

AI-Powered Credit Scoring: How This International Bank Used Text & Email Data to Improve Loan Decisions

ABOUT CLIENT

- A leading financial institution/ international bank based in New York, USA, with a vast portfolio of lending products and services.
- The company offers a wide range of financial services, including personal banking, corporate banking, wealth management, and investment banking.
- With a strong presence locally and in the key global markets, it has established itself as a trusted provider of innovative financial solutions with stable interests.

PROBLEM STATEMENT

Despite being a go-to name in the finance genre, our client realized they needed to modernize their ongoing financial processes. However, they wanted to improve their loan evaluation process, enhance borrower profiling accuracy, and streamline decision-making while reducing risks. They aimed to assess loan credibility using alternative data sources and offer accurate products to their customers when needed.

Amid the discussion with our analytics team, the technical challenges that were raised included:

Unstructured Datasets:

The firm faced challenges in extracting financial data from SMS and email messages due to the complexity of parsing text and recognizing entities.

Inaccurate Quality Analysis:

Ensuring the accuracy of extracted information manually was a struggle, highlighting the importance of data validation and quality analysis.

Missed Trends and Advancements:

Developing predictive models for analyzing financial data and predicting future trends proved to be a challenging task.

AI/ML Integration Complexities:

Implementing advanced machine learning algorithms and optimizing models added complexity, especially when integrating them with rule-based engines for improved accuracy.

Technical Glitches:

Scalability and real-time processing posed technical concerns, particularly due to the substantial volume of financial messages.

Data Security and Compliance Concerns:

Managing data privacy and security was critical, especially when dealing with sensitive financial information in SMS and email communications, requiring compliance with data protection regulations.

SOLUTION

After a thorough discussion of challenges and concerns, our engineers developed a comprehensive data strategy, with a strong focus on data security and compliance. Regular monitoring and refining of the system will be necessary to adapt to changing data patterns and regulations.

Data Extraction and Preprocessing:

- We used advanced OCR technology to extract text from SMS and email messages, converting even image-based content into machine-readable text. This helped in processing manual uploads of bank statements.
- Using Natural Language Processing (NLP) techniques, we preprocessed the extracted text, removing irrelevant information, standardizing formats, and identifying key entities.

Data Validation and Quality Analysis

- Developed a data validation pipeline to check the accuracy and integrity of the extracted data, including cross-referencing data with existing financial records or databases.
- Also, we implemented quality analysis algorithms to identify and rectify errors in the data, ensuring its reliability for further analysis.

Scoring Mechanism

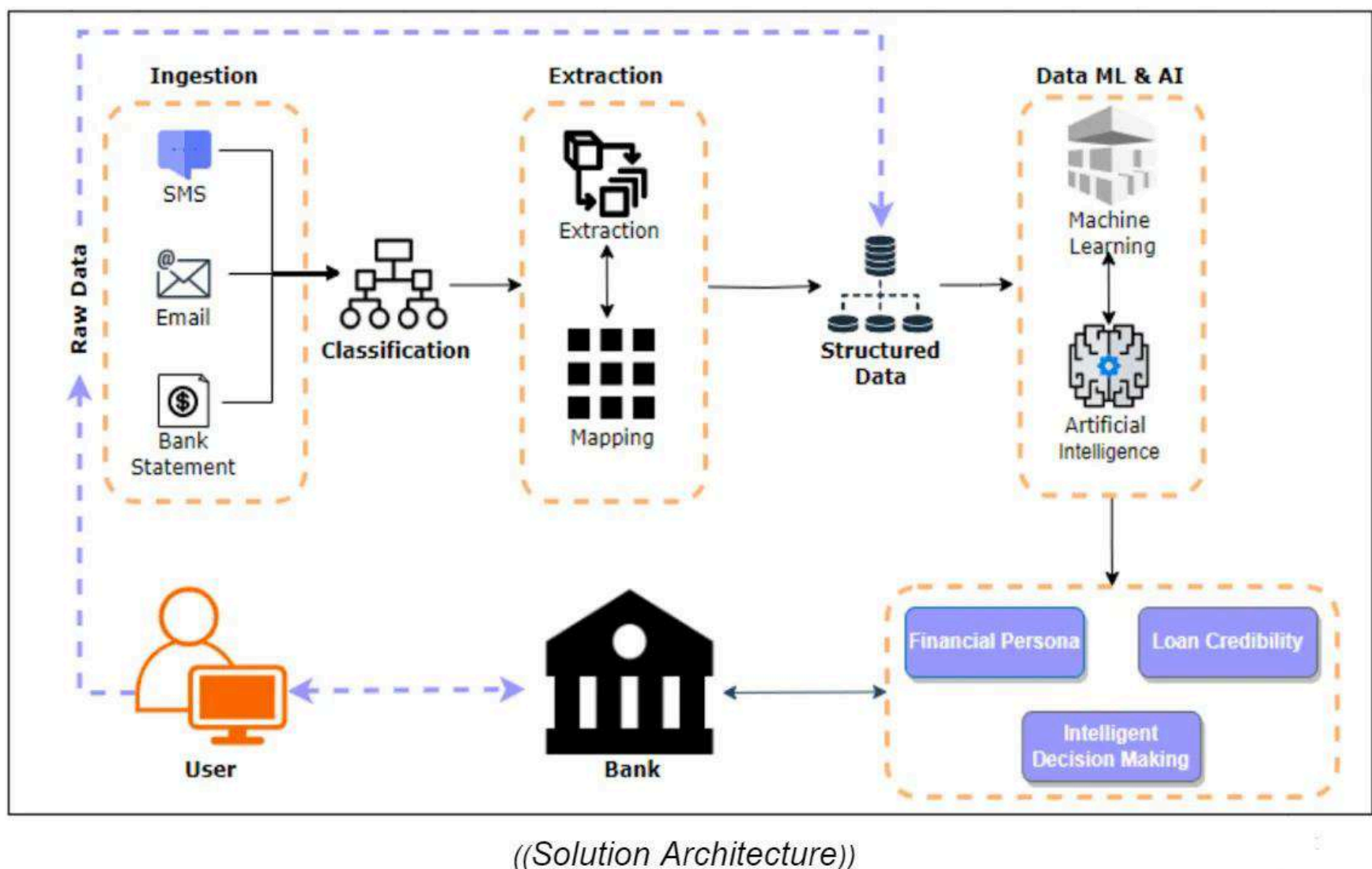
Developed a proprietary custom scoring mechanism to evaluate the significance of each message, considering factors like sender trustworthiness, keywords, and transaction amounts. This algorithm, when combined with standard credit scores like CIBIL and Experian, provides a more robust scoring mechanism for further applications.

Data Segmentation

We categorized messages into different financial segments using NLP and keyword analysis, including banking transactions, investment updates, account statements, and more.

AI-Based Product Recommendations

Designed and developed custom recommendation engines for each financial segment to analyze the data and generate actionable insights, such as cross-selling, upselling, and credit needs.



Machine Learning Algorithms

We utilized machine learning algorithms for trend analysis, investment recommendations, and risk assessment in the financial data.

BUSINESS IMPACT

After establishing the comprehensive data strategy and solutions architecture in real-time, the finance company experienced the following outcomes:

- **Improved Credit Scoring:** Our advanced credit scoring mechanism, which includes proprietary scoring algorithms combined with standard credit scores like CIBIL and Experian, significantly enhanced risk assessment accuracy. This allowed for more informed lending decisions, resulting in reduced risk exposure and improved profitability.
- **Reduced Loan Defaults:** By implementing robust risk assessment measures, we were able to significantly reduce instances of loan defaults. This not only protected their financial interests but also strengthened their reputation as a reliable lender, attracting more customers and improving overall business performance.
- **Increased Revenue:** Through our AI-driven recommendation engines, we were able to offer personalized upselling and cross-selling opportunities to their customers. By analyzing their financial data and behavior, we could suggest additional products or services that met their needs, leading to increased revenue per customer.
- **Enhanced Engagement:** Our focus on personalized offers based on NLP and sentiment analysis improved customer engagement and loyalty. By tailoring our offers to match their preferences and needs, we were able to build stronger relationships with our customers, driving higher sales and retention rates.

All-in-all, by using a robust data-backed scoring system and AI-powered recommendation engines, our client has improved how they analyze data in text messages and emails. This has made them more efficient, kept clients happier, and helped them make better decisions, making them one of the top financial advisory firms in the States.