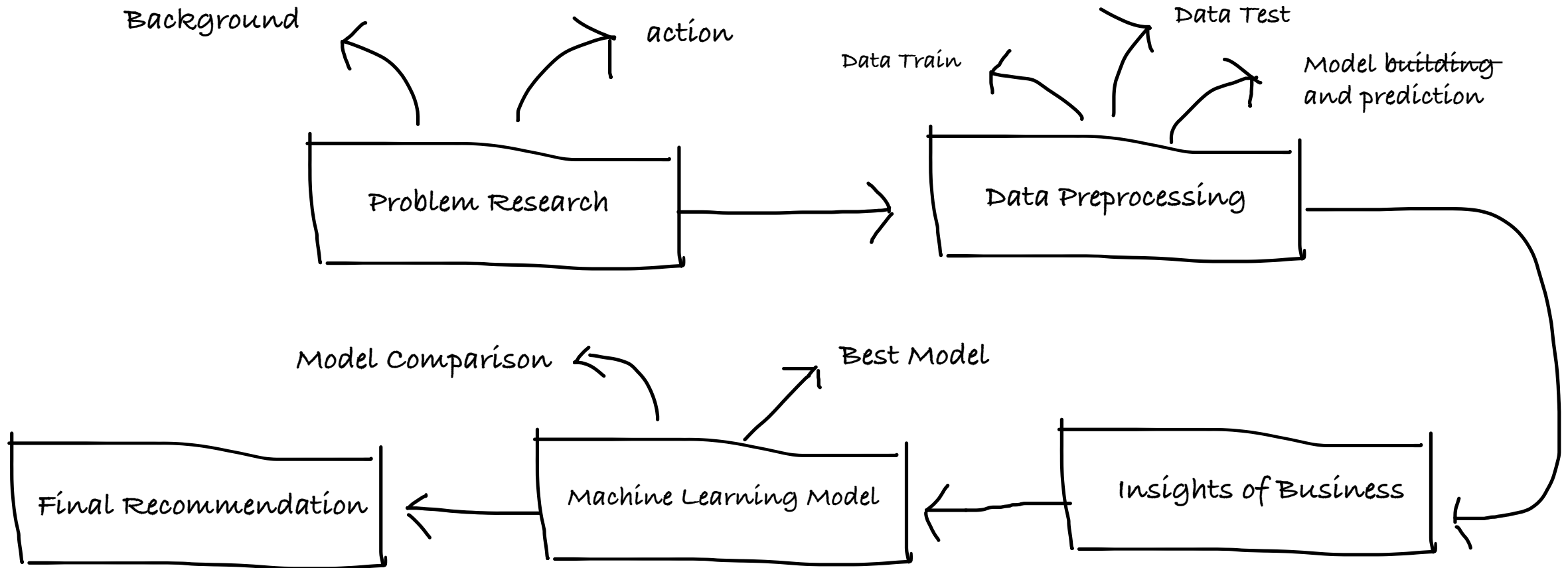


Home Credit Machine Learning Scorecard Model

Presented by: Faurel Gema



Flow of Content



1. Problem Design

- A. Project background
- B. Data Source
- C. Objectivity
- D. Action

A. Project Background

Home Credit Indonesia have a mission to give a good experience at loan service, and it needed prediction and insight feature on clients repayment abilities, and it will ensure that clients capable of repayment and will not rejected, and the loans will given to the correct targets

1. Problem Design

- A. Project background
- **B. Data Source**
- C. Objectivity
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B. Data Source

The data used for this research are application train and application test. There are a very main table and split into two files for train (with target) and test (without target)

1. Problem Design

- A. Project background
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- C. Objectivity
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C. Objectivity

1. Identify variant group of character which have a difficult repaying loans and who will not
2. Predict Customers repayment abilities

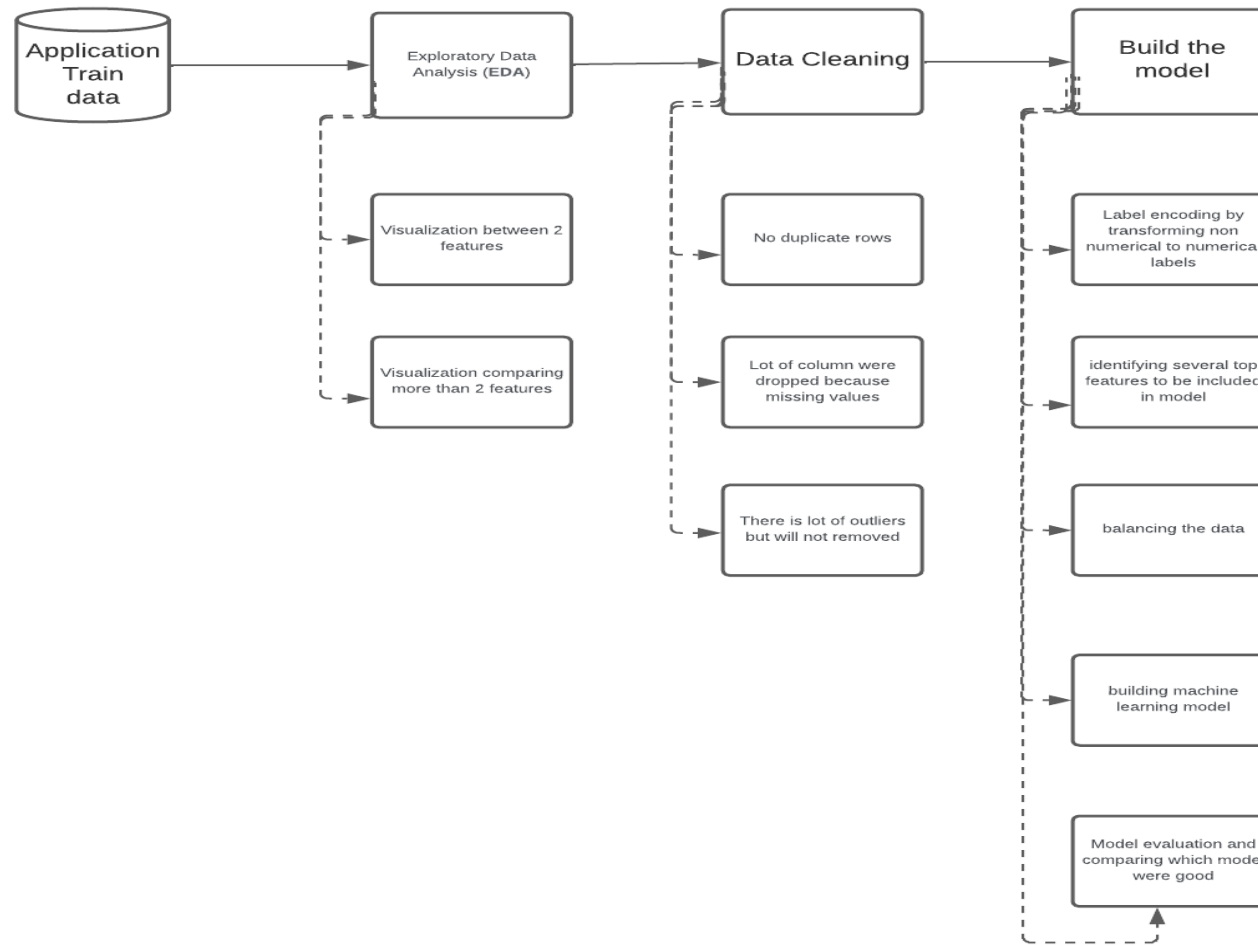
1. Problem Design

- A. Project background
- B. Data Source
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D. Action

1. Perform Data cleaning and visualization for business insights
2. Build of machine learning algorithms
3. Provide recommendation

2. Data Preprocessing (Application Train Data)

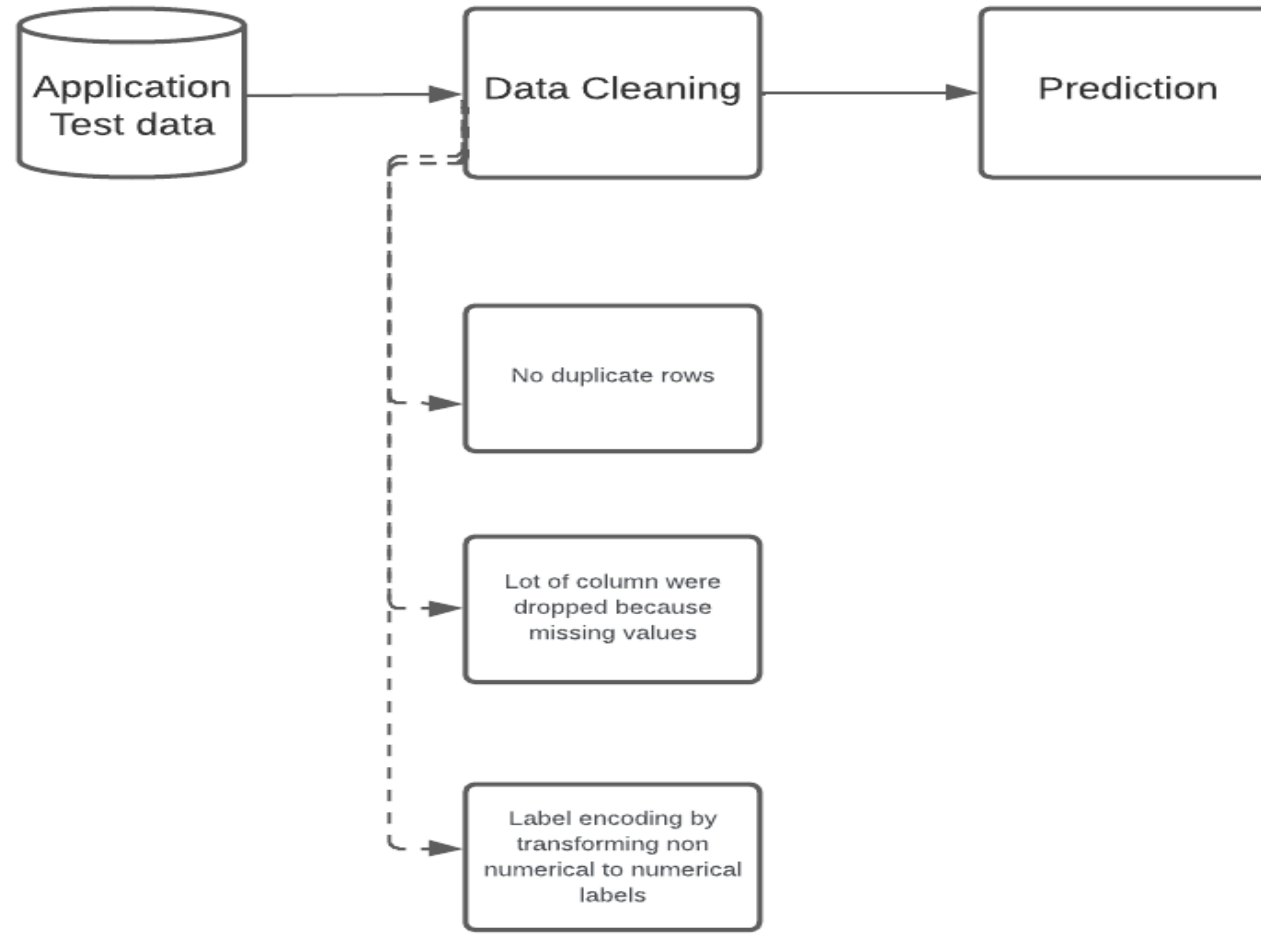


Application
Train Data

122
Number of
Columns

307,511
Number of Rows

2. Data Preprocessing (Application Test Data)



Application
Train Data

121
Number of
Columns

48,744
Number of Rows

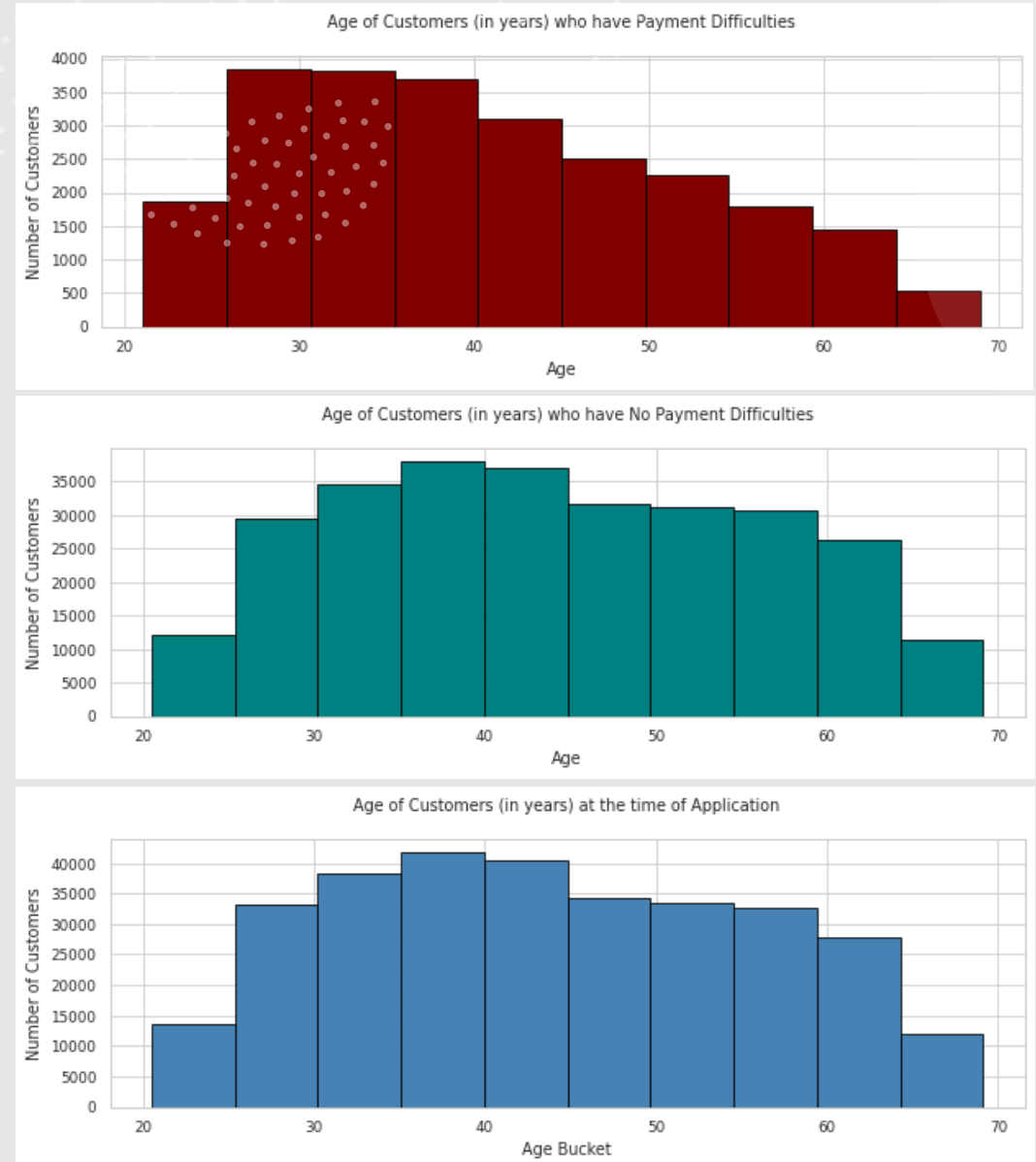


How's the Insight of the Business? × Q

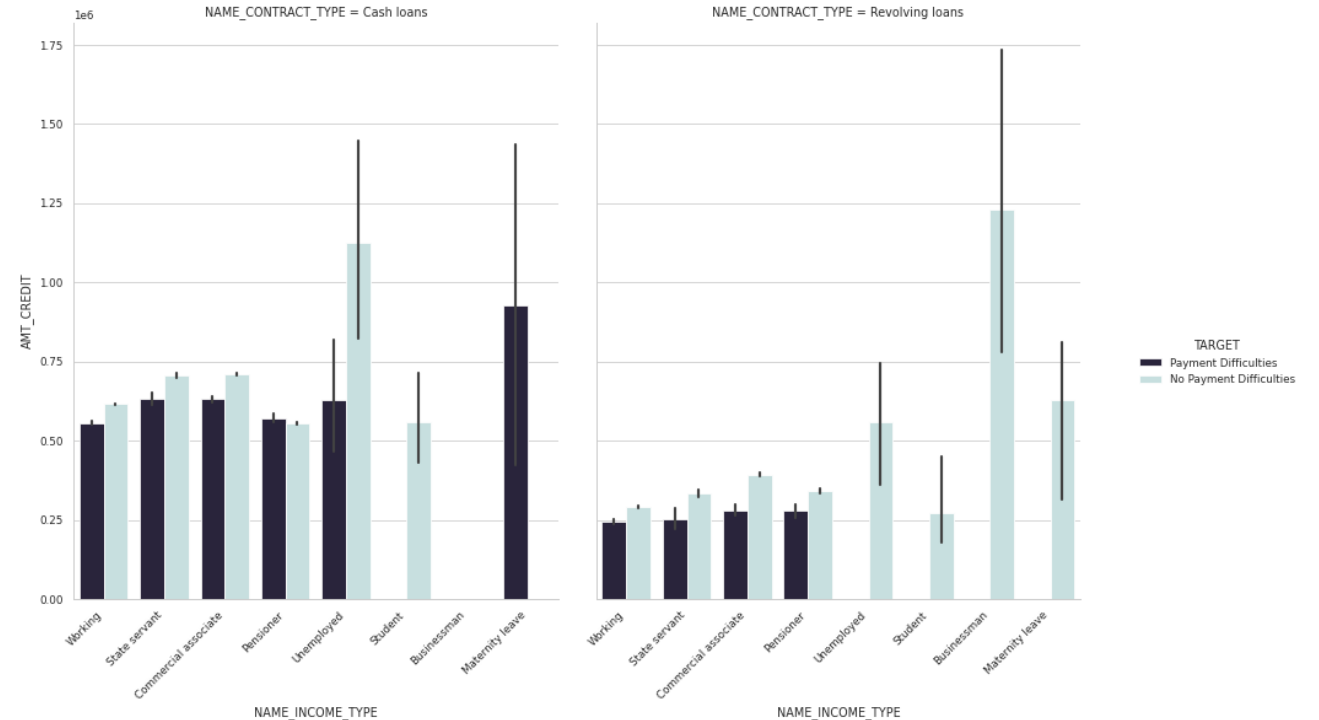
ALL VIDEO PICTURE MAPS - Good luck for the result.

3. Insight of Business

1. 35-40 years old customers are the most number of customers who apply for loan
2. <25 and >65 years old of group were the lowest apply for loan
3. 25-35 years old group have a payment difficulties issues
4. 35-45 years old group have no payment difficulties



- All student have no difficulty to repaying the loans, both cash or revolving loan (low to medium credit)
- For the unemployed customers with cash loans, more than 50% have medium amounts kind of repaying loans issue. But there is no difficulty at revolving loans.
- Income type of maternity leave with cash loans, all customers have problems repaying loans for medium credit, but revolving loans have no difficulty repaying loans



So where's the Machine Learning
Model?



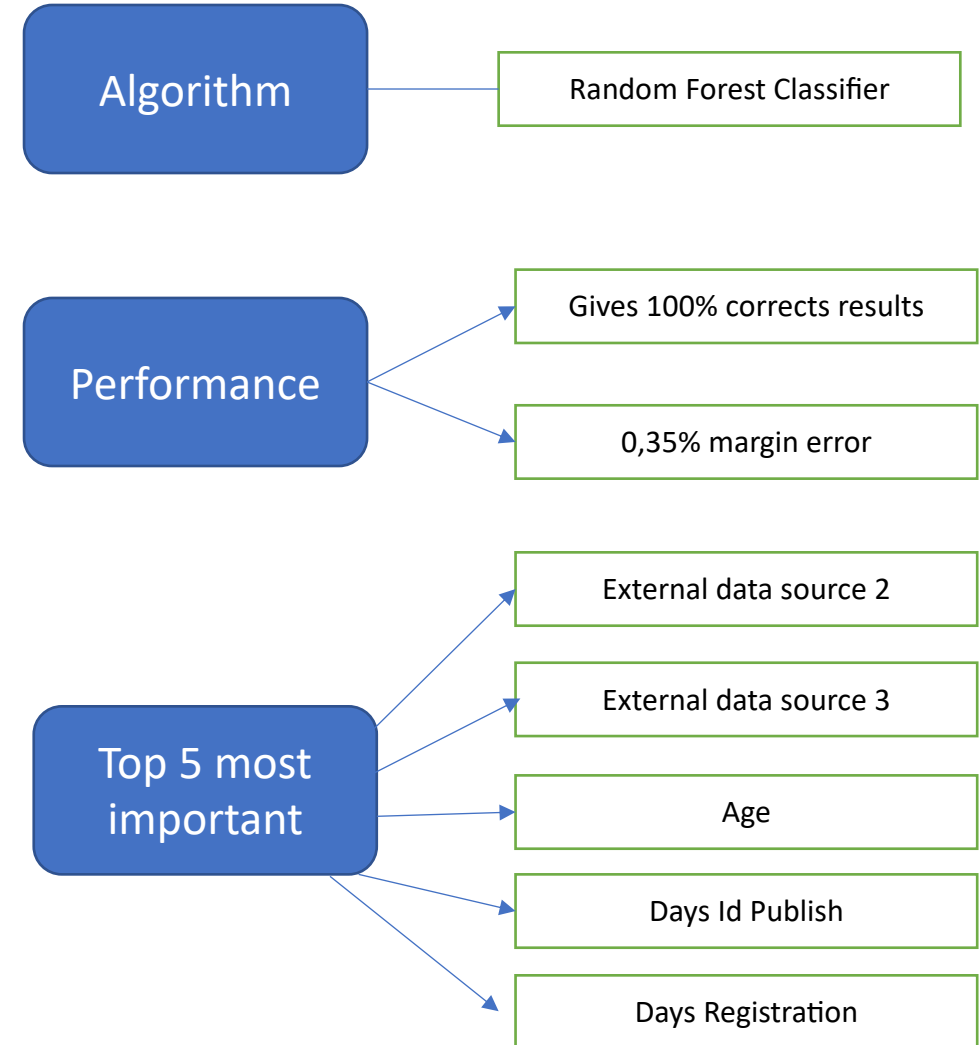
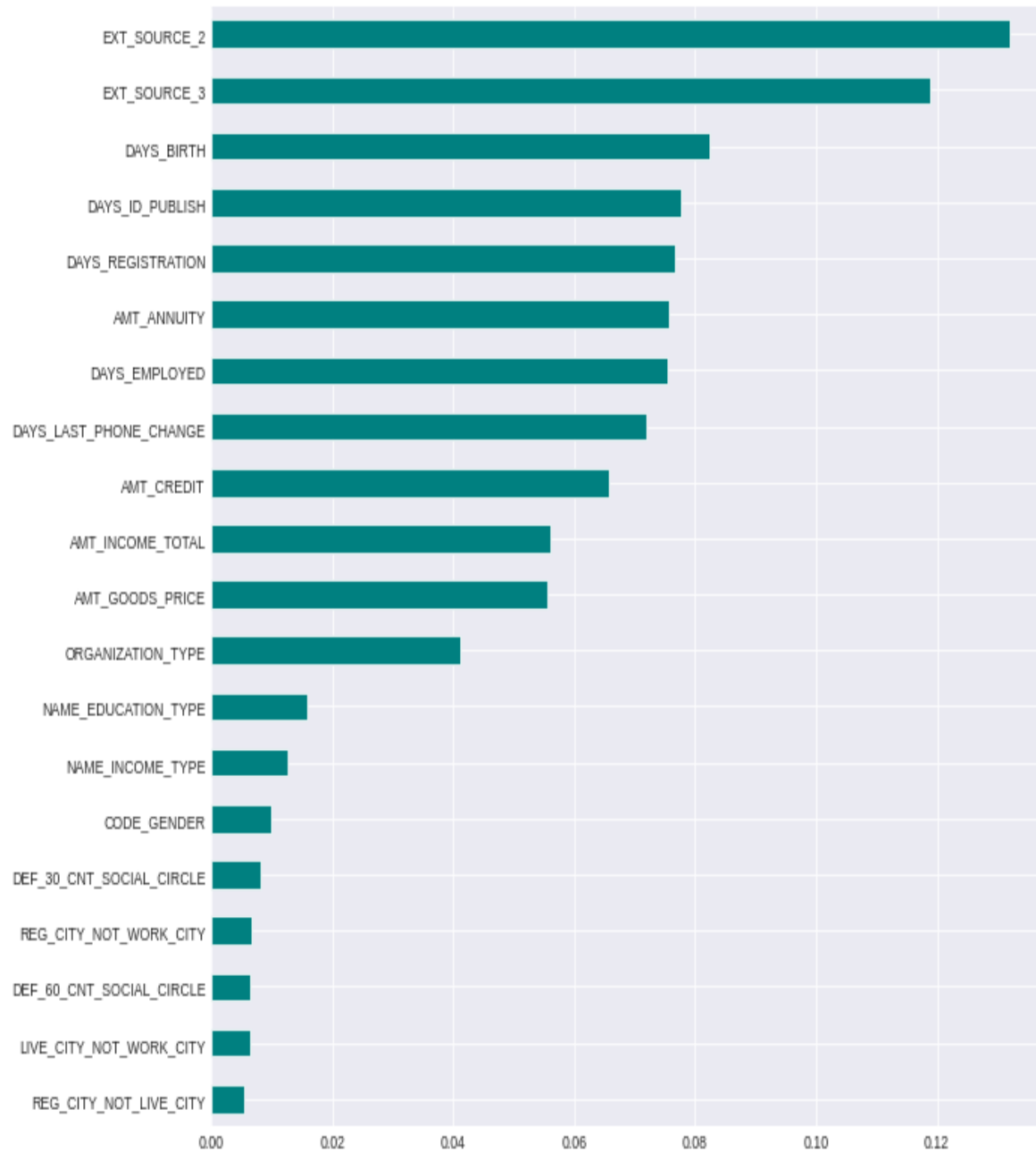
4. Machine Learning model

- Model Comparison

Models	Training Accuracy Score	Testing Accuracy Score	ROC Score
Random Forest	1.000000	0.996500	0.996500
Logistic Regression	0.671600	0.672900	0.672900
Gaussian Naive Bayes	0.602400	0.603900	0.604000

Random Forest model is an excellent model which have no underfitting and overfitting. So it's chosen as the best one for customer repayment abilities prediction.

Features Importance Plot



5. Business Recommendation (List of Case)

1. Customers with income type student is capable to repaying loans bot cash or revolving loan (100% approved) but only came 0.005% the application from student
2. Customers with income type accountant is capable to repaying loans bot cash or revolving loan (95% approved) but only came 3,19% the application from student and the rest of high skill tech staff and manager too.
3. Maternity leaves and cash loans type of customers have 100% rejected applications, but maternity leaves with revolving loans approved
4. Unemployed customers 50% have problem of repaying loans if using cash loans, but able to repaying if using revolving loans

An illustration of a meeting table from a top-down perspective. Several hands of different skin tones are visible, interacting with various objects on the table. One hand holds a tablet with a purple screen, another holds a pen, and others point or rest on the table. There are three coffee cups, a pair of glasses, and a spiral notebook. The background is a light gray with soft shadows.

Solve the problem with:

1. New campaign to make student, accountant, high skill staff and also manager interested to applying loan.
2. Improving by new recommend the right contract type to them which will be approved

Visit this link for further code and information:

<https://github.com/faurelgema/home-credit-scorecard-ml>



**THANK
YOU!**