Business Summary Report: Predictive Insights for Collections Strategy

1. Summary of Predictive Insights

• Customers with high credit utilization (above 50%) are significantly more likely to become delinquent, especially when combined with lower incomes and higher debt-to-income ratios.

• The top predictors of delinquency were **Credit_Utilization, Debt_to_Income_Ratio, and Income**, as identified during model development.

• Customers with more than 2 missed payments and a DTI > 0.5 showed a 3x higher likelihood of delinquency.

Key Insight	Customer Segment	Influencing Variables	Potential Impact
High delinquency risk in low-income, high utilization customers	Customers with income < $35,000 and utilization > 50%	Income Credit Utilization Debt_to_Income_Ratio	Targeted outreach and early intervention can reduce risk and prevent default

2. Recommendation Framework

Customers with high credit utilization are more likely to default.

Proposed Recommendation:

Specific: Launch an outreach campaign targeting customers with credit utilization > 50% and DTI > 0.5.

Measurable: Aim to reduce 30+ day delinquency in this group by 10% within 6 weeks.

Actionable: Use existing SMS/email channels for proactive reminders and repayment plan options.

Relevant: Focuses on the most at-risk group identified by the model, aligning with collection goals.

Time-bound: Pilot will run for 6 weeks, followed by performance evaluation.

Justification and Business Rationale:

This approach targets the highest-risk segment identified by the model. It's scalable, cost-effective, and minimally intrusive. It enables proactive support while enhancing customer experience. Model insights showed that proactive engagement with this group could significantly reduce delinquency rates.

3. Ethical and Responsible AI Considerations

• Fairness Risk: Customers in lower income brackets might be disproportionately flagged as high risk.

• Mitigation: Regular bias audits and exclusion of proxy-sensitive features (e.g., location).

• Explainability: We used logistic regression, which allows transparent explanation of predictions through interpretable coefficients.

• Responsible AI: Our recommendation supports ethical financial behavior by enabling early intervention rather than penalizing customers post-default.

• Transparency & Accountability: All decisions can be traced back to model logic and data patterns observed in Task 1 and 2.