**BUSINESS SUMMARY REPORT: PREDICTIVE INSIGHTS FOR COLLECTIONS STRATEGY**

**1. Summary of Predictive Insights**

Our predictive model, built using logistic regression and decision trees, identified critical customer risk patterns. The goal was to identify delinquency-prone segments and highlight the most influential predictors based on Geldium's customer dataset.

**Key Risk Segments and Predictors:**

* Customers **under 30 years old** with **2 or more missed payments** and **high credit utilization (>75%)** are at significantly higher risk of delinquency.
* **Credit utilization rate**, **number of missed payments**, and **low income** are the top predictors of future delinquency.
* Customers with **shorter account tenure** also display elevated risk levels, suggesting limited financial stability.

**Key Insights Summary Table**

|  |  |  |  |
| --- | --- | --- | --- |
| Key Insight | Customer Segment | Influencing Variables | Potential Impact |
| Customers with 2+ missed payments & high credit usage | Under 30 years old, low income | Missed payments, credit utilization, age | Targeted engagement could significantly reduce delinquency. |
| High credit utilization alone raises risk substantially | All age groups, high utilization | Credit utilization rate | Can inform proactive credit limit management strategies. |
| Short account tenure links with higher risk | New customers (<1 year tenure) | Account tenure, income level | Tailored onboarding and monitoring strategies recommended. |

**2. Recommendation Framework**

**Restated Insight:**  
Customers under 30 with 2+ missed payments and credit utilization over 75% are 3.4x more likely to become delinquent.

**Proposed Recommendation:**  
Launch a pilot outreach campaign with targeted SMS reminders and financial support resources for high-risk Gen Z customers.

* **Specific:** Target customers under 30 with 2+ missed payments and high utilization with educational content and payment plan options.
* **Measurable:** Aim to reduce 30-day delinquency rates in this segment by **10%** over **6 weeks**.
* **Actionable:** Leverage existing SMS communication infrastructure to reach out to ~1,500 high-risk customers.
* **Relevant:** Addresses the segment with the **highest predicted delinquency risk** using a low-cost, scalable strategy.
* **Time-bound:** Campaign to be launched by **next quarter**, with results evaluated after 6 weeks.

**Justification and Business Rationale:**  
This recommendation is cost-effective, scalable, and leverages existing channels. It addresses the most vulnerable segment identified by the model and supports Geldium’s business goal of reducing delinquency rates without increasing operational overhead. Clear targeting ensures effective resource allocation.

**3. Ethical and Responsible AI Considerations**

* **Bias and Fairness Risks:**
  + The model may disproportionately flag younger, low-income customers. This raises fairness concerns, particularly if the data historically underrepresents other segments.
  + Mitigation strategy includes ongoing monitoring for disparate impact and excluding proxy variables like ZIP code.
* **Explainability:**
  + Chosen models (logistic regression, decision tree) support transparency. Their outputs can be communicated in plain language (e.g., "missed payments increase risk").
  + SHAP values can be used if further interpretability is needed for individual decisions.
* **Responsible Use:**
  + Recommendations emphasize **supportive, not punitive** actions (e.g., financial education, reminders).
  + The approach balances business goals with fairness, trust-building, and long-term customer relationships.
* **Transparency & Accountability:**
  + Predictions are reviewed before actioning.
  + Stakeholders are informed about how insights were derived and used.

This strategy ensures that AI is used not only effectively but ethically—building trust while driving impact.