



**HOME  
CREDIT**

# ANALISIS KREDITUR HOME CREDIT

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DIKA AWALINDAH



## PROBLEM

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Is the client applying for a loan able to repay it so that the loan application can be approved?



## SOLUTION

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Using machine learning algorithms to predict whether the client applying for a loan is capable of repaying it.

# PREPROCESSING DATA TRAIN



## EXPLORATION & VISUALIZATION

Data has 122 columns, and 307,511 rows

Visualize the relationship between feature



## DETECTED DUPLICATE DATA

There is no duplicate data



## HANDLE MISSING VALUE

Drop columns that has big missing value. And imputed the rest



## LABEL ENCODE

Make all to numerical label



## FEATURE SELECTION

Choose the best feature that will use in the model



## MODEL BUILDING AND EVALUATION

Build model with machine learning and choose the best model

# BUILDING MODEL

	Training Accuracy Score	Testing Accuracy Score	ROC Score
LOGISTIC REGRESSION	64.95	65.03	0.6504
GAUSSIAN NAIVE BAYES	50.22	49.97	0.5000
DECISION TREE	100	80.36	0.8037
RANDOM FOREST	100	97.28	0.9729
K-NEAREST NEIGHBOR	91.23	87.57	0.8756

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**Best models** to predict clients payment abilities is random forest with accuracy 100% and error margin 2,72%

# PREPROCESSING DATA TEST



## EXPLORATION

Data has 121 columns,  
and 48,744 rows



## DETECTED DUPLICATE DATA

There is no duplicate  
data



## PREDICTION

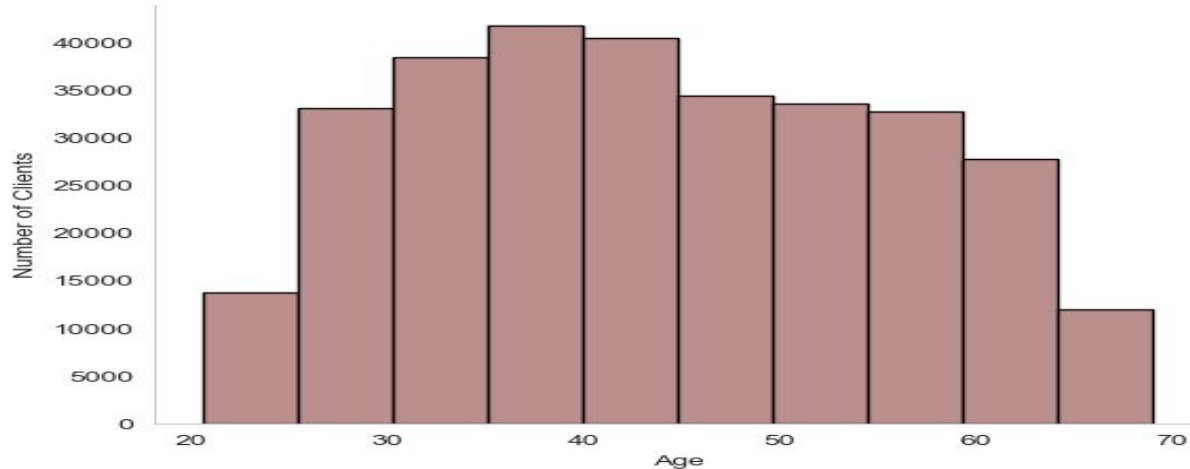
Predict client's  
repayment abilities  
with model



## HANDLE MISSING VALUE

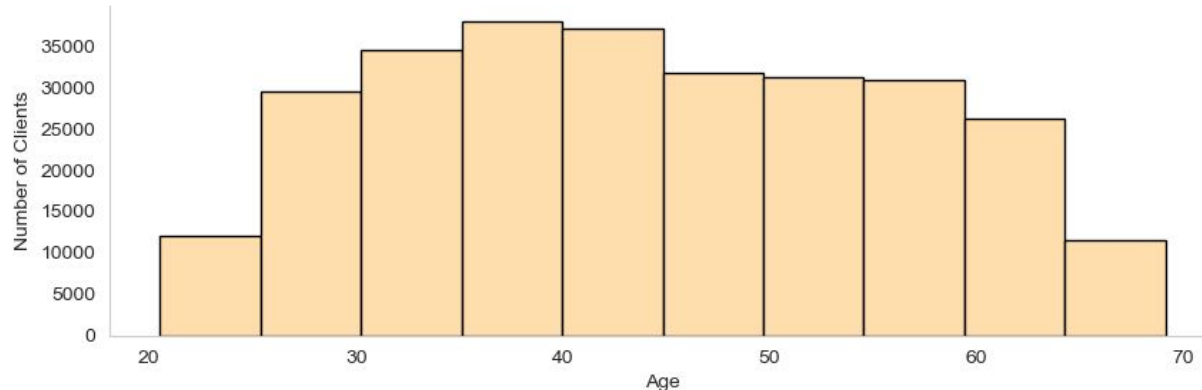
Drop columns that  
has big missing value.  
And imputed the rest

Age of Client (in years) at the time of Application



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- Most number of clients apply for a loans is within range 35-40 years.
  - Number of applicant at age  $<25$  and  $65<$  is low;
  - Number of clients who have no payment difficulties is within age 35-40 years

Age of Client (in years) who have No Payment Difficulties

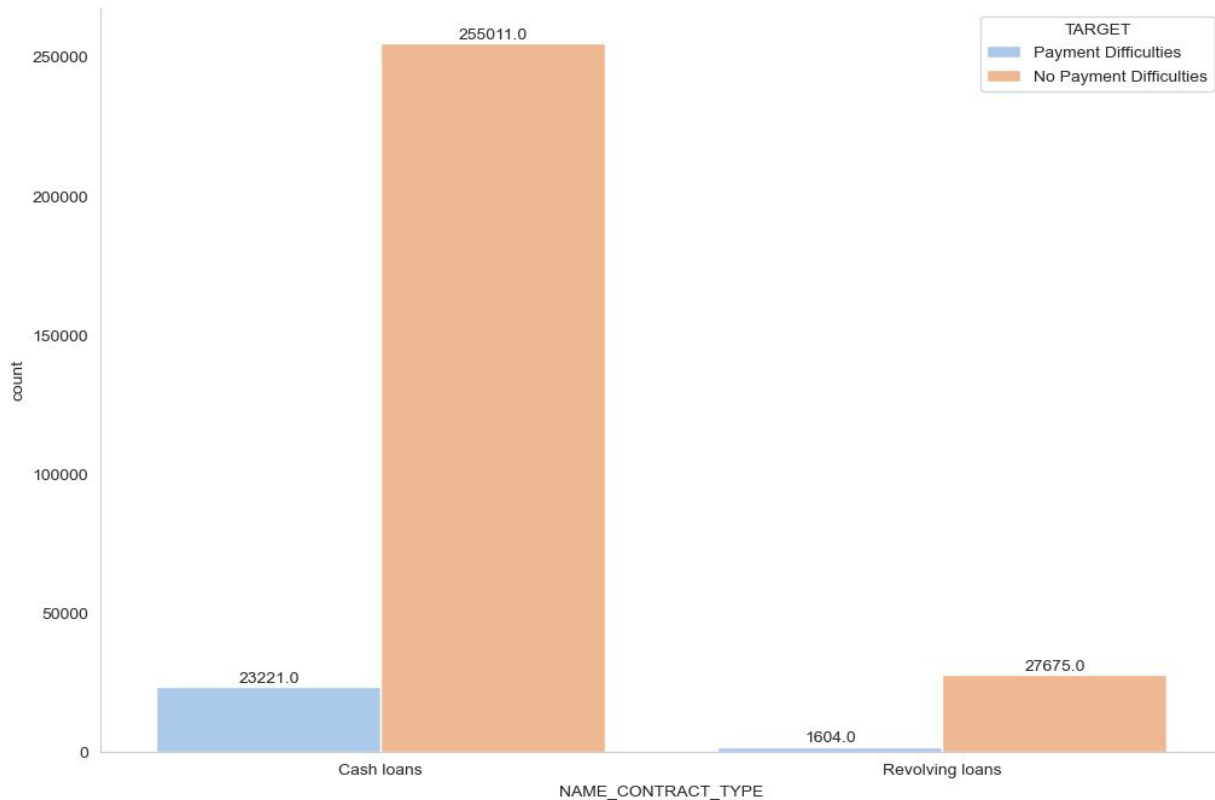


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We can targeting people at age 35-40 to apply for a loans.

# VISUALIZATION

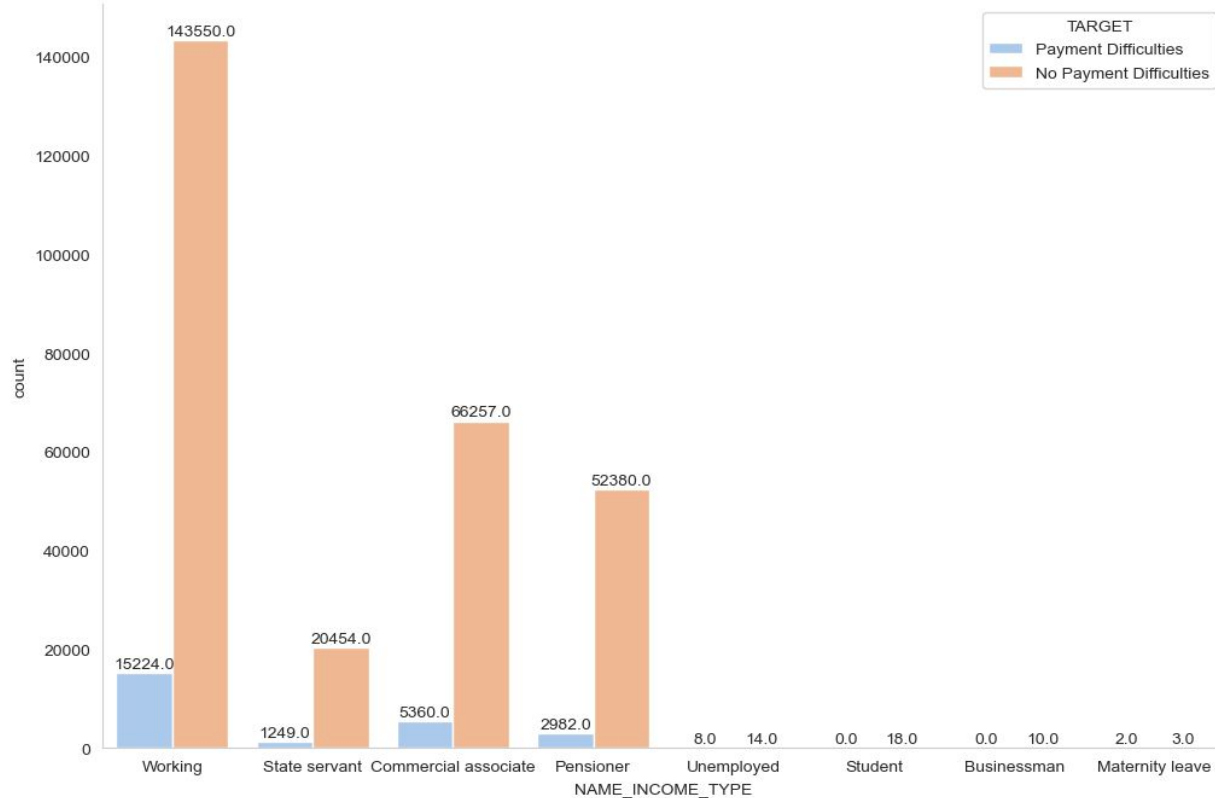
Clients Repayment Abilities By Contract Type



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- 91.7% (255,011 from 278,232) clients who take cash loans have no payment difficulties
  - 94.6% (27,675 from 29,279) clients who take revolving loans have no payment difficulties

# VISUALIZATION

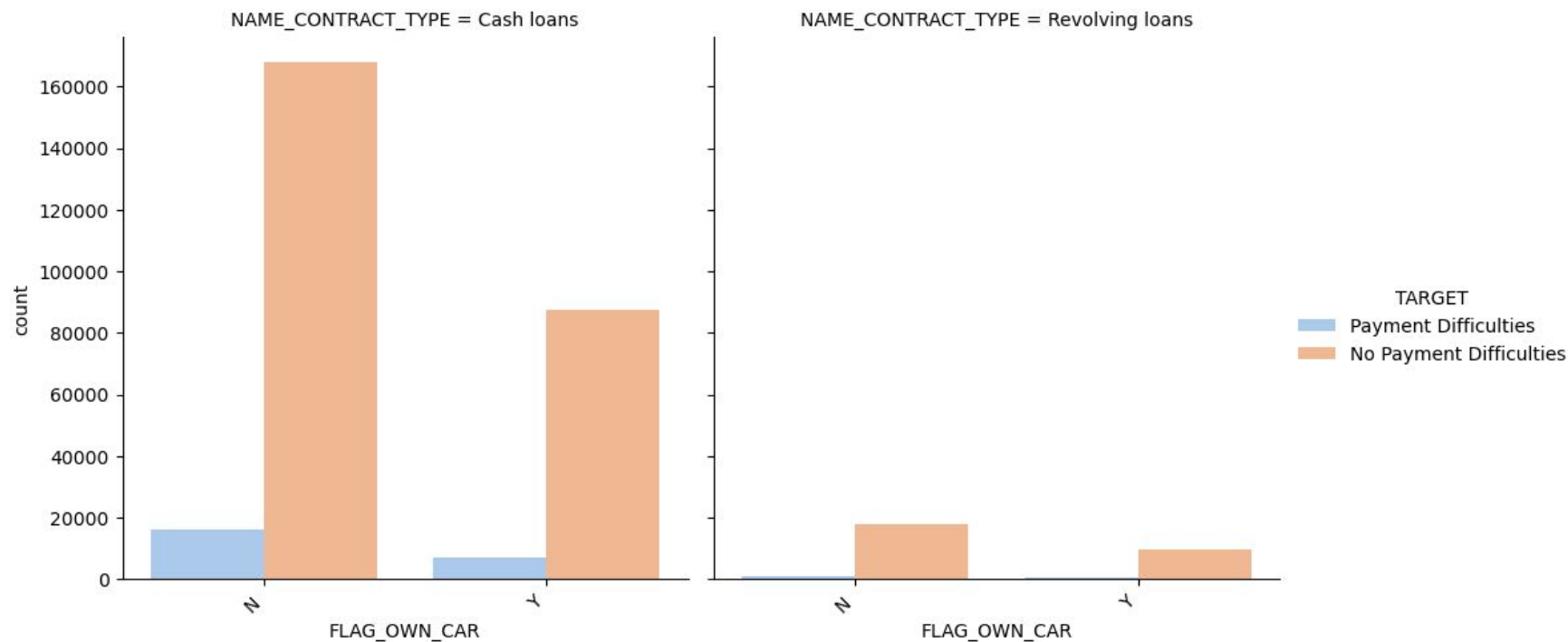
Clients Repayment Abilities By Income Type



- Student and business have no payment difficulties
- Most number of applicant with income type is working



## Payment Abilities By Contract Type and Own Car



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Client who take cash loans and do not own a car have difficulties repaying their loans

# BUSINESS RECOMMENDATION

- Client which income type is student and businessman is capable to repay their loans without any problem
- Clients who do not have a partner are capable of repaying their loans without any problem.
- Most of client under 30 y.o have no payment difficulties. But at this range age, the applicant is low.

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**Recommendation.** Create a social media campaign/advertisement so student, and other client under 30 y.o can notice to apply for a loans.

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**Predicting Results.** All applicant in application test is predicted capable repaying their loans without any problem.

# THANK YOU!

**SEE THE ENTIRE  
PROJECT HERE!!**

[github.com/dikaww/](https://github.com/dikaww/)

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