Business Summary Report: Predictive Insights for Collections Strategy

# 1. Summary of Predictive Insights

 **High-Risk Segments:** Credit utilization >70%, credit score 300–600, ≥1 missed payment, debt-to-income >40%, account tenure <2 years.

 **Top Predictors:** Missed Payments ↑, Credit Score ↓, Account Tenure ↓, Age ↓, Debt-to-Income ↑.

 **Key Pattern:** Even 1–2 missed payments is an early warning; high utilization + low income needs priority outreach.

 **Model Performance:** AUC **0.90** — strong separation between high- and low-risk customers.

**Key Insights Summary Table:**

| **Insight** | **Segment** | **Variables** | **Impact** |
| --- | --- | --- | --- |
| **High credit utilization** | >70% usage | Credit Utilization, DTI | Early repayment counseling |
| **Low credit score** | 300–600 | Credit Score, Missed Payments | Targeted outreach |
| **Missed payments** | ≥1 in 12 months | Missed Payments, History | Immediate follow-up |
| **Short tenure** | <2 years | Account Tenure, Credit Score | Close monitoring |
| **Low/missing income** | Lowest quartile or missing | Income, DTI, Employment | Review affordability |

2. Recommendation Framework:

Here’s the **short version** of the SMART recommendation:

### **Restated Insight:**

Customers with delinquency probability ≥40% (many with missed payments & high credit use) are at high risk of default.

### **Proposed Recommendation:**

Launch a **High-Risk Early Action Program** to contact these customers within 7 days and offer flexible repayment options.

* **Specific:** Target ≥0.4 probability group; contact within 7 days.
* **Measurable:** Reduce delinquency in this group by **15% in 6 months**.
* **Actionable:** Run model weekly, auto-generate high-risk list, assign follow-ups.
* **Relevant:** Focuses on segment most likely to default.
* **Time-bound:** Start in 30 days; review at 3 & 6 months.

**Justification:**  
Early outreach prevents defaults, protects revenue, and leverages the model’s ability to spot risk before it escalates.

3. Ethical and Responsible AI Considerations

* **Fairness:** Possible bias against certain groups — e.g., low-income customers flagged due to income variable, self-employed flagged due to unstable earnings, or younger customers flagged due to shorter account tenure. Monitor results by demographics to reduce unfair treatment.
* **Explainability:** Logistic regression is transparent; easy to explain reasons for flagging.
* **Responsible Action:** Recommendation focuses on support, not penalties.
* **Ethical Principles:** Upholds transparency, accountability, and data privacy.
* **Use of Predictions:** Only for fair, helpful interventions, not for denying services unfairly.