



# HOME CREDIT SCORECARD MODEL

*BY MELLIA ANGGREANI*

# PROBLEM & DATASET OVERVIEW

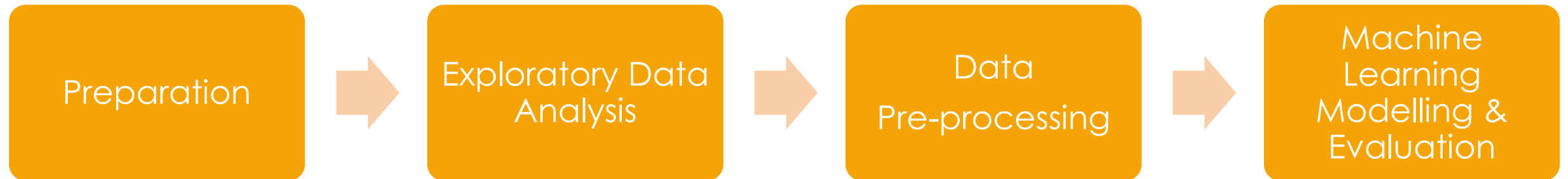
Home Credit Indonesia wants to create a machine learning model that can assist the team in predicting whether loans from customers will encounter difficulties in repayment or not. With the right machine learning model in place, it is hoped that it can ensure that customers who are capable of repayment are not rejected when applying for a loan, thereby increasing Home Credit Indonesia's revenue.

The dataset used is “application\_train.csv”, which consists of 307,511 rows and 122 columns.

The “Target” column of the dataset shows :

- “0” for clients **WITHOUT** difficulties in payment
- “1” for clients **WITH** difficulties in payment

# PROJECT WORKFLOW



# PREPARATION

- ☐ Import the Relevant Libraries

- ☐ Import the Dataset

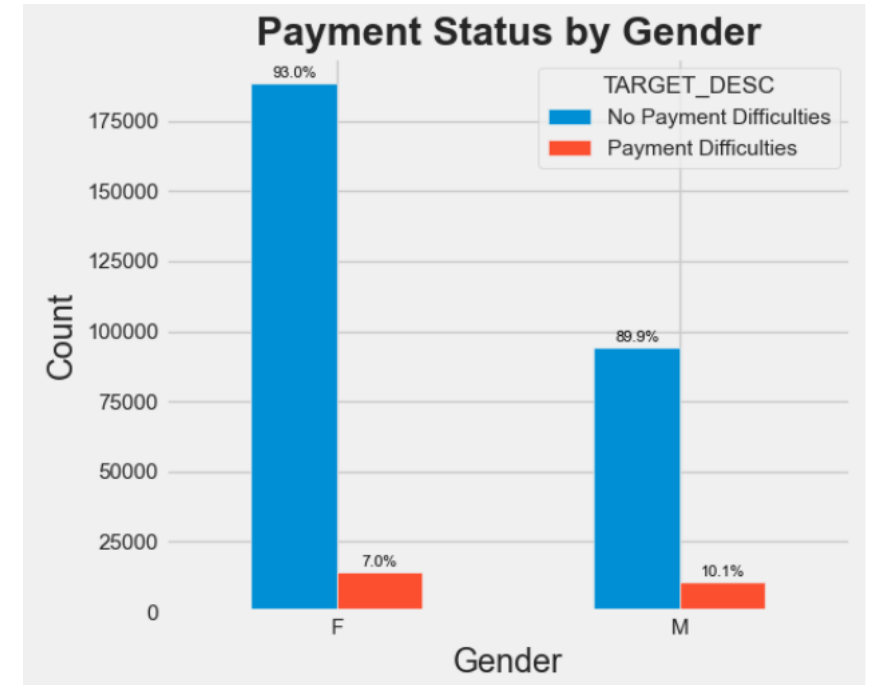
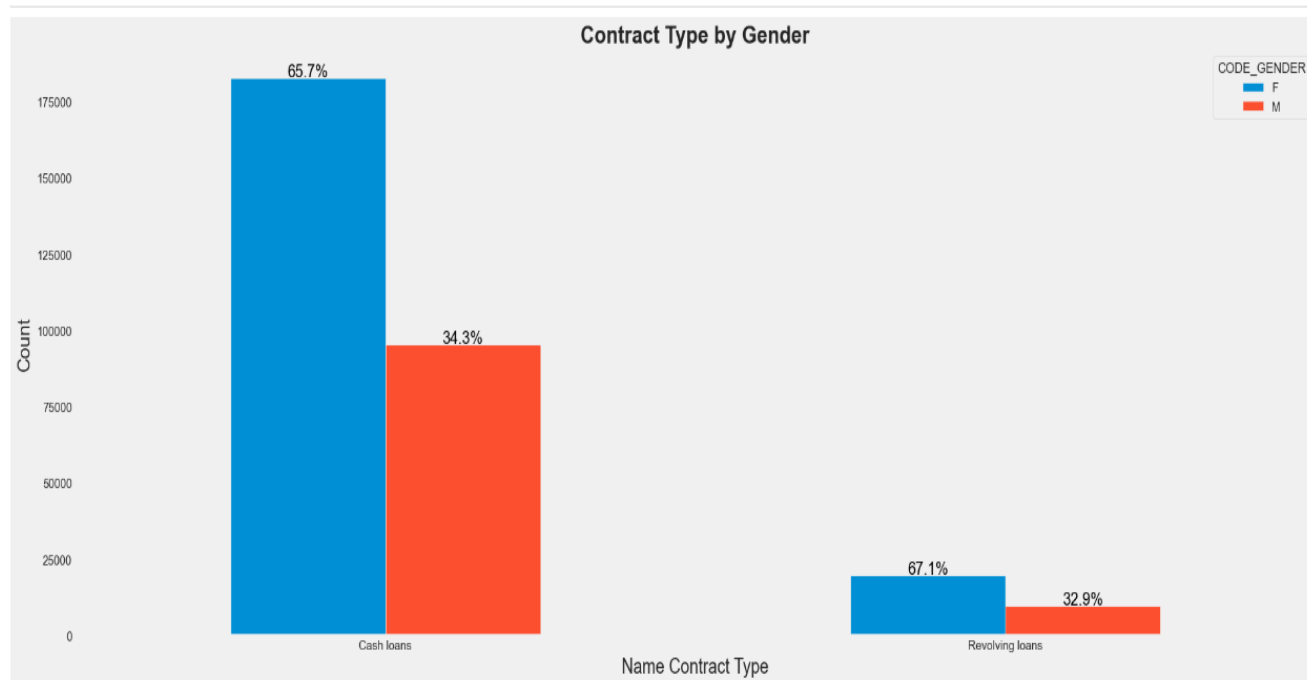
- ☐ Check Data

- ☐ Validate Data

- There are several columns with negative values (like DAYS\_BIRTH, DAYS\_EMPLOYED, etc) so need to be absolutized.

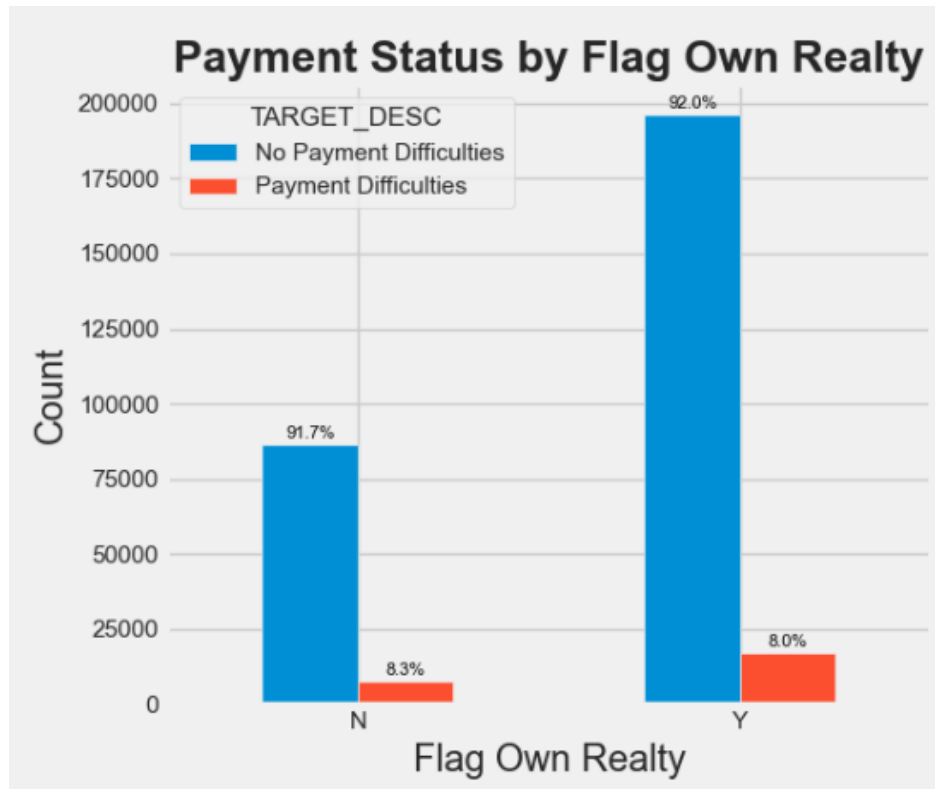
- There are columns with invalid value, such as "XNA" in the CODE\_GENDER

# EDA, TWO BEST INSIGHTS & VISUALIZATION (1)



There are **TWO** contract types (Cash loans and Revolving Loans). Both types are dominated by **FEMALE** clients, where **FEMALE** clients are **MORE DISCIPLINED** in making loan repayments compared to **MALE** clients.

# EDA, TWO BEST INSIGHTS & VISUALIZATION (2)



The **MAJORITY** of clients applying for loans are those who **OWN REALTY**, and these clients experience the **LEAST DIFFICULTY in PAYMENTS**

# DATA PRE-PROCESSING

**Check Duplicated Data**

**Handle missing data**

- Drop column with missing values > 50 %, remove irrelevant feature and fill missing value with median/mode

**Class Imbalance**

- Use oversampling (SMOTE)

**Split Data**

# MACHINE LEARNING MODELLING & EVALUATION

MODEL	PRECISION	RECALL	F1-SCORE	ROC AUC
Logistic Regression	58 %	57 %	57 %	57.4 %
K-Nearest Neighbors	86 %	84 %	84 %	83.9 %
Random Forest	96 %	95 %	95 %	95.4 %

**BEST MODEL** : Random Forest



# BUSINESS RECOMMENDATION

- ☐ Creating campaigns about household and women's needs to attract more women to apply for loans at Home Credit Indonesia.
- ☐ Providing attractive interest rate promotions if female clients have previously applied for a loan at Home Credit Indonesia.
- ☐ Providing rewards for clients who have completed their payment, these rewards can be used when reapplying for a loan at Home Credit Indonesia.



# THANK YOU

*Visit my GitHub to see the code entirely*

<https://github.com/melliaa777/Home-Credit-Scorecard>