

Challenges & Need for Al-Powered Profiling



Regulatory Compliance: Banks must meet strict reporting standards with accurate data validation.



Need for Al-Powered Profiling: Automating rule generation and anomaly detection improves accuracy and efficiency.



Anomaly Detection Challenges: Identifying irregular transactions is complex and time-consuming.



Lack of Automation: Manual rule creation limits efficiency and adaptability.



Manual Profiling Issues: Traditional methods are slow, error-prone, and hard to scale.



Evolving Regulatory Requirements:Constant updates make manual profiling inefficient and unsustainable.

Our Solution

Automated Rule Generation: 05 Process regulatory instructions __ and generate profiling rules. 01 04 **SQL Validation:** Dynamically generates SQL queries to validate data compliance against extracted rules. 02 03

Anomaly Detection with Reasoning: Combines SQL

validation with unsupervised ML (Isolation Forest) and enhances it with natural language explanations leveraging the capability of Gemini.

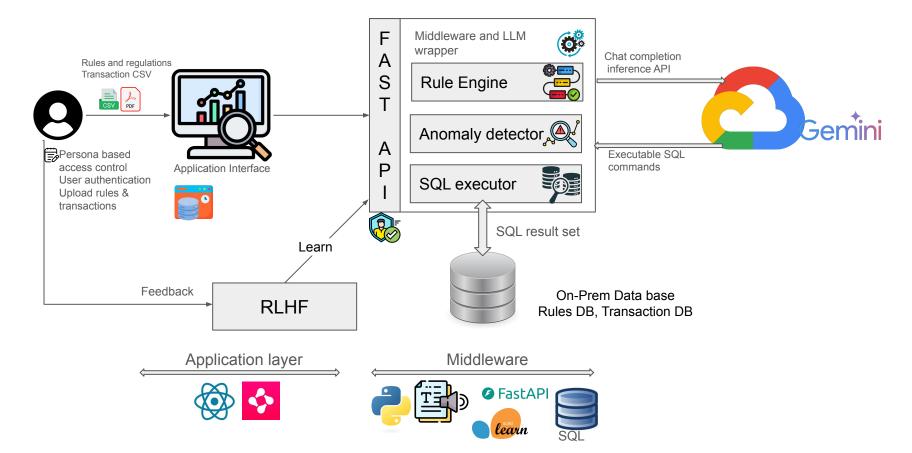
Interactive UI - RBAC(Chainlit):

- **Auditor:** Uploads CSVs, reviews flagged transactions.
- Admin: Refines and manages profiling rules, review flagged transactions

ADA-Compliant Website:

Ensures accessibility for users with disabilities, meeting ADA standards.

Architecture diagram



Tech Stack







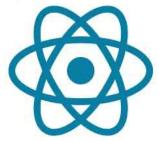






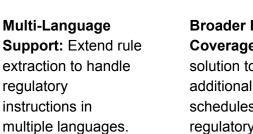






Future Scope







Broader Reporting Coverage: Expand the solution to cover additional reporting schedules in federal regulatory PDFs.



Real-Time Data
Profiling: Enable
continuous, real-time
validation for live
transaction monitoring.



Advanced Anomaly
Detection: Integrate
more sophisticated ML
models for enhanced
anomaly detection
accuracy.



Personalized User Experience: Persist user preferences for a personalised user experience.

THANK YOU