Summary of Predictive Insights

Our predictive modeling exercise identified key factors driving delinquency risk across customer segments. The following findings are most relevant for collections strategy:

- *Missed and late payments* are the strongest predictors of delinquency. Customers with 2+ missed or late payments in the last 6 months show the highest likelihood of default.
- *High credit utilization and loan* balances further amplify delinquency risk, especially when paired with lower credit scores.
- *Customer segments under age 30 with shorter account tenure* are overrepresented among high-risk accounts, indicating potential financial instability or limited credit history.

Key Insight	Customer Segment	Influencing Variables	Potential Impact
High risk of delinquency after 2+ missed payments	Customers under 30, short tenure	Missed payments, account tenure, age	Early intervention can reduce 30-day delinquency rates
Credit strain amplifies delinquency	Customers with >40% utilization	Credit utilization, loan balance, credit score	Monitoring utilization thresholds may prevent default
Stable profiles show resilience	Employed customers with low utilization	Employment status, utilization, payment history	Resources can be focused on higher-risk groups

Recommendation Framework

Restated Insight

Customers under 30 with 2+ missed payments in the last six months show a high likelihood of falling delinquent within the next 30 days.

Proposed Recommendation

Launch a targeted SMS outreach pilot for customers under 30 with multiple missed payments, reminding them of due dates and offering flexible repayment options.

- *Specific*: Focus on customers under 30 with 2+ missed payments. Deliver personalized SMS reminders and repayment plan options.
- *Measurable*: Aim to reduce 30-day delinquency rates in this segment by 10% within the pilot period.
- Actionable: Can be implemented using the existing SMS platform; requires collaboration with IT and Collections teams.

- *Relevant*: Directly addresses the highest-risk group identified by the model, optimizing collection resources.
- *Time-bound*: Pilot duration: 6 weeks, with evaluation at the end.

Justification and Business Rationale

Early, low-cost interventions like SMS reminders have proven effective in encouraging on-time payments, particularly among younger customers. Targeting this segment not only reduces delinquency but also strengthens customer relationships and preserves long-term value.

Ethical and Responsible AI Considerations

- *Fairness and Bias*: Younger customers were identified as higher risk. Care must be taken to ensure interventions (e.g., SMS reminders) are supportive, not punitive, and do not unfairly disadvantage this demographic.
- *Transparency and Explainability*: SHAP analysis provides clear explanations of why a customer is flagged (e.g., missed payments, high utilization). This makes communication with stakeholders easier and builds trust in the model.
- *Responsible Financial Decision-Making*: The recommendation promotes financial well-being by offering flexible repayment options instead of punitive measures.
- *Privacy and Accountability*: Customer data should be used strictly for collections strategy, with adherence to data privacy regulations . Accountability mechanisms must be in place to review model outputs and outcomes regularly.