Business Summary Report: Predictive Insights for Collections Strategy

# 1. Summary of Predictive Insights

Based on the EDA and predictive modelling approach, the following key findings were identified:

* **High delinquency risk is strongly associated with missed payments.** Customers with a history of multiple missed payments are the most likely to default.
* **High credit utilization and high debt-to-income ratios significantly increase delinquency risk.** Customers using a larger portion of their credit limit or having high debt relative to income show greater repayment challenges.
* **Low income and low credit score customers form the most vulnerable segment.** These customers have limited repayment capacity and poor credit behaviour.

# 2. Recommendation Framework (Based on Insight 2 – High Credit Utilization & Debt-to-Income Ratio)

**Restated Insight:**  
Customers with **credit utilization above 70%** and **debt-to-income ratio greater than 0.5** are significantly more likely to become delinquent.

**Proposed Recommendation:**  
Introduce a **Credit Relief Plan** for high-utilization customers, offering temporary spending limit adjustments and structured repayment options to ease repayment pressure.

* **Specific**: Use the predictive model to flag customers with utilization >70% and high debt ratio, and offer them repayment support and temporary credit limit controls.
* **Measurable**: Target a **15% reduction in delinquency rate** in this segment within 3 months.
* **Actionable:** Deploy automated alerts for these customers and provide customer service representatives with pre-approved repayment plan options.
* **Relevant:** This intervention directly addresses one of the strongest predictors of delinquency, aligning with **Geldium’s goal** of reducing defaults through ethical, data-driven actions.
* **Time-bound:** Launch the pilot program in **1 month**, review results at **90 days**, and expand if effective.

**Justification and Business Rationale:**  
High credit utilization and high debt levels are strong indicators of financial stress. Proactively providing repayment support reduces defaults, preserves customer relationships, and shows responsible lending practices. This approach balances **business goals (reducing losses)** with **customer well-being and regulatory compliance.**

# 3. Ethical and Responsible AI Considerations

**Fairness & Bias Risks**

* **Fairness & Bias:** The model may disadvantage **low-income** or **specific location** groups. To mitigate, it uses mainly **behavioural factors** (missed payments, credit utilization) and undergoes **fairness checks** across customer segments.
* **Explainability:** **Logistic Regression** offers clear coefficients, while **XGBoost** can be explained using **SHAP values**, making predictions easy to justify to regulators and stakeholders.
* **Responsible Use:** Predictions support **early reminders, flexible repayment options, and credit counselling,** not penalties—aligning with **ethical, customer-focused collections.**
* **Transparency & Privacy:** The model is auditable, decisions are explainable, and customer data privacy is protected. Regular **fairness audits** ensure compliance with **ethical and regulatory standards.**