Business Summary Report: Predictive Insights for Collections Strategy

**1. Summary of Predictive Insights**

Based on the EDA (Task 1) and the predictive modeling plan (Task 2), the following insights were observed:  
  
- Customers under 30 years old with two or more missed payments and credit utilization above 50% show significantly higher risk of delinquency.  
- High debt-to-income ratio (> 0.5) consistently correlates with late or missed payments.  
- Customers with short account tenure (< 12 months) tend to have weaker repayment behavior.  
  
Key Insights Summary Table:

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| --- | --- | --- | --- |
| Key Insight | Customer Segment | Influencing Variables | Potential Impact |
| Customers with high credit utilization and frequent missed payments are at highest risk of delinquency. | Under 30 years old, 2+ missed payments, high credit utilization (> 50%) | Missed Payments, Credit Utilization, Age, Debt-to-Income Ratio | Targeted outreach could reduce 30-day delinquency rates by over 10% in this segment. |

**2. Recommendation Framework**

Restated Insight:  
Customers under 30 with 2+ missed payments and credit utilization above 50% are at significantly high risk of delinquency.

Proposed Recommendation:  
Launch a 6-week SMS outreach campaign targeting these customers to reduce 30-day delinquency by at least 10%.

  Specific:  
Target customers under 30 with 2+ missed payments and high credit utilization.

  Measurable:  
Track reduction in 30-day delinquency; goal is a 10% decrease.

  Actionable:  
Use existing SMS infrastructure for outreach.

  Relevant:  
Aligns with Geldium’s goal to lower delinquency and improve repayment behavior.

  Time-bound:  
Campaign will run for 6 weeks.

Justification and Business Rationale:  
This targeted campaign is simple, cost-effective, and data-backed. It directly reaches a high-risk segment with an intervention that is easy to scale. By focusing on this group, Geldium can achieve significant impact in reducing overall delinquency while maintaining a positive customer experience.

**3. Ethical and Responsible AI Considerations**

- Potential Bias: The model may under-represent or misclassify certain demographic groups if historical data is skewed (e.g., income or location-based bias). Fairness checks are necessary.  
- Explainability: Logistic regression provides interpretable coefficients, which makes it easy to explain to business stakeholders how risk is determined.  
- Responsible Decision-Making: Model outputs are reviewed by humans before action. The SMS campaign is supportive, not punitive.  
- Other Ethical Principles: Transparency is maintained through explainable features. Privacy is ensured by using anonymized data. Ongoing monitoring ensures the model adapts to changing customer behavior.