

# Case Study: Credit Risk ML Platform for an NBFC

Durga Analytics | Data & AI Solutions for Financial Services

## Client Overview

**Client:** Leading Non-Banking Financial Company (NBFC) in India  
**Sector:** Retail and MSME Lending  
**Challenge:** Reduce NPAs and automate credit risk decisions  
**Duration:** 4 months (end-to-end delivery)

## Business Problem

The client relied on rule-based underwriting, resulting in high delinquency and suboptimal credit decisions. The NBFC needed a scalable ML platform leveraging historical and bureau data to improve credit risk prediction and reduce NPAs.

## Our Solution

- **Data Integration:** Integrated 5 years of internal lending data and 3 credit bureau APIs
- **Feature Engineering:** Created 150+ features across bureau, behavioral, and derived segments using PySpark
- **Modeling:** Developed and evaluated XGBoost, Random Forest, and Logistic Regression models
- **Deployment:** Real-time API scoring integrated with LOS and field officer dashboards
- **Monitoring:** Power BI dashboards for drift, delinquency, and model insights

## Impact Delivered

| Impact Area       | Outcome                               |
|-------------------|---------------------------------------|
| Approval Accuracy | 26% improvement in bad loan detection |

|                 |   |
|-----------------|---|
| Turnaround Time | Reduced from 36 hrs to < 6 hrs                      |
| NPA Reduction   | Projected 18–24% drop in new NPAs                   |
| Scalability     | Supports over 1 million annual loan applications    |
| Compliance      | SHAP explainability met audit & regulator standards |

## Technology Stack

**Data Engineering:** PySpark, Airflow

**Modeling:** Scikit-learn, XGBoost, SHAP

**APIs:** Flask, FastAPI

**Dashboards:** Power BI

**Infrastructure:** AWS EC2, S3, Lambda

## Client Testimonial

“The ML-based credit risk platform delivered by Durga Analytics has transformed our underwriting process. The predictive accuracy and real-time decisioning capability have not only improved our portfolio quality but also empowered our field officers to make faster and smarter lending decisions.”  
— Chief Risk Officer, NBFC Client

## Next Steps

We’re now extending the platform to include top-up loan prediction, prepayment risk, and UPI-based behavioral scoring.

Want to revolutionize your credit decisioning with AI & ML? Talk to Our Experts