Rakamin Academy

HOME CREDIT

CREDIT SCORE - HOME CREDIT

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Rakamin Academy HOME CREDIT

OUTLINE

- Problem Statement
- EDA and Insight
- Pre-Processing
- Modelling Experiments
- Recommendation

Problem Statement

Some things require large upfront costs, while circumstances and needs do not allow us to save upfront. **Taking a loan** or doing an **installment scheme** is the most popular way to solve this problem. Home credit provides an opportunity for all of them to solve their financial problems safely. Where **Home Credit is a multinational multipurpose financing company**, this company provides in-store financing services (non-cash financing directly on the spot) for consumers who want to buy products such as household appliances, electronic equipment, mobile phones, and furniture. The company also builds technology-based financing services.

GOALS

Credit score prediction
Provide business recommendations

BUSINESS METRICS

Lost by default

OBJECTIVE

- Membentuk suatu model machine learning untuk mengetahui pemodelan algoritma yang terbaik
- Mengidentifikasi karakteristik klien potensial yang akan mengalami kesulitan membayar kembali pinjaman dan siapa yang tidak.
- Memprediksi kemampuan pembayaran klien.

EDA (EXPLORATORY DATA ANALYSIS)

Number of Columns : 122

Number of Rows : 307,511

Data Types : float (65), Integer (41), Object (16).

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 307511 entries, 0 to 307510
Data columns (total 122 columns):
 #     Column                        Dtype
---    ------                        -----
 0     SK_ID_CURR                    int64
 1     TARGET                        int64
 2     NAME_CONTRACT_TYPE            object
 3     CODE_GENDER                   object
 4     FLAG_OWN_CAR                  object
 5     FLAG_OWN_REALTY               object
 6     CNT_CHILDREN                  int64
 7     AMT_INCOME_TOTAL              float64
 8     AMT_CREDIT                    float64
 9     AMT_ANNUITY                   float64
 10    AMT_GOODS_PRICE               float64
```

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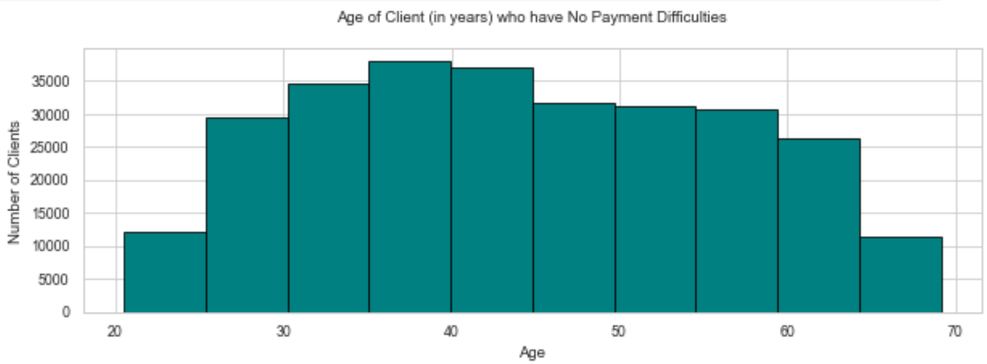
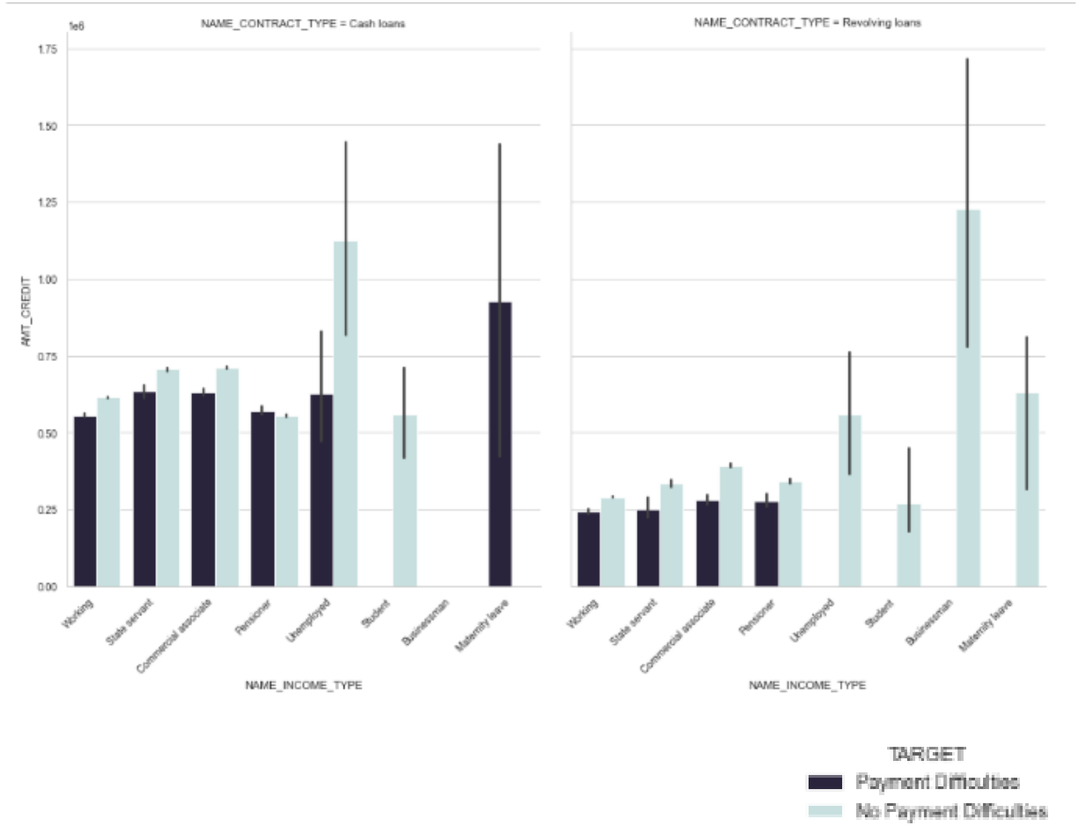
BUSINESS INSIGHT



- Clients with **payment difficulties** are in the age range of 25-35

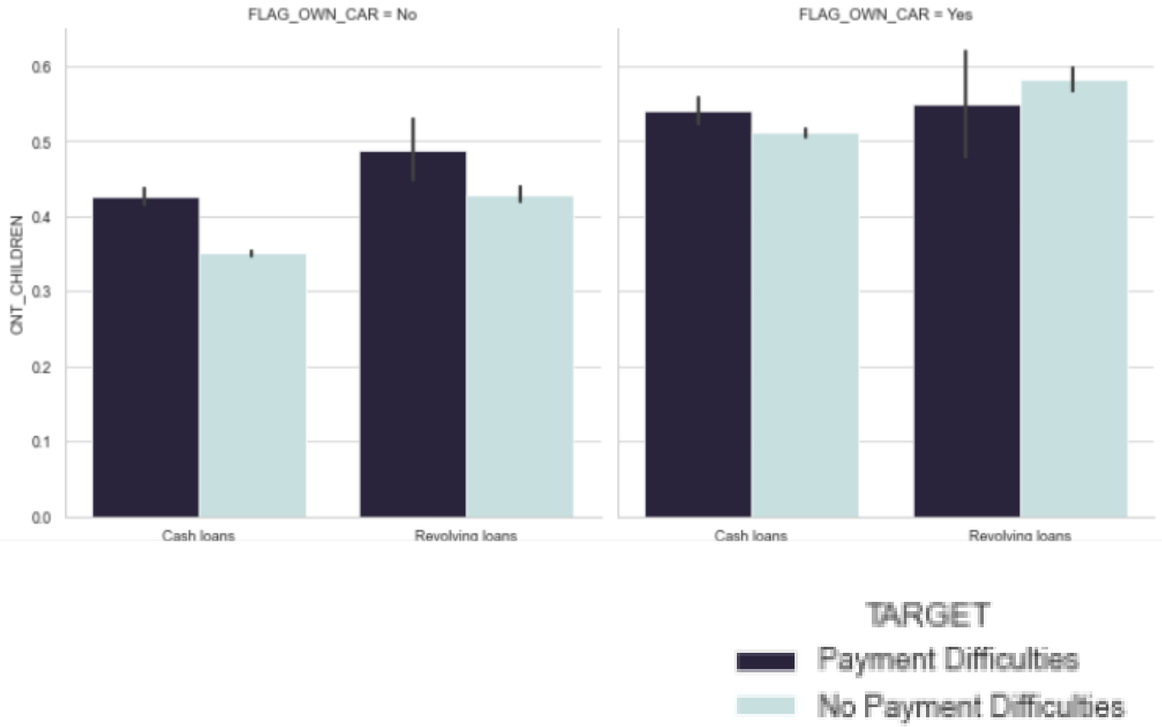
- Clients who apply for loans are mostly aged 35-40
- At the age <25 or >65 who take out a loan is low

BUSINESS INSIGHT



- Cash loan payments with maternity leave income types increase in payment difficulties
- Meanwhile, revolving leave payments on the payment difficulties chart tend to be stable

BUSINESS INSIGHT



- Clients with the Own Car Yes flag and the Resolving Loans payment type are on the Payment difficulties graph which is quite high.

- Meanwhile, clients with Flag Own Car No have stable Payment difficulties graphs and are higher for cash loan types.

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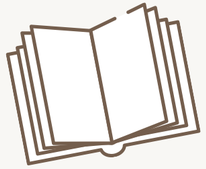
PRE-PROCESSING

FEATURE SELECTION

- Detecting Duplication
- Missing Data

SPLIT DATA

- Split Data
- Upsample

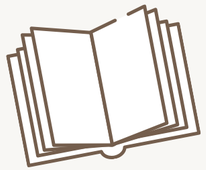


OULIERS HANDLING

- Outliers are maintained

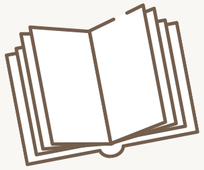
FEATURE TRANSFORM

- Standard Scaler



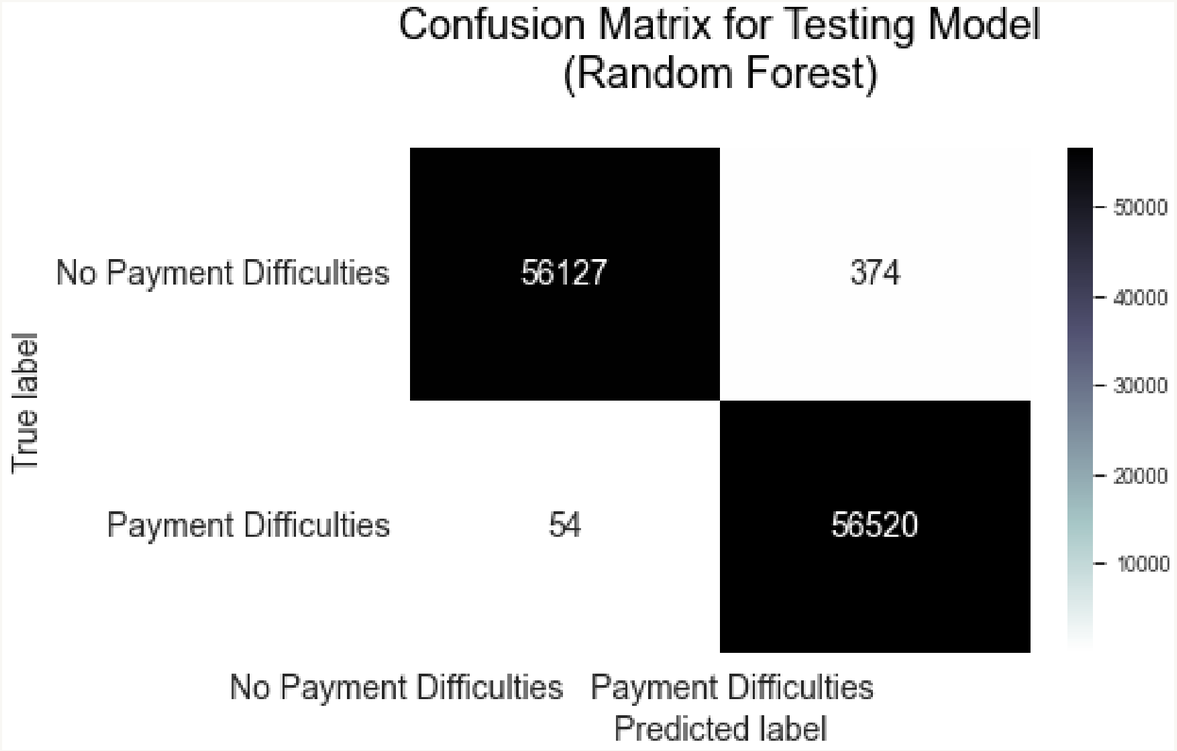
FEATURE ENCODING

- Label Encoding



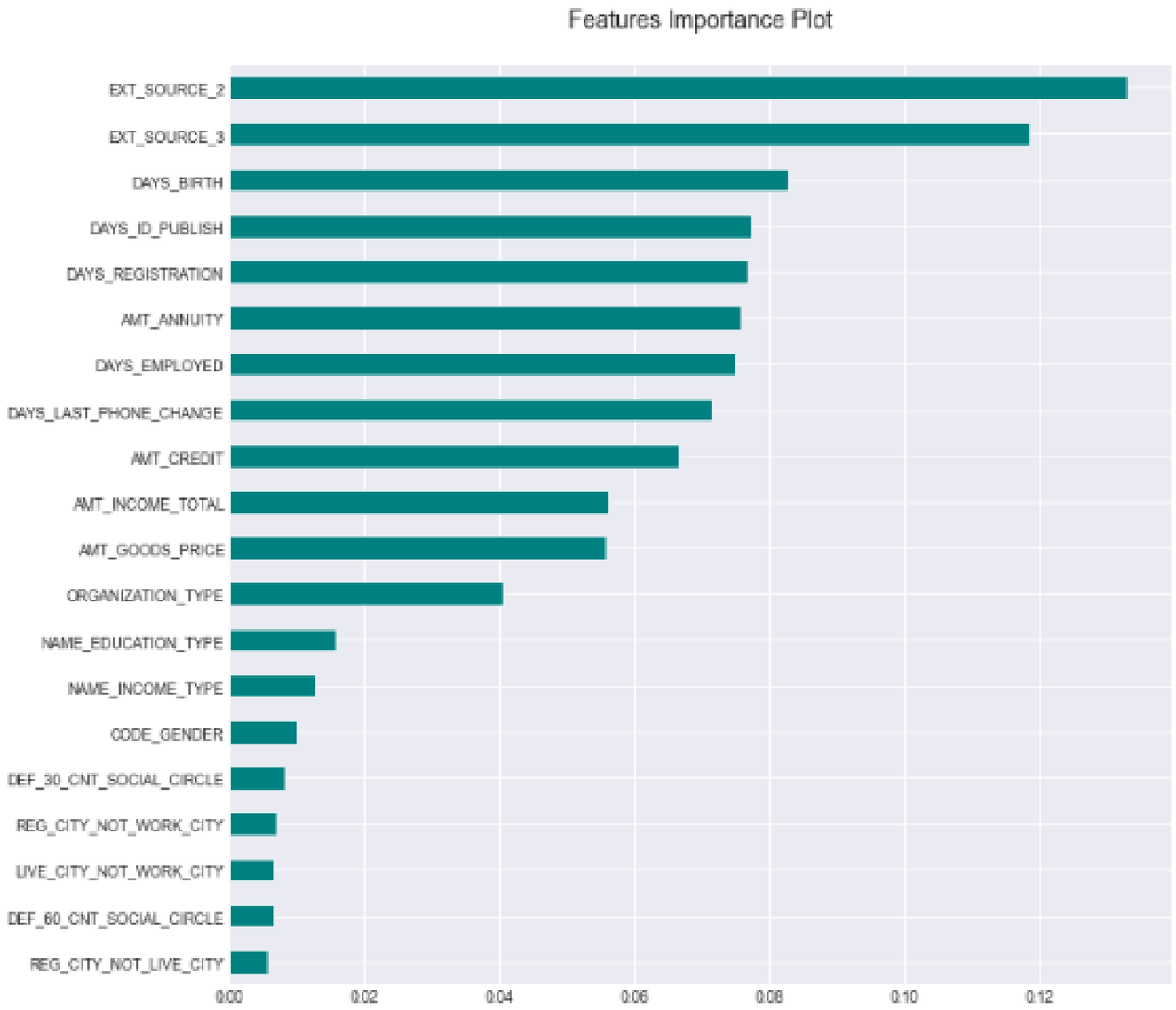
EVALUATION MODELS

Algorithm	ROC Score
Logistic Regression	0.67
Decision Tree	0.88
Random Forest	0.99



Model terbaik pada random forest yaitu 99%

FEATURE IMPORTANCE



The 5 Most Importance Features

EXT Source 2

EXT Source 3

Days Birth

Days ID Publish

Days Registration

RECOMMENDATIONS

1. A client with an income type of student can be said to be a client who is capable of repaying the loans whether with a cash loan or revolving loan (100% of applications approved). But there only 0.005% of applications come from the student.
2. A client who works as an accountant can be said to be a client who is capable of repaying the loans (95% of applications approved). But, there is only 3.19% of applications come from an accountant. So do, the client who work as high skill tech staff and manager, they are capable of repaying the loans, but there are only a few applications that come from them

Create a campaign so that more student, accountant, high skill tech staff, manager interested in applying for a loan

RECOMMENDATIONS

1. Clients with maternity leaves and cash loans can be said to be a client who is incapable of repaying the loan (100% of applications rejected). On the contrary, all clients with maternity leave but taking revolving loans to have their applications approved.
2. For unemployed clients, more than 50% of them have a problem repaying their loans if they take cash loan contracts. Meanwhile, all unemployed client who takes revolving loans is capable of repaying the loan.

Need further analysis, you can survey to find out if there is a problem if a client with maternity leaves or unemployed takes a cash loans contract. So, in the future, if there are clients with that type of income, you can recommend the right contract type so that their applications will be approved

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Github Link

https://github.com/nuramilah16/HCI

Linkedin Link

http://www.linkedin.com/in/nur-amilah-16m

THANK YOU

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