Business Summary Report: Predictive Insights for Collections Strategy

1. Summary of Predictive Insights

Key Findings:

Our analysis found three main warning signs that customers might stop paying:

Payment Problems show up first. Customers who start paying late or miss payments are heading toward trouble.

Maxed Out Credit signals stress. When customers use most of their available credit, they're struggling financially.

Too Much Debt compared to income makes it hard to keep up with payments.

The riskiest customers are those whose payment patterns got worse recently and who consistently carry high debt loads. These patterns show financial strain before customers actually default.

Our Gradient Boosting Machine model catches these warning signs better than traditional methods. It spots subtle changes that predict problems before they get serious.

2. Recommendation Framework

Based on these predictive insights, we propose a strategic intervention to proactively manage delinquency.

Restated Insight: Customers exhibiting a recent increase in 'Late' payment statuses are at a significantly higher risk of current delinquency, indicating a critical window for intervention.

Proposed Recommendation: To implement and deploy a Gradient Boosting Machine delinquency prediction model by Q4 2025, aiming to reduce the total value of new delinquent accounts by 10% within six months of deployment, while maintaining equitable outcomes across all customer segments.

- **Specific:** Implement a Gradient Boosting Machine model to identify customers at high risk of delinquency.
- **Measurable:** Reduce the total value of new delinquent accounts by 10% within six months post-deployment.
- **Actionable:** The model will enable targeted, proactive interventions (e.g., personalized financial counseling, modified payment plans, early collections outreach).
- **Relevant:** Directly aligns with Geldium's objective of minimizing financial losses and optimizing risk management.

- **Time-bound:** Model deployment by Q4 2025, with a measurable impact within six months thereafter.

Justification and Business Rationale: This plan is specific (use Gradient Boosting Machine), measurable (10% reduction), actionable (enables targeted help), relevant (cuts losses), and time-bound (Q4 2025 launch).

The model lets Geldium help customers before they fall behind. Instead of chasing money after customers default, we can offer payment plans, financial counseling, or other support when we first spot trouble.

This saves money, keeps customers, and builds a healthier loan business.

3. Ethical and Responsible AI Considerations

- **Fairness Concerns:**

  The model might treat different groups unfairly. We'll watch for unequal outcomes and fix them. We'll check that the model performs equally well for all customer segments.

  We cleaned the data to reduce built-in bias and will add bias fixes if needed.

- **Transparency**

  Gradient Boosting models are complex, but we'll use SHAP analysis to explain decisions. This helps customers and regulators understand why certain predictions were made.

- **Customer Protection**

  The goal is helping customers stay financially healthy, not just collecting money. Early intervention benefits everyone.

- **Other Safeguards**

  We'll monitor the model constantly, keep humans involved in major decisions, and protect customer data according to all privacy rules.

- **Business Impact**

  This approach changes collections from reactive to proactive. Instead of scrambling after customers default, we identify and help at-risk customers early.

The result: fewer losses, better customer relationships, and a stronger loan portfolio. This supports Geldium's growth while treating customers fairly.