Business Summary Report: Predictive Insights for Collections Strategy

# Introduction

This report translates Geldium’s delinquency-risk model into actionable insights for the Collections team.

It highlights the key drivers of customer delinquency, recommends a targeted intervention strategy based on model finding, and outlines ethical safeguards to ensure responsible, explainable AI-driven decision-making.

# 1. Summary of Predictive Insights

Our analysis from Task 2 confirmed that customer delinquency is driven by a combination of historical payment behavior, credit dependency, and overall financial health.  
The Decision Tree model achieved strong recall and moderate precision, meaning it effectively identifies most at-risk customers for proactive support while remaining transparent and interpretable.

**Top 3 Risk Factors:**

* **Past Payment Behavior (Missed Payments):** Customers with a record of missed payments are several times more likely to become delinquent. This remains the strongest single predictor.
* **Low Credit Score (Credit Score):** Lower credit scores show a strong negative correlation with repayment reliability, serving as a high-level indicator of baseline risk.
* **High Credit Utilization (Credit Utilization):** Customers using more than 80 % of their available credit are significantly more likely to default. This behavioral sign often appears before an actual missed payment.

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| Key Insight | Customer Segment | Influencing Variables | Potential Impact |
| High credit utilization is a powerful early-warning sign of delinquency. | Customers who are finally stretched (using > 80% of credit limit) but not yet delinquent. | Credit Utilization, Credit, Score | Allows proactive engagement with supportive, lower-cost interventions before payments are missed, reducing delinquency and strengthening trust. |

# 2. Recommendation Framework

*Strategic Goal*:

Reduce delinquency rates by prioritizing early, supportive outreach to customers who show high-risk financial behaviors, while maintaining fairness and transparency.

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| Element | Recommendation |
| Specific | Target customers in the top 10 % of delinquency risk with ≥ 2 missed payments and > 80 % credit utilization. |
| Measurable | Aim to cut 30-day delinquency rates by **10 %** within the next quarter through early outreach and repayment-support programs. |
| Actionable | Launch a 90-day **Proactive Support Pilot**:   * Automated reminders within 5 days of a missed payment. * Offer flexible repayment or partial-payment options. * Assign relationship officers to high-risk accounts. |
| Relevant | Directly aligns with Geldium’s goal of improving recoveries and maintaining customer-centric credit practices. |
| Time-bound | Pilot for 3 months, evaluate in Month 4, and refine based on response and recovery data. |

**Business Rational**

Roughly 20 % of customers account for most future delinquency risk. Prioritizing these cases enables the Collections team to allocate resources efficiently and engage customers before financial stress escalates. This proactive, empathetic strategy not only reduces default rates but also preserves customer relationships and upholds Geldium’s reputation for responsible finance.

# 3. Ethical and Responsible AI Considerations

*Fairness and Bias mitigation*: The model must not disadvantage specific customer groups. Variables such as employment type or location will be monitored for proxy bias to ensure predictions reflect financial behavior, not demographics.  
**Action:** Conduct periodic fairness audits and human review for flagged cases.

*Explainability and Transparency*: Decision Trees were chosen for interpretability. Each prediction follows a clear decision path that can be communicated easily to business users.  
**Action:** Include visual explanations (e.g., feature-importance charts) in internal dashboards.

*Human Oversight and Responsible Use*: AI outputs support—not replace—human judgment. Collections officers should use predictions as guidance for proactive engagement rather than punitive action.  
**Action:** Manually review every high-risk case before initiating outreach.

*Data Privacy and Compliance*: All customer information must remain confidential and be processed under relevant data-protection laws.  
Anonymization and secure storage practices are mandatory across all systems.

**Conclusion**

By combining predictive insights with transparent, customer-first actions, Geldium can reduce delinquency risk, improve collection efficiency, and strengthen long-term borrower trust-achieving measurable business results while maintaining responsible and ethical AI practices.