# HOME CREDIT

# DEFAULT CLASS

Geraldine Dewarani - Hacktive8

# HOME CREDIT

## OUR COMPANY

Founded in 1997, Home Credit is an international consumer finance provider with operations in eight countries. We focus on responsible lending primarily to people with little or no credit history. Our services are simple, easy and fast.

# CASE BACKGROUND

Home Credit recognizes the value of their data and believes there is untapped potential in it. The objective is to explore and leverage the available data sources to discover meaningful insights and develop innovative strategies. This includes utilizing statistical and machine learning methods, as well as exploring advanced techniques to extract hidden patterns, identify relevant features, and improve the overall predictive power of the models.
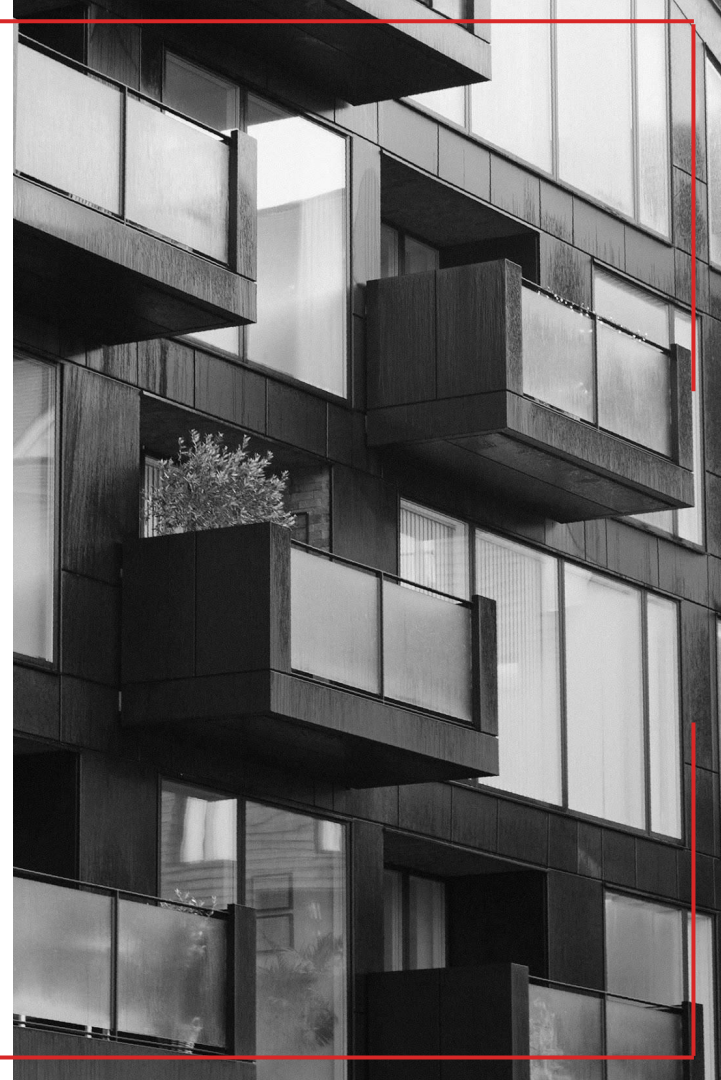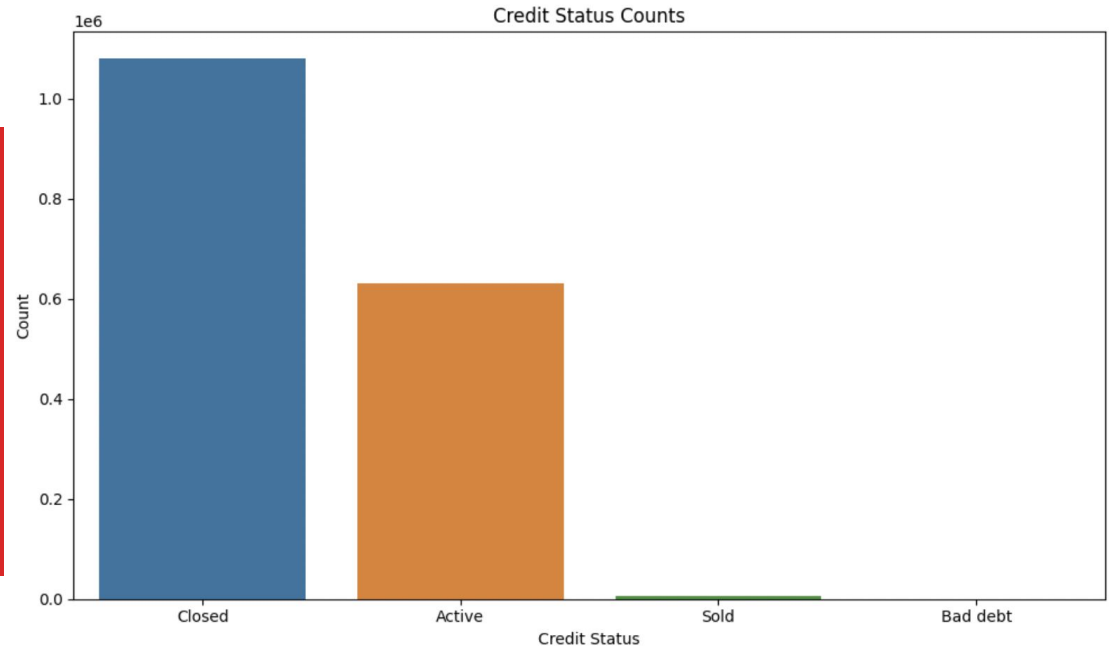
# HOME CREDIT BUREAU INFO

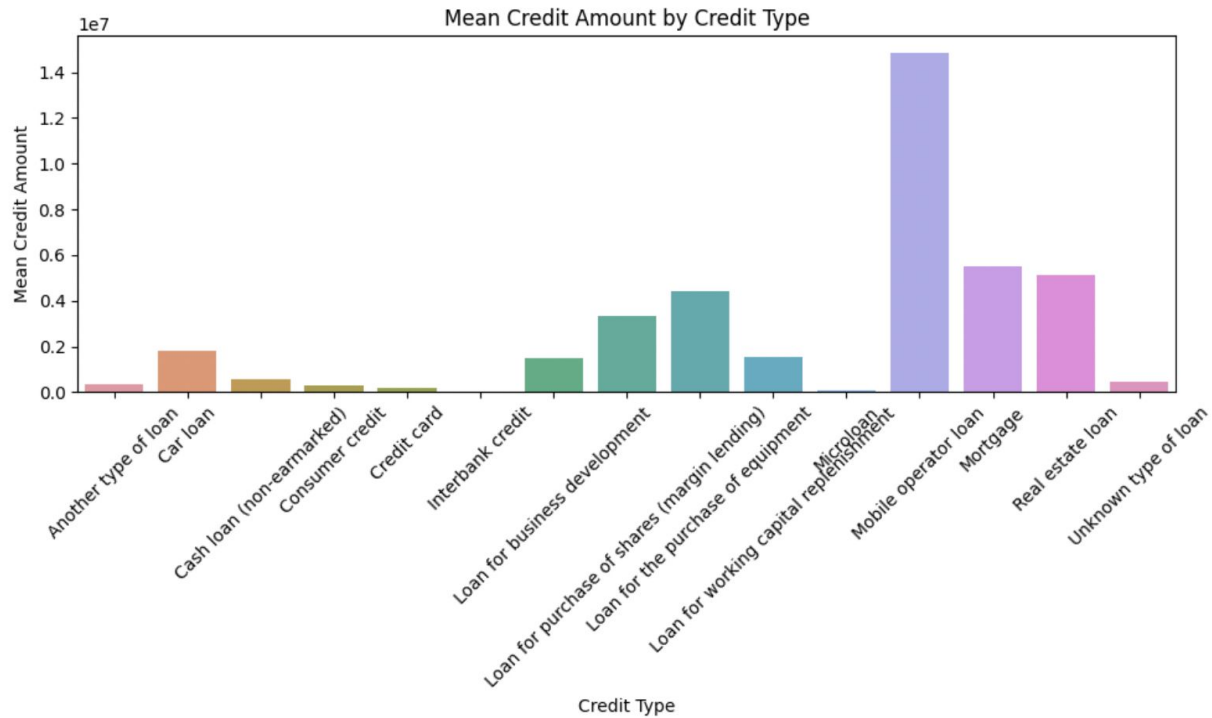**1** CREDIT STATUS

**2** CREDIT TYPE

**3** CREDIT CURRENCY

# CREDIT STATUS



Credit Status Counts

Mean Credit Amount by Credit Type

OUR EVOLUTION

# 98%

## CREDIT CURRENCY ARE IN $

# WHAT MACHINE LEARNING CAN SOLVE ?

the development of machine learning models for default classification aligns with the objectives of Home Credit's business domain. These models enhance credit risk management, enable financial inclusion, and contribute to a positive and safe borrowing experience for clients.

# DATA MODELING

## LOGISTIC REGRESSION

Models the relationship between features and class probabilities using a linear function

## CATBOOST

gradient boosting algorithms that combine multiple decision trees to make predictions and excels at handling categorical features efficiently,

## LIGHTGBM

gradient boosting algorithms that combine multiple decision trees to make predictions and known for its fast training speed and optimized tree construction.

# MODEL EVALUATION

## WHY CHOOSE ROC_AUC

Useful metric to measure the binary classification and works well in imbalance class. depicts the model's ability to distinguish between positive and negative classes by calculating the area under the ROC curve. The higher the ROC-AUC score, the better the model's ability to make accurate predictions.

## ROC_AUC RESULT

| ALGORITHM | MEAN | STD.DEV |
|---|---|---|
| Logistic Regression | 0.7458 | 0.0028 |
| CatBoost | 0.7547 | 0.0036 |
| LightGBM | 0.7542 | 0.0032 |
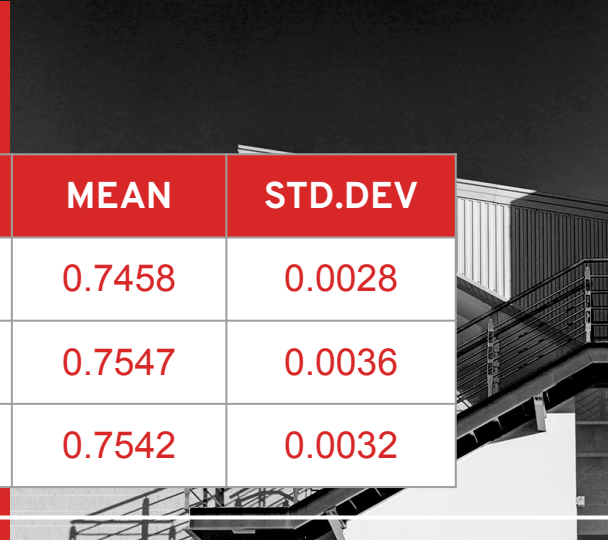
# MODEL KEY PERFORMANCE

| STRENGTH | CatBoost and LightGBM are powerful models for handling complex and large datasets, and they have the capability to handle categorical features automatically, making the modeling process easier. |
|---|---|
| | ROC-AUC provides an overall view of the model's performance in distinguishing between positive and negative classes, especially when the classes are imbalanced. |
| WEAKNESSES | The use of ROC-AUC may not directly reflect the business objectives. Sometimes, the choice of evaluation metric should be based on specific business goals. |
| | More complex models like CatBoost and LightGBM may require more time and computational resources for training and implementation compared to Logistic Regression. |

# CONCLUSION

By employing statistical and machine learning methods, they aim to extract meaningful insights, discover hidden patterns, and enhance the predictive power of their models. This will enable Home Credit to develop innovative strategies and make data-driven decisions that drive positive outcomes in their lending operations. By harnessing the full potential of their data, Home Credit is poised to revolutionize the industry and provide better financial services to their clients.