Summer Internship Presentation

Loan Process Optimization and Risk Analysis at Aham Housing Finance Limited

AHAM
HOUSING FINANCE

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Internship Period: May 15, 2025 - July 15, 2025

About Aham Housing Finance

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Overview	**Mission & Services**	**Key Statistics**
• Non-Banking Financial Company (NBFC) founded in 2017. • Specializes in affordable home loans (₹10-15 lakh). • Focus on informal markets and Tier II/III cities.	• Empower homeownership through minimal documentation. • Promote financial literacy for underserved segments. • Data-driven lending using Excel, Python, and Power BI.	• 130 employees as of December 2024. • Raised $4.87M, valued at $12.2M (October 2023). • Headquartered in Chennai, registered in Mumbai.

Internship Overview & Project Goal

1 **Internship Role**

8-week Analyst Intern at Chennai headquarters.

2 **Problem Statement**

Inefficient loan processing and high delinquency risks.

3 **Project Objective**

Optimize loan processing and enhance risk management through data analysis.

4 **Tools Utilized**

Excel, Python (Pandas, NumPy, Matplotlib, Scikit-learn), Power BI.

Data Collection & Preparation

Data Sources

Extracted loan data (customer, application, repayment) from internal systems.

Data Cleaning

Handled missing values, duplicates, and data type inconsistencies using Excel and Python (Pandas).

Feature Engineering

Created new features like loan tenure, average monthly repayment, and bounce count.

Tools

Excel for initial cleaning; Python (Pandas) for advanced preprocessing.

Exploratory Data Analysis (EDA) & Key Insights

Purpose
Understanding loan lifecycle patterns and identifying risk drivers.

Average TAT
Significant variations across branches, indicating process inefficiencies.

Bounce Rates
Higher in specific customer segments, particularly informal income groups.

Login-to-Sanction Ratio
Lower in Tier II cities, suggesting documentation bottlenecks.

Visualizations
Bar charts, box plots, and correlation matrices for clear insights.

Predictive Modeling & Evaluation

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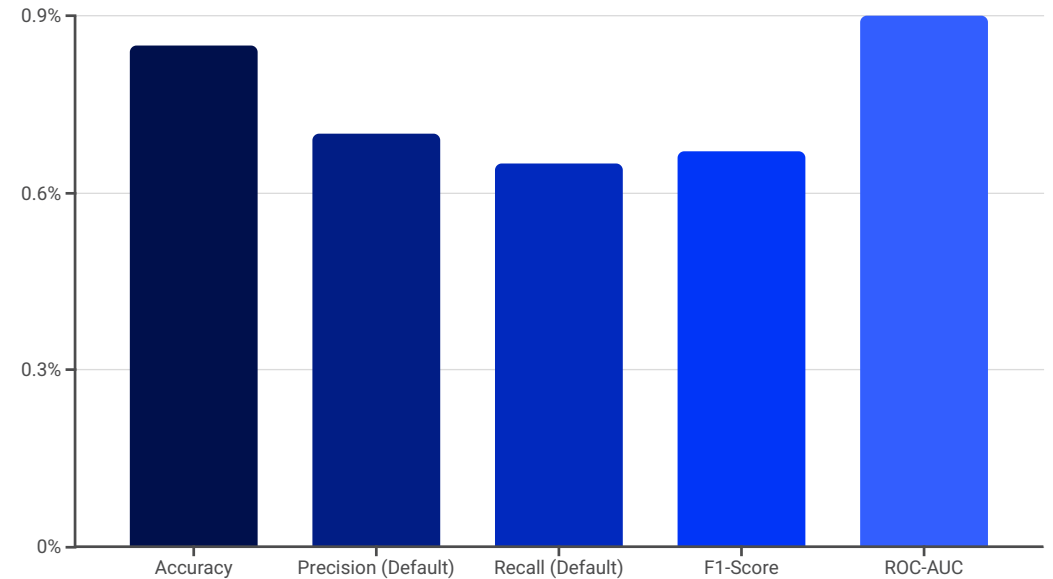Example Evaluation Metrics for Delinquency Prediction

1 Objective

Predict delinquency risk (Default = 1, Non-Default = 0).

2 Algorithms

Logistic Regression (baseline) and Random Forest Classifier (robust).

3 Process

Data split (80/20), model training with Scikit-learn, hyperparameter tuning, cross-validation.
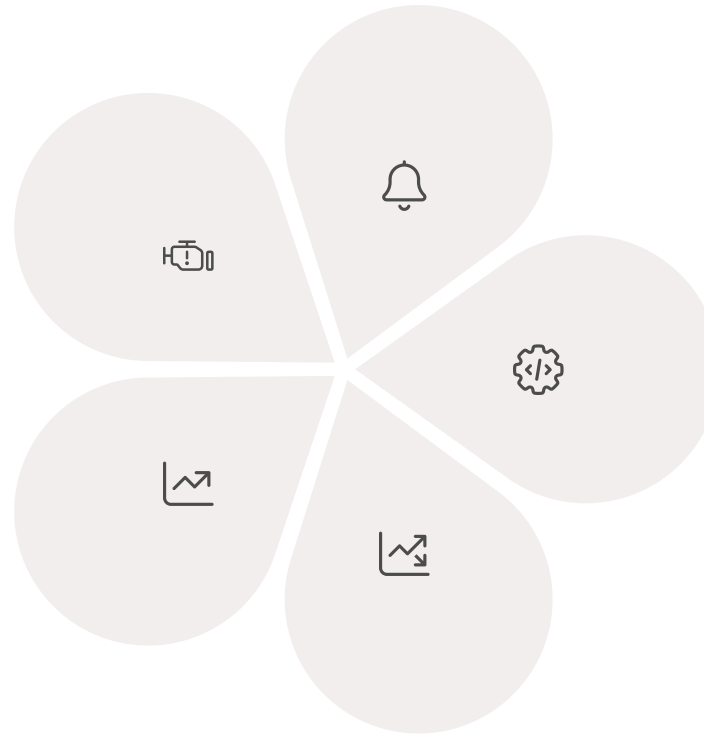
Feature Importance & Strategic Recommendations

Key Drivers

High bounce count (>2) and long payment gaps (>30 days).

Impact

Reduced delinquency risks and improved loan recovery rates.

Targeted Follow-Ups

Prioritize automated reminders for at-risk customers.

Process Optimization

Streamline documentation for Tier II city loan applicants.

Power BI Dashboards

Monitor TAT, bounce rates, and risk by branch and customer segments.

Challenges Faced & Lessons Learned

Data Quality

Missing repayment records and inconsistent formats required extensive cleaning.

Complex Analysis

Balancing multiple metrics (TAT, bounces, risks) across diverse datasets.
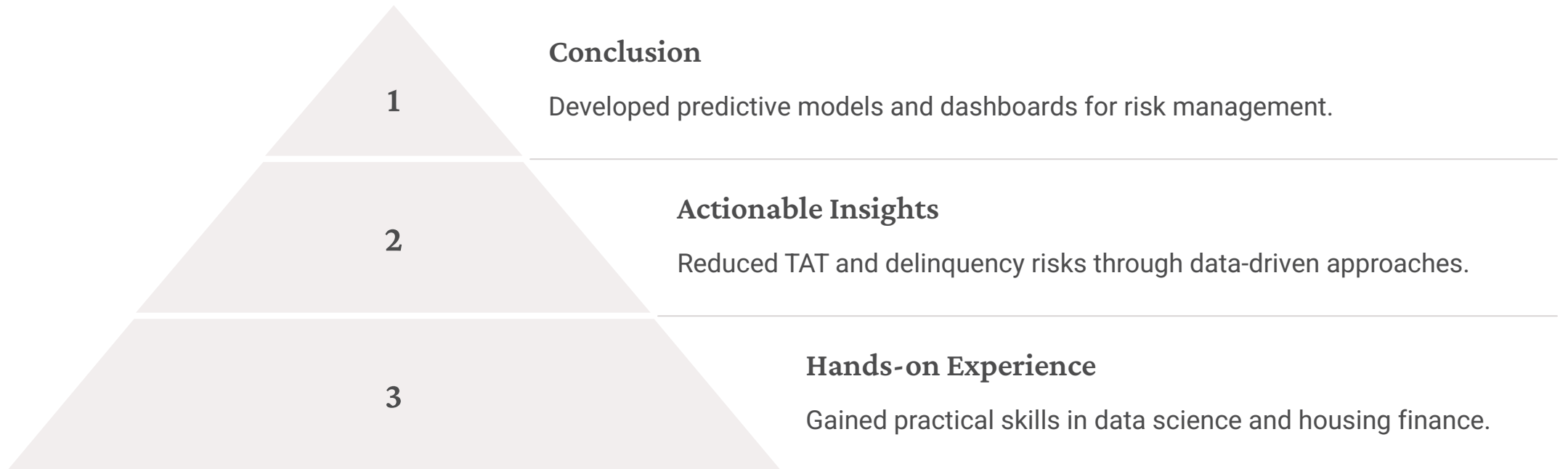
Time Management

Completing analysis and dashboards within an 8-week timeframe.

Key Learnings

- Thorough data preprocessing.
- Translating technical insights into business strategies.
- Proficiency in Excel, Python, and Power BI.
- Effective collaboration with inter-departmental teams.

Conclusion & Future Scope

1   **Conclusion**

Developed predictive models and dashboards for risk management.

2   **Actionable Insights**

Reduced TAT and delinquency risks through data-driven approaches.

3   **Hands-on Experience**

Gained practical skills in data science and housing finance.

Future Scope

- Deploy real-time delinquency monitoring systems.
- Integrate external credit scores for enhanced predictions.
- Develop interactive Power BI dashboards for continuous monitoring.

Thank You