

Home Credit Scorecard Model



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PROBLEM RESEARCH

Background

Home Credit uses various statistical methods and Machine Learning to make credit score predictions. Companies ask to unlock the maximum potential of their data. Doing so will ensure that clients capable of repayment are accepted and that loans are given with a principal, maturity, and repayment calendar that will empower their clients to be successful.

Objective

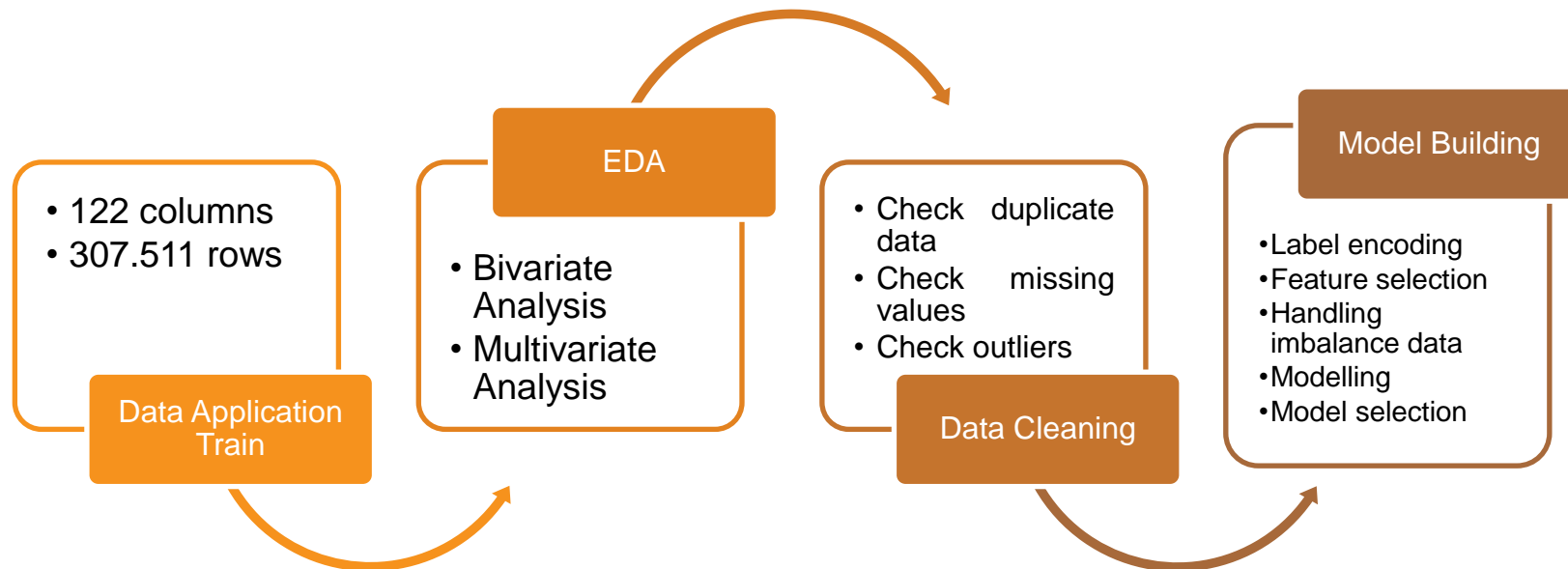
1. Identify customers with characteristics of potential clients who have difficulty repaying loans.
2. Predict the client's repayment abilities.

Action

1. Perform data cleaning, and visualization for business insights.
2. Build a models with machine learning algorithms.
3. Predict customer's repayment abilities on application data test .
4. Provide recommendations for company to increase their clients succeed in applying for loans.

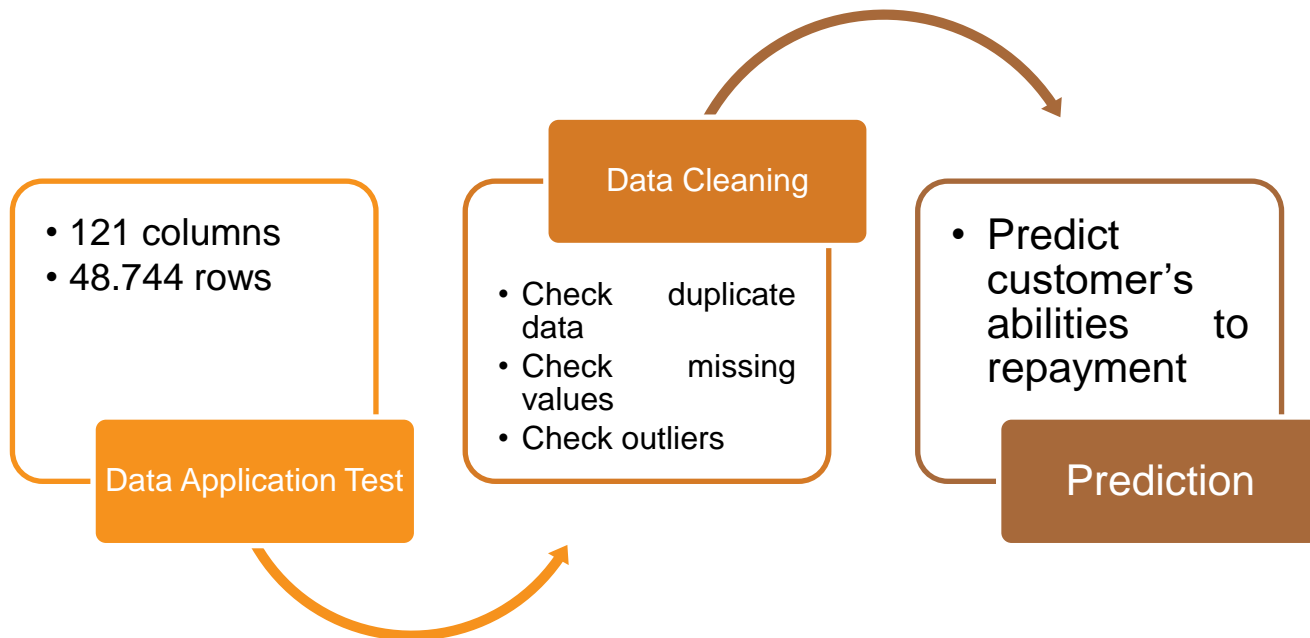


DATA PREPROCESSING



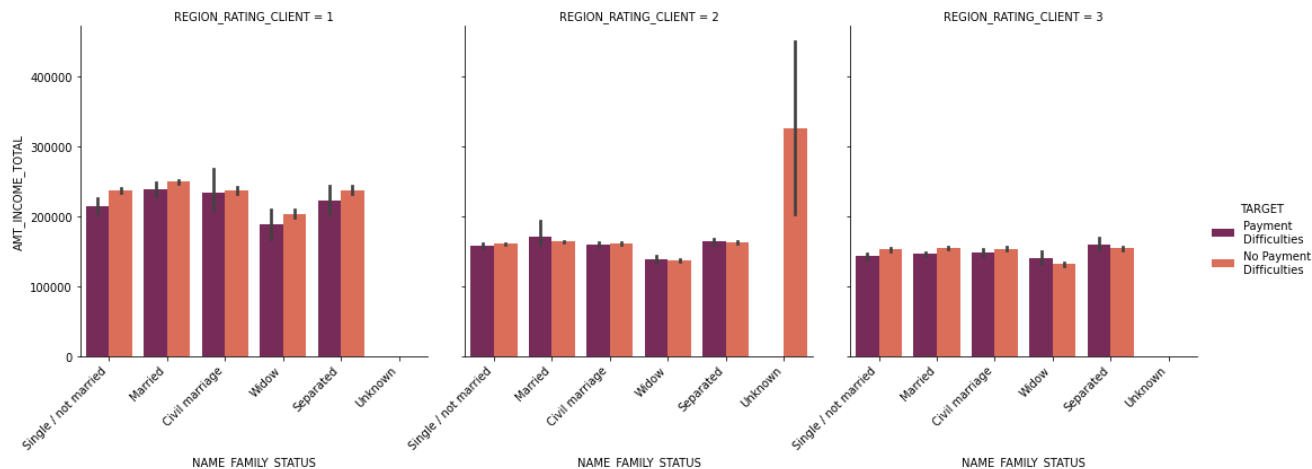


DATA PREPROCESSING





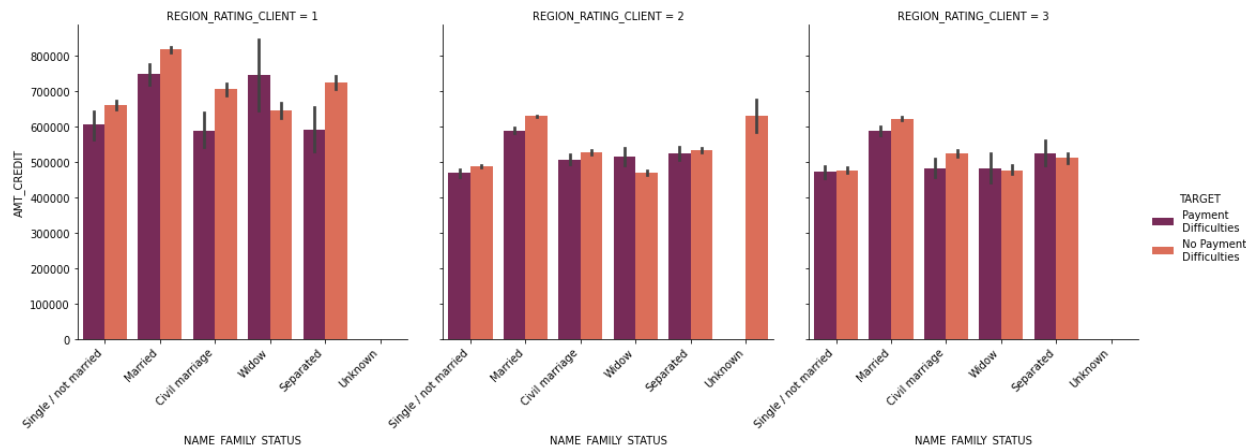
BUSINESS INSIGHT



The **widow** has the **lowest income** in all the rating of regions.



BUSINESS INSIGHT



For **married** customers, they tend to have a **higher** amount of credit in all the rating regions.

Then, **widow** customers with **payment difficulties** tend to have **more credit** than no payment difficulties in all the rating regions.



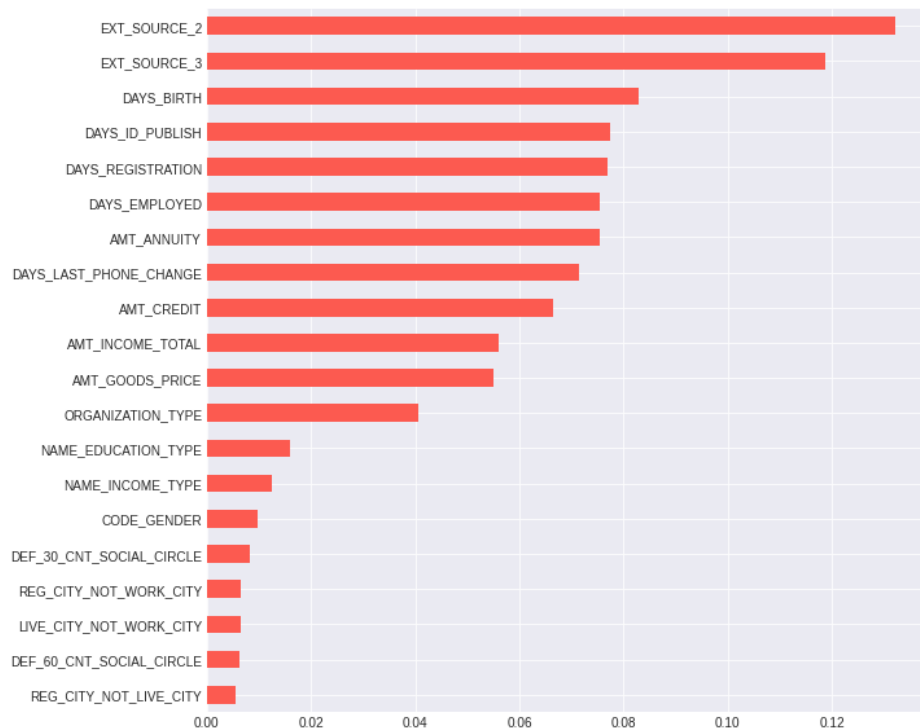
MACHINE LEARNING MODEL

Models	Training Accuracy Score	Testing Accuracy Score	ROC Score
Random Forest	1.000000	0.996200	0.996200
Decision Tree	1.000000	0.882700	0.882700
Logistic Regression	0.671600	0.672900	0.672900



MACHINE LEARNING MODEL

Features Importance Plot





BUSINESS RECOMMENDATION

1. Targetted married customers as a priority because they have a high amount of credit in all the rating region
2. Keep maintaining a good relationship with business people because they have revolving loans with no payment difficulties
3. Doing evaluation properly for the widow customers because they have the lowest income and have a medium amount credit category with payment difficulties