

PROJECT - BASED VIRTUAL INTERNSHIP

**CREDIT RISK MODELING & BUSINESS
RECOMMENDATION - HOME CREDIT
INDONESIA**

ROY FIRMAN SIHOMBING

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I am a Mathematics graduate with a strong interest in data science. Currently, I am enrolled in the Data Science Bootcamp at Dibimbing.id to sharpen my skills in Python, SQL, data analysis, and visualization. I have hands-on experience in warehouse data management, sales tracking, and spreadsheet automation. Known for strong analytical thinking, problem-solving skills, and clear communication, I thrive both in team collaborations and independent work.



Company Profile

Home Credit Indonesia is a consumer finance company that has been operating since 2013, providing installment-based lending services without the need for credit cards. The company focuses on expanding financial inclusion by offering accessible, fast, and transparent financing solutions for customers across Indonesia. With millions of customers served nationwide, Home Credit Indonesia enables individuals to purchase consumer goods, electronics, and other necessities through flexible loan products. Guided by its mission to make credit more inclusive and responsible, the company continues to leverage data-driven approaches and advanced risk modeling to improve decision-making and ensure sustainable business growth.



Overview

- 1 Lending services across diverse customer segments.
- 2 Challenge: approve good customers while avoiding risky ones.

Problem Statement

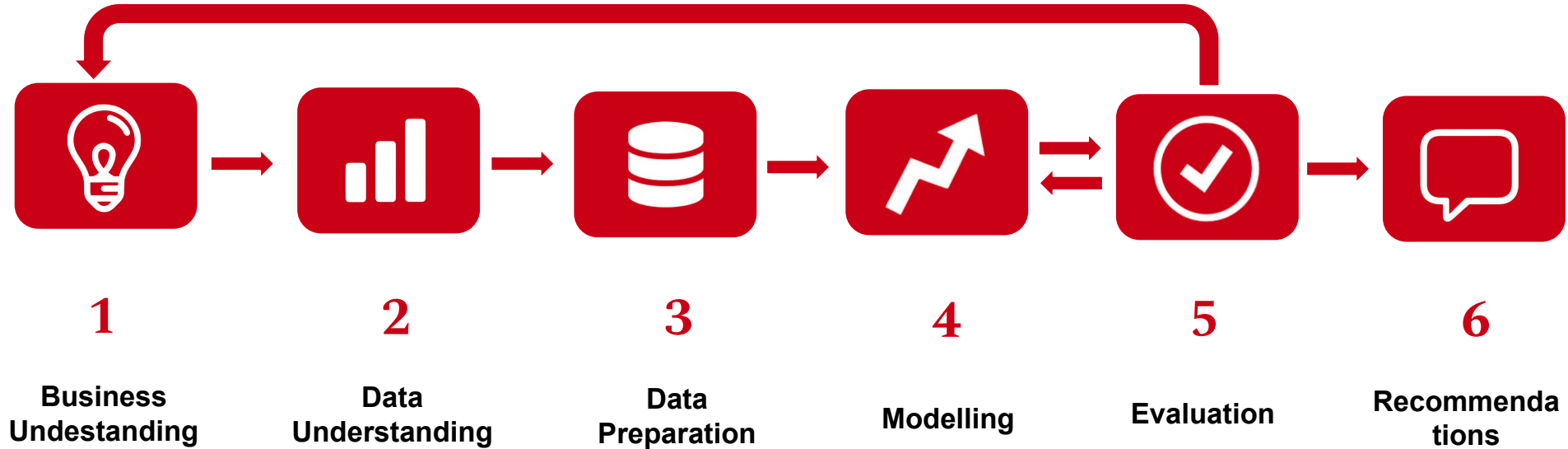
One of the main challenges faced by the company is that good customers are being rejected. This issue not only leads to lost revenue opportunities but also limits financial inclusion, as eligible individuals are unfairly excluded from accessing credit

Objectives

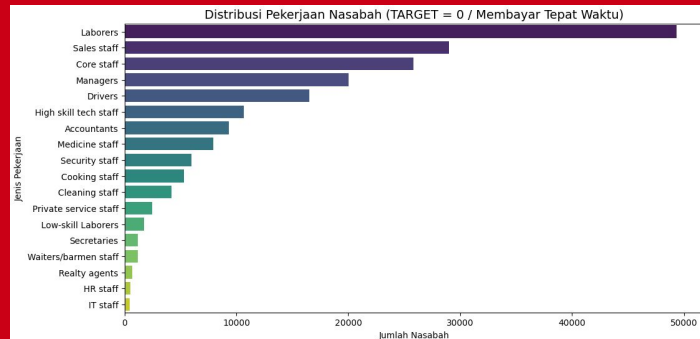
- 1 Reduce false rejections by ensuring that eligible customers are correctly approved.
- 2 Support financial inclusion by widening access to credit for good customers.
- 3 Maintain business growth by minimizing revenue loss from rejected eligible applicants.



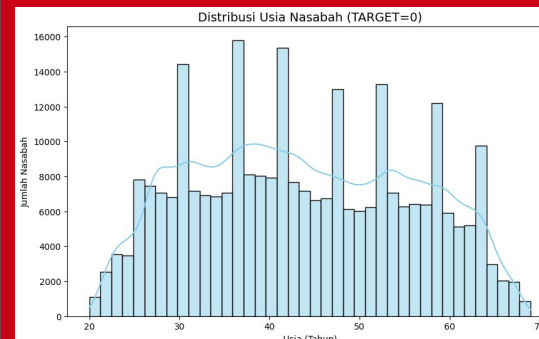
Workflow Process



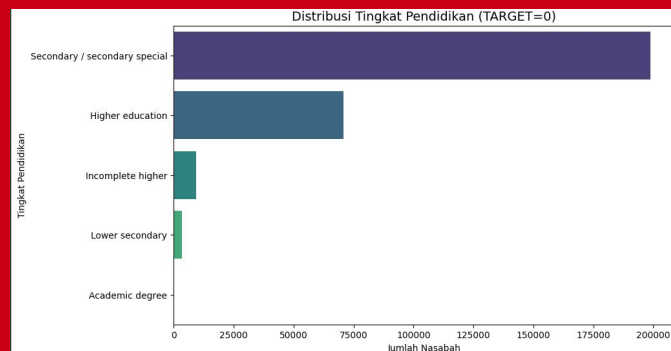
Initial Insights



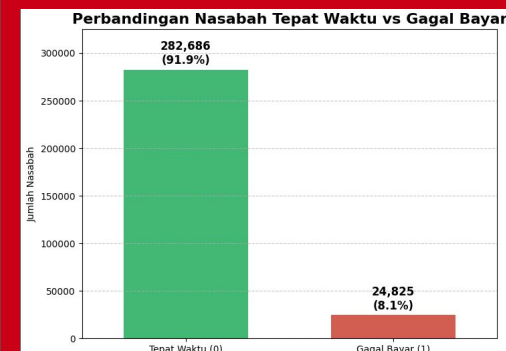
Most on-time payers are **laborers, sales staff, and core staff**, while groups like IT staff and realty agents are fewer.



Customers aged **30–45** dominate **on-time repayment**, with fewer very young or older borrowers.

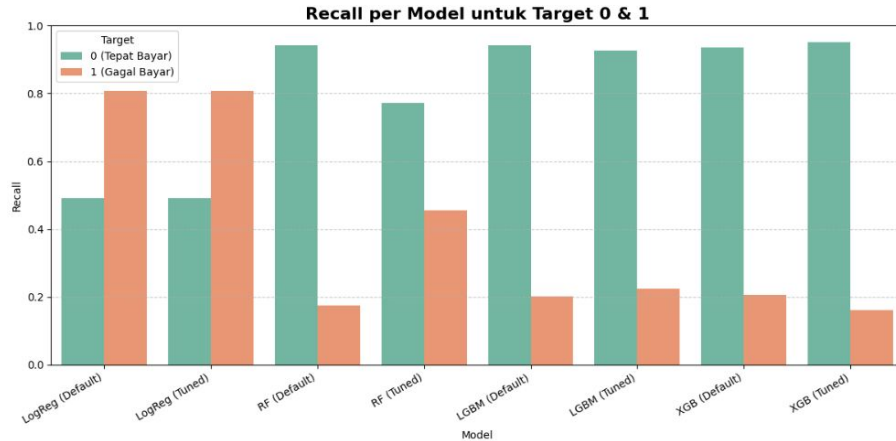


Majority of on-time payers have **secondary education**, followed by higher education.



Around **91.9%** customers **pay on time**, while **8.1%** default.

Model Performance



Since our business goal is to avoid rejecting eligible customers, recall is the most important metric. By maximizing recall for Target 0, we ensure that as many good customers as possible are correctly approved, minimizing false rejections

	precision	recall	f1-score	support
0	0.9314	0.9287	0.9301	11308
1	0.2144	0.2216	0.2179	993
accuracy			0.8716	12301
macro avg	0.5729	0.5751	0.5740	12301
weighted avg	0.8736	0.8716	0.8726	12301
ROC AUC (Test): 0.7161797777224441				

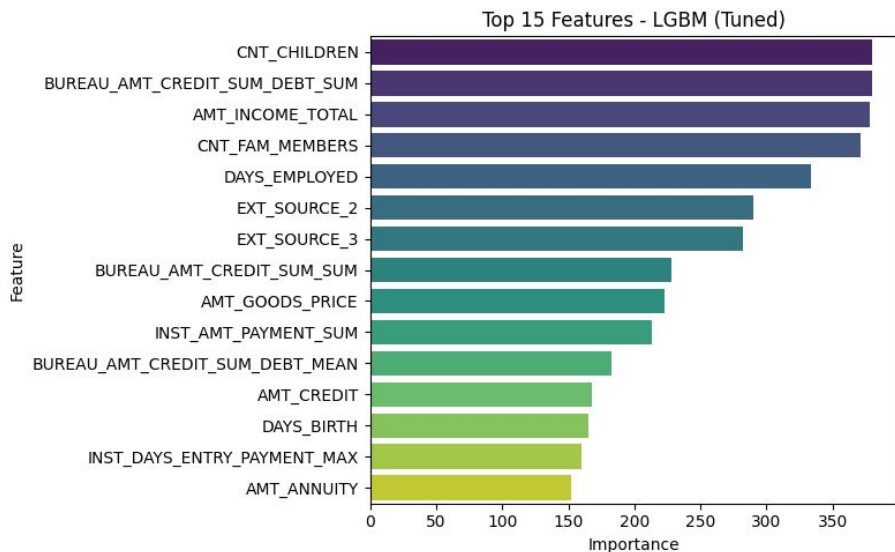
LGBM (Tuned) - Validation Set

	precision	recall	f1-score	support
0	0.9315	0.9265	0.9290	11308
1	0.2108	0.2236	0.2170	993
accuracy			0.8698	12301
macro avg	0.5711	0.5750	0.5730	12301
weighted avg	0.8733	0.8698	0.8715	12301
ROC AUC (Validation): 0.7087970943402544				

LGBM (Tuned) - Test Set

Validation and Test results are consistent, showing good generalization and reliability

Key Drivers of Credit Approval



Family factors : CNT_CHILDREN,
CNT_FAM_MEMBERS



Financial status : AMT_INCOME_TOTAL,
AMT_CREDIT, AMT_GOODS_PRICE



Employment & age : DAYS_EMPLOYED,
DAYS_BIRTH



Risk indicators : EXT_SOURCE_2,
EXT_SOURCE_3



Credit history & payment behavior :
BUREAU_*, INST_*

Business Recommendations



Strengthen credit scoring by using family and income factors to better identify eligible customers.



Prioritize recall for Target 0 to reduce false rejections of good applicants.



Regularly retrain the model with updated credit bureau and payment behavior data to maintain accuracy and fairness.

Note:

Due to limited computational resources, the current modeling results are not yet fully optimized. For stronger insights and improved performance, future iterations should include more comprehensive hyperparameter tuning and extended computation.



THANK YOU !

Data allows us to see beyond
numbers, unlocking fair and
inclusive access to credit for
everyone.

