

Model Governance Documentation

Bank Account Fraud Detection

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1. Overview

1.1 Purpose of the Document

1 Model Identification and Purpose

- a. **Model Name and Version:** Unique identifiers that track the specific iteration of the fraud model being deployed.
- b. **Business Use Case:** A clear statement defining how the model detects specific fraud typologies within the BAF dataset, such as account takeover or synthetic identity fraud.
- c. **Model Owner and Stakeholders:** Documentation of the individuals or teams accountable for the model's performance and regulatory compliance.

2 Data Integrity and Lineage

- a. **Data Sources and Scope:** A description of the input variables from the BAF dataset, including transaction attributes and behavioral features.
- b. **Data Quality Assessment:** Evidence of checks for missing values, outliers, and data freshness to ensure the model isn't learning from "garbage" data.
- c. **Feature Engineering Rationale:** An explanation of why specific derived features were created to capture complex fraud patterns.

3 Model Development and Methodology

- a. **Algorithm Selection:** Justification for choosing specific architectures (e.g., Random Forest vs. Neural Networks) based on the BAF dataset's characteristics.
- b. **Model Assumptions and Limitations:** A transparent list of what the model cannot do and the conditions under which it might fail.
- c. **Training and Testing Split:** Details on how the data was partitioned to prevent data leakage and ensure the model generalizes well to unseen fraud.

4 Validation and Testing

- a. **Performance Metrics:** Results of testing using metrics like Precision, Recall, and the Area Under the Precision-Recall Curve (AUPRC), which are critical for imbalanced fraud data.
- b. **Sensitivity Analysis:** Documentation of how the model reacts to changes in input variables or shifts in fraudster behavior.

- c. **Backtesting Results:** A comparison of predicted fraud vs. actual historical outcomes within the BAF suite to prove accuracy.

5 Implementation and Monitoring

- a. **Deployment Environment:** A description of the technical infrastructure where the model resides and how it integrates with real-time payment rails.
- b. **Ongoing Monitoring Plan:** The schedule and thresholds for tracking "model drift" to ensure the model stays effective as fraud tactics evolve.
- c. **Change Management Process:** A formal protocol for how the model will be updated, retrained, or decommissioned in the future.

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