



**HOME
CREDIT**

HOME CREDIT SCORECARD MODEL

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PROBLEM RESEARCH



PROJECT BACKGROUND

Many people have difficulty getting a loan because they have a bad credit score, no number, or no credit history. Home Credit aims to expand financial inclusion to the unbanked and provide her loans to the unbanked by providing a positive and secure credit experience. To accomplish this, ensures underserved communities have a secure lending experience. Home Credit created her using a variety of alternative data to predict a customer's ability to repay. Running a ensures that no solvent customer is turned away and that the loan is provided with a repayment, maturity, and payment calendar that allows these customers to succeed.

Data Source

The data used is the application training data and application trials. The main table is split into two files: training (with TARGET) and testing (without TARGET).

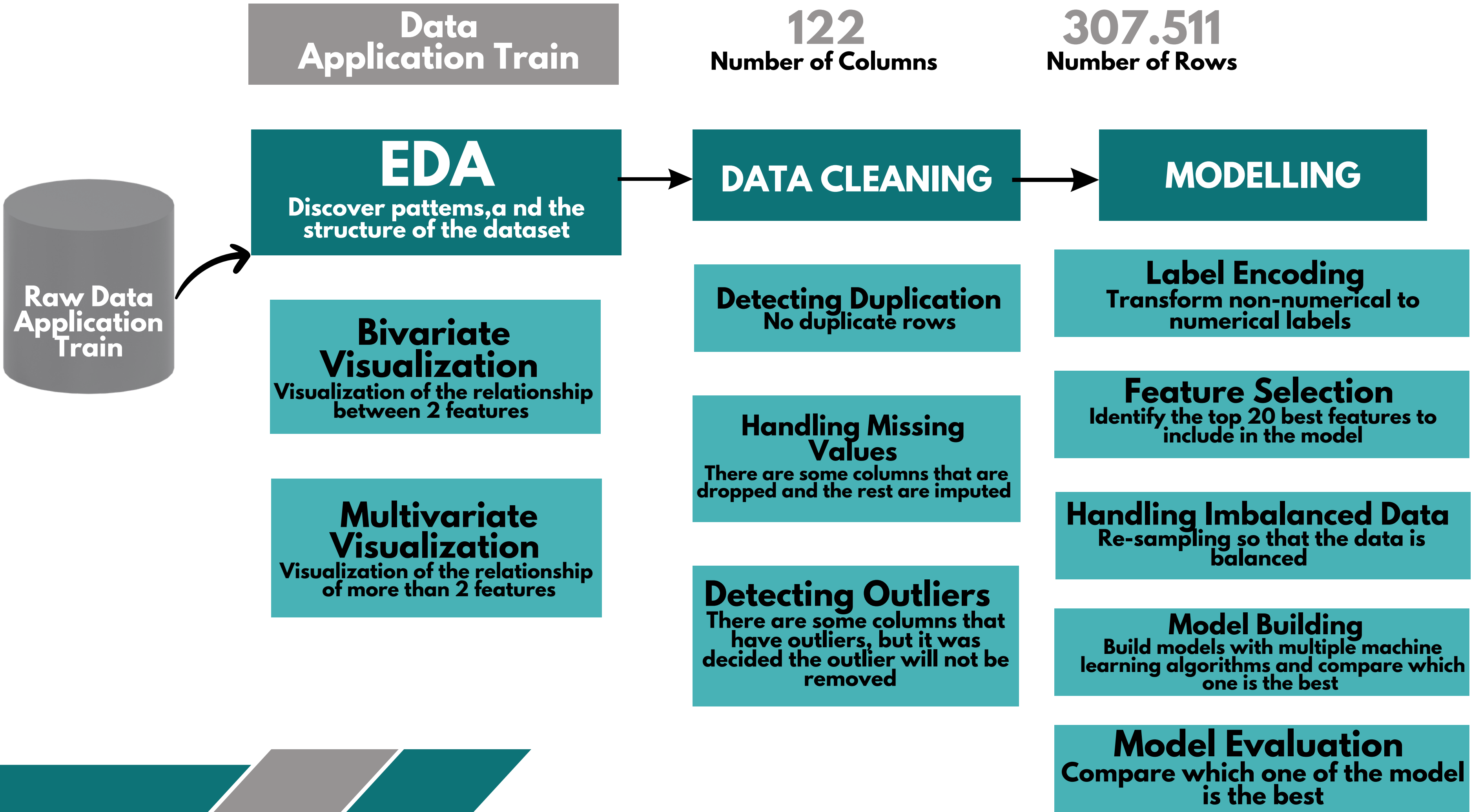
Objective

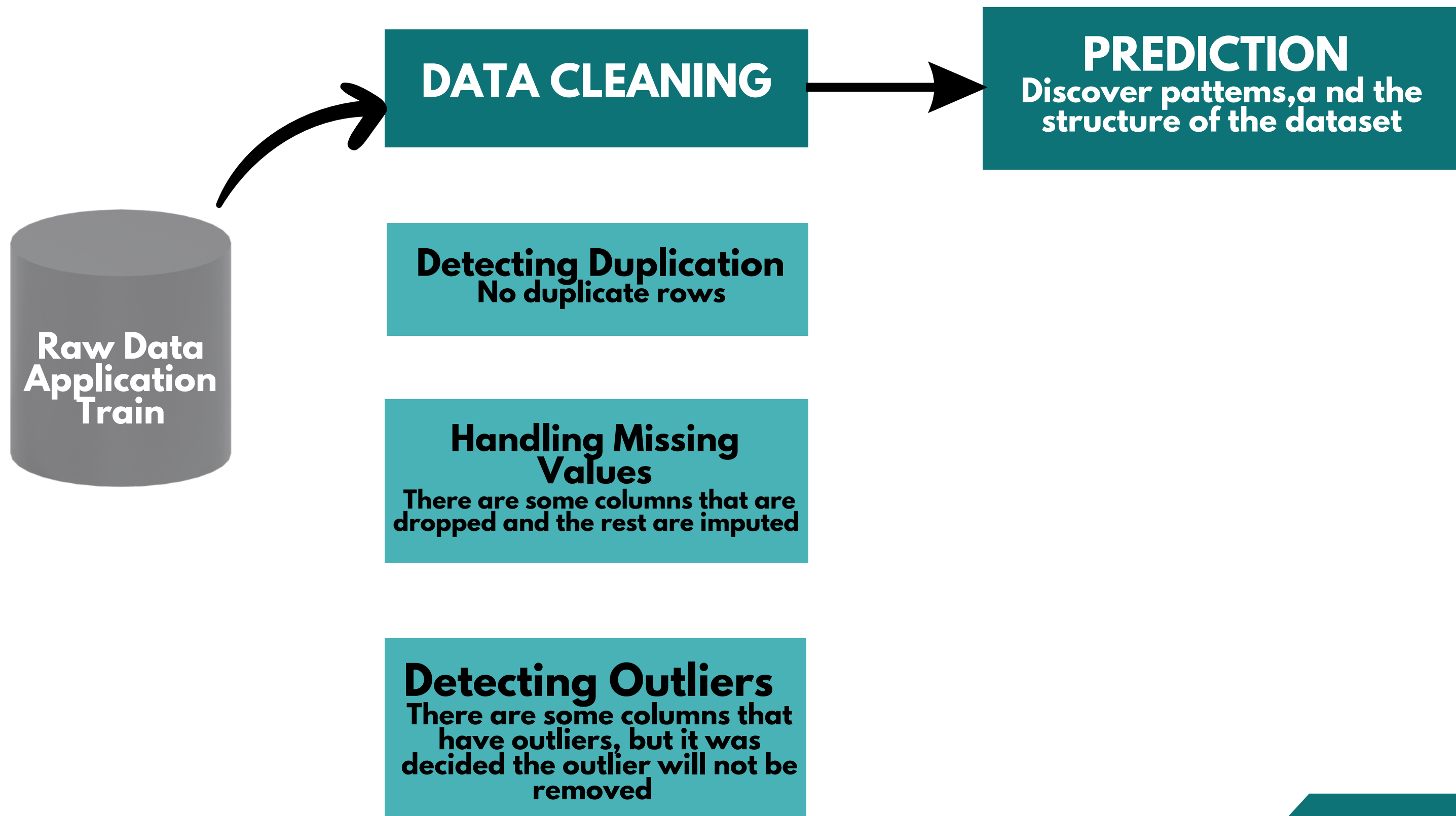
- 1. Identify the characteristics of potential client's who will have difficulty repaying their loans and those who will not.**
- 2. Predicting client's repayment ability**

Actions

- 1. Perform data cleansing and visualization to gain business insights.**
- 2. Build a model using machine learning algorithms.**
- 3. Provides recommendations to help businesses successfully complete customer loan applications.**

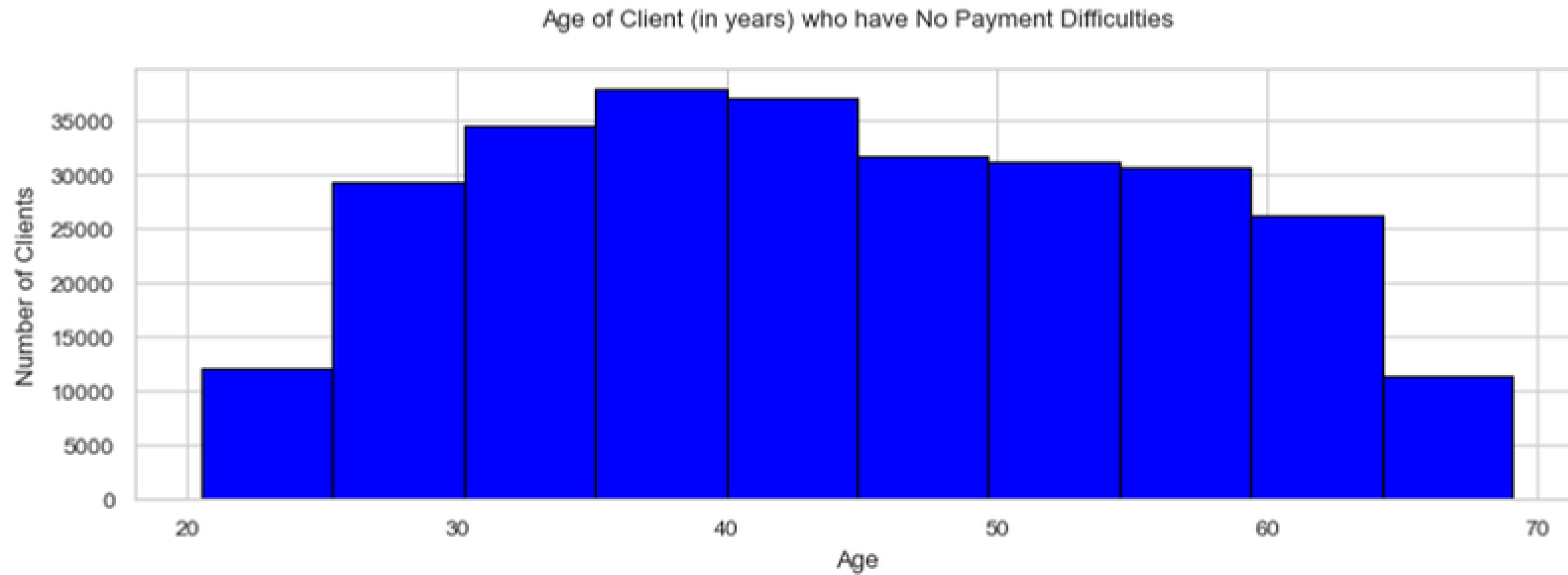
DATA PREPROCESSING





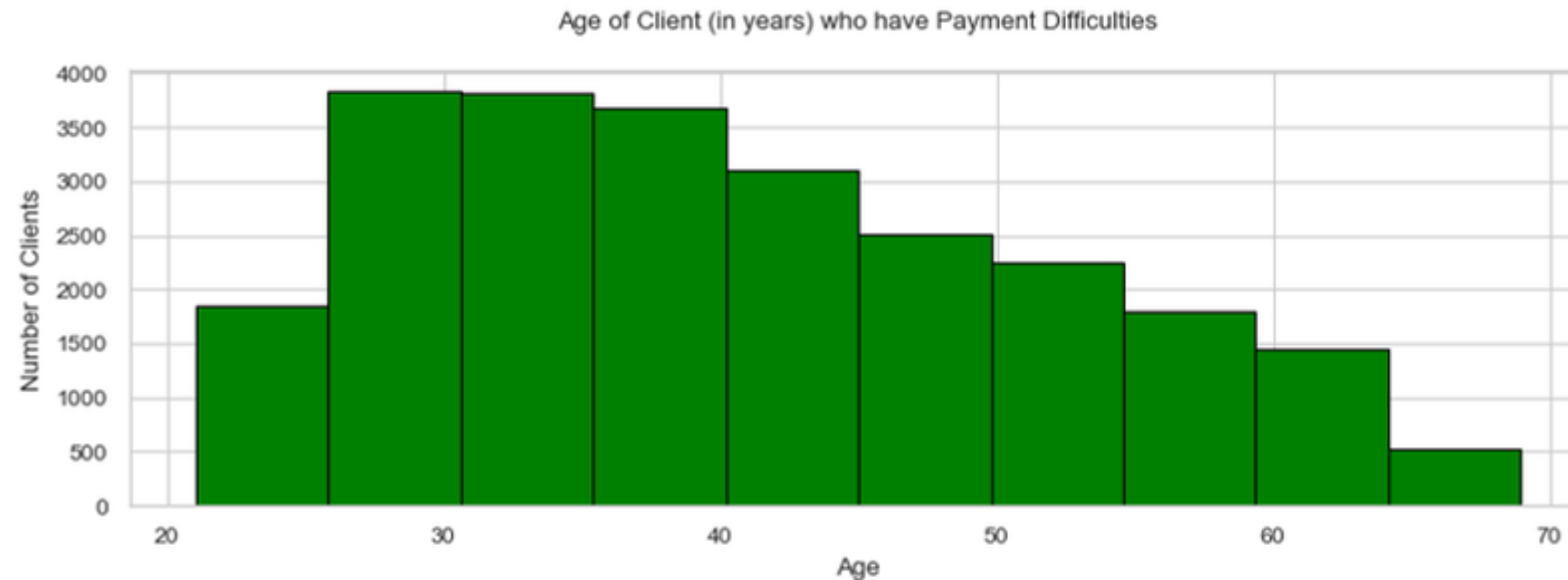


BUSINESS INSIGHT



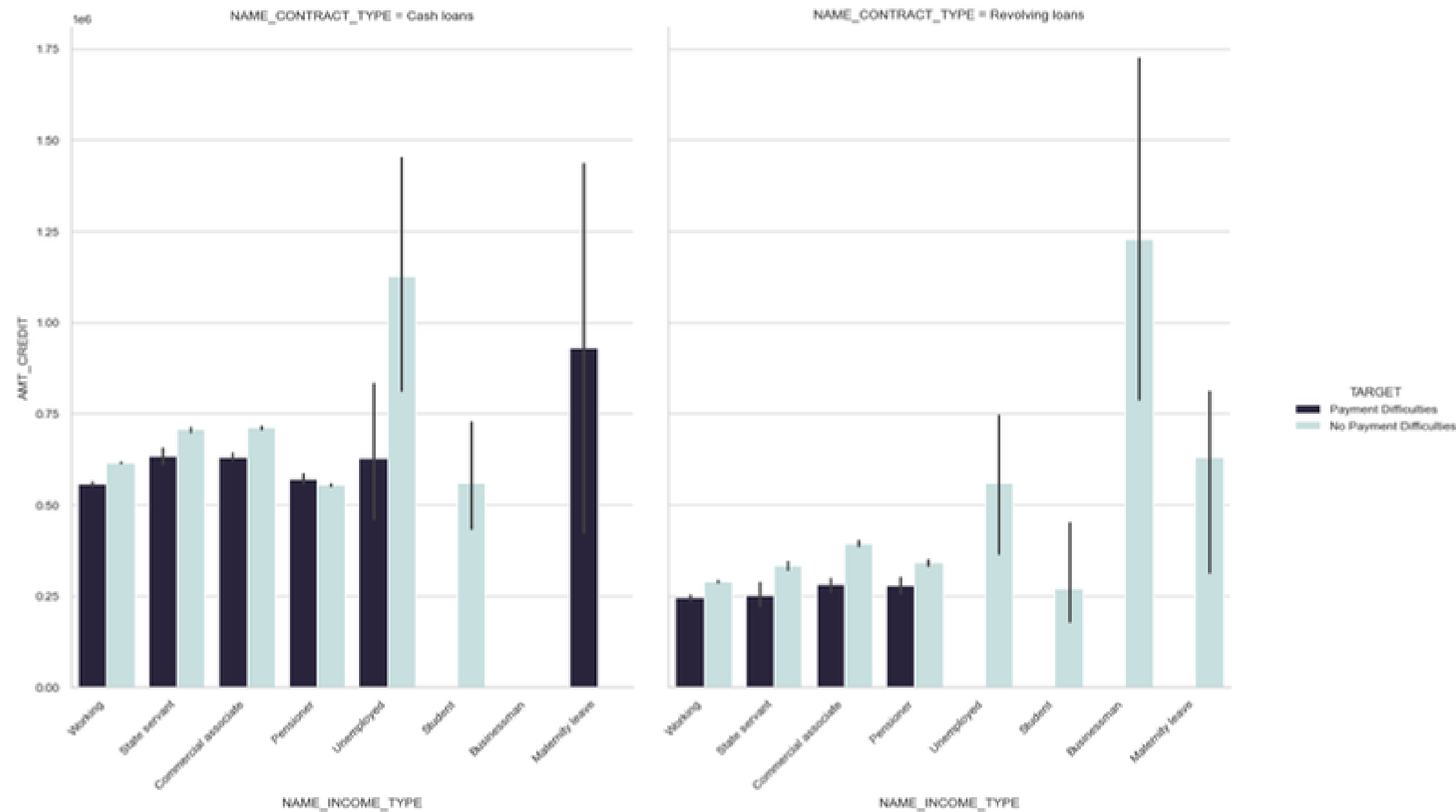
● Most number of clients who apply for loans are in the range of 35-40 years.

● Meanwhile, the number of applicants for clients aged <25 or age >65 is very low.



● Clients who have no payment difficulties are clients in the range of 35-45 years. You can target these clients as your priority.

● While clients who have payment difficulties are client the range of 25-35 years.

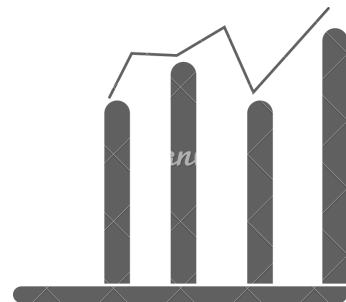
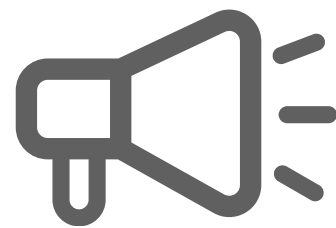
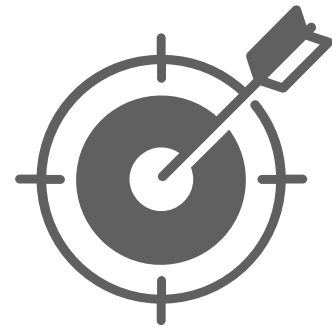


All student clients have no difficulty repaying the loans whether with cash loan or revolving loan for a low to medium credit amount of the loan.

For the income type of maternity leave with cash loans, all the clients have problems repaying the loans for a medium credit amount of the loan. While all clients with maternity leaves and revolving loans have no difficulty repaying the loans.

For unemployed clients with cash loans, more than 50% of clients have problems repaying loans with medium credit amounts of the loan. While all unemployed clients with revolving loans have no difficulty repaying the loan.

MACHINES LEARNING MODEL



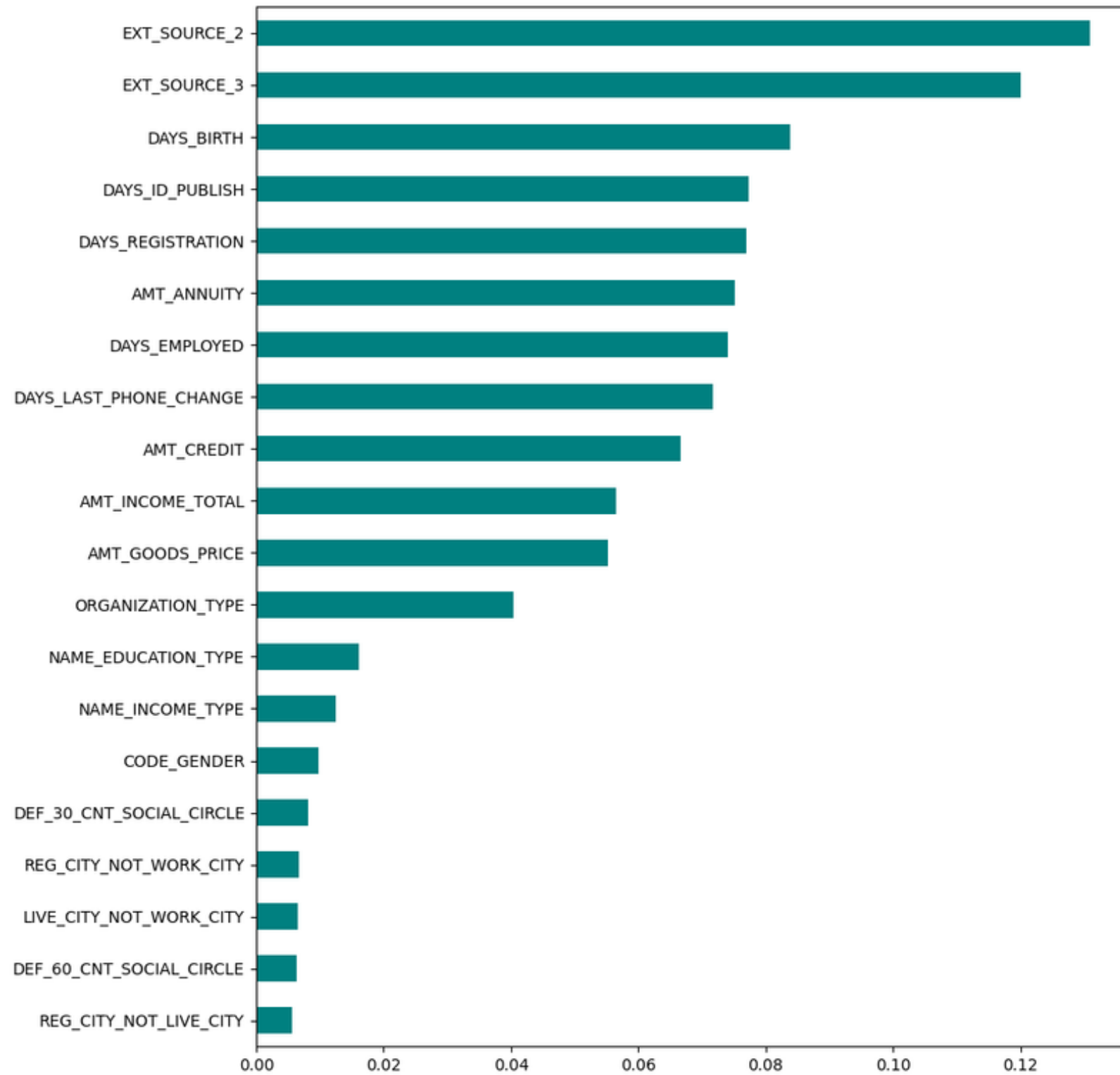
MODEL COMPARISON

Algorithm	Training Accuracy Score	Testing Accuracy Score	Error Margin	ROC Score
Logistic Regression	67.16%	67.29%	0.13%	0.6728
Gaussian Naive Bayes	60.24%	60.39%	0.15%	0.604
Decision Tree	100%	83.9%	11.74%	0.8826
Random Forest	100%	99.65%	0.35%	0.9965
K-Nearest Neighbor	91.56%	88.07%	3.79%	0.8806
Neural Network	70.01%	69.48%	0.58%	0.6948

The prediction accuracy of the train and test data in Random Forest model has a value that is not much different, it can be said that the model is very good, which is there is no underfitting or overfitting. So the Random Forest model was chosen as the best model to predict client's repayment abilities

BEST MODEL

Features Importance Plot



Algorithm

Random Forest Classifier

Performance

Random forest model gives 100% correct results

There is 0.35% error margin

The most important features

Score from external data source 2

Score from external data source 3

Client's age in days

Days ID publish

Days registration

The image features a solid teal background. In the center is a large white hexagon with a thick teal border. This hexagon is surrounded by a larger, fainter teal hexagonal outline. The corners of the image are decorated with geometric shapes: teal triangles pointing inwards and grey triangles pointing outwards.

BUSINESS RECOMMENDATION

RECOMMENDATION

- 1. Customers who are on maternity leave or who are unable to repay their cash advance loan (100% of applications will be rejected). Conversely, all customers who take out revolving loans even while on maternity leave must have their applications approved.**
- 2. More than 50% of unemployed customers face loan repayment problems when entering into cash loan agreements. All unemployed customers with revolving loans can now repay their loans.**



If you need further analysis, you can investigate whether there are problems when customers on maternity leave or unemployed take out cash loan agreements. So, if you have future customers with this type of income, you can recommend the right type of contract and get their application approved.

RECOMMENDATION

- 1. Customers on maternity leave and cash loans can be said to be customers who are unable to repay the loan (100% of applications rejected). Conversely, all customers who take out revolving loans even while on maternity leave must have their applications approved.**
- 2. More than 50% of unemployed customers face loan repayment problems when entering into cash loan agreements. All unemployed customers with revolving loans can now repay their loan.**



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

RECOMMENDATION

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. 15



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



PROJECT DOCUMENTATION

<https://github.com/anasafira00/Home-Credit-Scored-Card>



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**THANK
YOU**