



ML-POWERED APPROACH TO REVOLUTIONIZING DEBT RECOVERY

THE CHALLENGE

Fintech lenders often struggle to predict whether customers will repay outstanding balances within a given timeframe, especially when traditional debt collection processes rely on manual workflows and static credit risk models. These limitations create inefficiencies, increase operational costs, and reduce overall recovery rates. To address this challenge, the client partnered with AE Partners to develop a machine learning-driven solution that could better predict loan repayment behavior, streamline collection workflows, reduce manual intervention, and ultimately improve debt recovery performance by accurately forecasting the likelihood of a customer making a payment within 30 days.



THE SOLUTION

The AE Partners team conducted a comprehensive needs assessment, developed a strategic solution roadmap, and executed several key initiatives:

- Built a classification model using historical payment data, account status, and communication records (texts, calls, and payment interactions) to predict the likelihood of loan repayment.
- Integrated multiple data sources—including account data, text logs, call logs, and payment history—to train the machine learning model.
- Achieved 40% recall and 73% precision, enabling more accurate identification of accounts most likely to repay.
- Established a roadmap for future improvements, including natural language processing (NLP) to analyze call transcripts and customer interactions using large language models (LLMs) to further enhance prediction accuracy.



TECH STACK

- Python
 - SQL
 - MLflow
- Databricks Runtime ML

THE RESULTS

The solution delivered measurable improvements to the client's debt recovery operations:

- Higher collection efficiency, reducing manual effort
- Increased payment success rates, covering 69% of the debt amount
- Improved productivity for the billing and collections team