**Business Summary Report: Predictive Insights for Collections Strategy**

# 1. Summary of Predictive Insights

Following our exploratory data analysis (Task 1) and the predictive modeling phase (Task 2), we identified several key patterns associated with delinquency risk:

* Younger customers (below 30 years) who have missed two or more payments and have credit utilization exceeding 50% are much more likely to default.
* A high debt-to-income ratio (above 0.5) strongly correlates with repayment delays.
* Customers with less than 12 months of account history tend to show weaker repayment consistency.

**Key Insights Summary Table:**

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| --- | --- | --- | --- |
| **Key Insight** | **Customer Segment** | **Influencing Variables** | **Potential Impact** |
| Customers with frequent missed payments and high credit usage are most at risk. | Aged under 30, 2+ missed payments, credit utilization >50% | Missed Payments, Credit Utilization, Age, Debt-to-Income Ratio | Personalized engagement can lower 30-day delinquency by over 10% in this group. |

**2. Recommendation Framework**

**Restated Insight:** Young customers with repeated missed payments and high credit usage are most vulnerable to falling behind on payments.

**Proposed Recommendation:** Initiate a 6-week SMS campaign targeting this high-risk group to improve repayment rates and reduce short-term delinquency.

* **Specific:** Focus on individuals under 30 with more than two missed payments and over 50% credit utilization.
* **Measurable:** Aim to reduce 30-day delinquency in this group by a minimum of 10%.
* **Actionable:** Leverage the company's existing SMS systems to implement messaging.
* **Relevant:** Supports Geldium’s objectives of minimizing delinquencies and enhancing financial discipline.
* **Time-bound:** The outreach campaign will span six weeks.

**Justification and Business Rationale:** This intervention is strategic, low-cost, and scalable. It reaches a priority risk group with timely communication, reinforcing positive behavior. This approach can meaningfully lower delinquency without adding friction to the customer experience.

**3. Ethical and Responsible AI Considerations**

* **Fairness Concerns:** The model may reflect biases present in historical data (e.g., uneven income or geographic representation). Routine fairness audits are essential.
* **Model Transparency:** Logistic regression’s interpretability ensures stakeholders can understand the model’s decisions.
* **Ethical Use of Predictions:** Human review complements model outputs before action. The proposed campaign aims to support, not penalize.
* **Privacy & Accountability:** Anonymized data is used to protect customer identity. Transparent operations and responsible model updates maintain trust and accuracy over time.