How the System Works

- **Inputs:** Customer demographics (age, income, tenure), credit info (score, debt-to-income), payment history (missed payments, utilization).

- **Decision Logic:** Logistic Regression predicts delinquency probability → customers segmented into Low, Medium, High Risk.

- **Action Triggers:**
    Low → monitoring
    Medium → automated SMS/email reminders
    High → direct outreach, repayment support, escalation
    Dashboards for management reporting

- **Learning Loop:** Track outcomes, update model with new data, run fairness checks, adjust thresholds for better accuracy & transparency.

Role of Agentic AI

Examples of Collection Actions:

Action	Automation vs Human	Why?
Payment reminders (SMS/Email)	✅ Full Automation	Simple, repetitive, low risk
Customer risk scoring	✅ Full Automation	Data-driven, fast, explainable
Repayment plan negotiation	👤 Human Oversight	Needs empathy & flexibility
Legal/recovery escalation	👤 Human Oversight	High stakes, regulatory impact
Dashboard case prioritization	✅ AI Automation + Human Review	AI suggests, human confirms

Responsible AI Guardrails

Key Practices

- Fairness: Regularly test for bias across age, gender, income groups
- Transparency: Use explainable models (e.g., logistic regression), show feature importance
- Compliance: Align with RBI/industry rules, ensure data privacy & consent
- Customer-Centric: Focus on supportive actions, not punitive-only strategies

Monitoring & Auditing

- Track metrics: Accuracy, F1 score, AUC, + fairness indicators
- Regular audits: Quarterly reviews of bias & performance
- Human-in-the-loop: Oversight for sensitive actions (legal, restructuring)
- Feedback loop: Use repayment outcomes to retrain & improve the model

Expected Business Impact

KPIs & Operational Improvements

📌 **Key KPIs for AI-Powered Collections Strategy:**
- Delinquency Rate (%)
- Repayment Rate (%)
- Collection Cost per Customer (₹/$)
- Customer Satisfaction / Trust Index
- Regulatory Compliance Incidents (#)

⚙️ **How AI Improves Efficiency & Customer Experience:**
1. Personalized Outreach → tailored reminders & repayment plans
2. Smart Prioritization → focus on high-risk accounts
3. Fair & Transparent Communication → clear repayment options, builds trust

Business & Customer Outcomes

📊 **Quantitative Outcomes (Business Impact):**
- Reduced delinquency rates
- Increased repayment rates
- Cost savings through automation

💡 **Qualitative Outcomes (Customer Impact):**
- Improved customer trust
- Enhanced fairness in collections
- Increased scalability & consistency