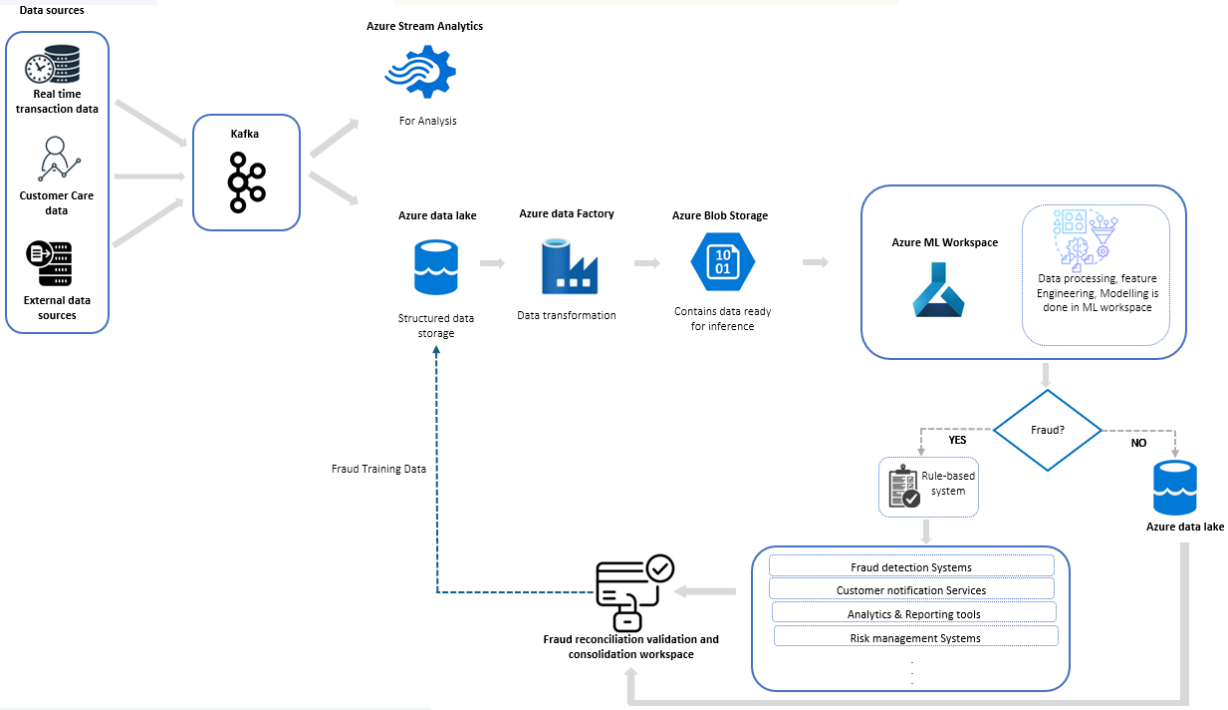
### Request and Guidelines Provided

- In an era of digital transactions and sophisticated cyber threats, traditional fraud detection systems are increasingly unable to keep pace with the complexity and volume of modern fraud. Deployed an advanced AI framework for fraud analytics, significantly reducing fraud early on, enhancing operational efficiency, and increasing customer trust and satisfaction
- Employed a multi-dimensional approach that combines real-time transaction data, customer care data, and external data sources (such as digital footprints and public records) to enrich the analysis. This strategy ensures a holistic view of customer behavior, enhancing the accuracy of fraud detection models

### Methodology and Final Deliverable

- Ingested and streamed real-time transaction data, customer care data, and external data sources securely through Apache Kafka
- Processed and analyzed streamed data using Azure Stream Analytics for real-time insights
- Stored and organized structured data within Azure Data Lake, providing a robust foundation for large-scale data storage. Leveraged Azure Data Factory for orchestrating data transformation processes
- Utilized Azure Blob Storage to house data that is ready for inference, allowing for scalable and on-demand access to data inputs for the model. Conducted data processing, feature engineering, and machine learning modeling within the Azure ML Workspace
- The ML model predicts whether a transaction is fraudulent and is processed into the rule-based system for initial decision-making, augmenting machine learning models with predefined logic to enhance prediction accuracy and further processed into Fraud Reconciliation Validation and Consolidation workspace along with Non-fraud transactions, which are identified
- Facilitated feedback loops for continuous model improvement with a feedback tool capturing data back into the Azure ecosystem

# Output


Data sources
Real time transaction data
Customer Care data
External data sources
Kafka
Azure Stream Analytics
For Analysis
Azure data lake
Structured data storage
Azure data Factory
Data transformation
Azure Blob Storage
Contains data ready for inference
Azure ML Workspace
Data processing, feature Engineering, Modelling is done in ML workspace
Fraud?
YES
NO
Rule-based system
Azure data lake
Fraud Training Data
Fraud detection Systems
Customer notification Services
Analytics & Reporting tools
Risk management Systems
Fraud reconciliation validation and consolidation workspace

salessupport@tresvista.com | www.tresvista.com