

Prediction Of Credit Card Approval Using Machine Learning Algorithms

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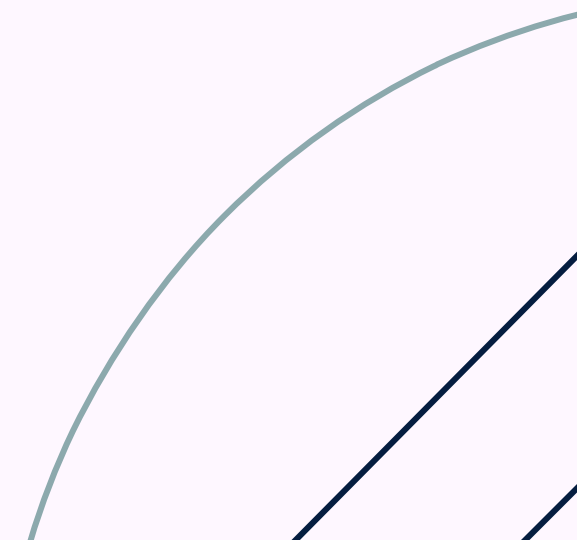
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ABSTRACT

- **Traditional credit scoring techniques have limitations in assessing creditworthiness**, especially for borrowers with minimal credit histories or those who do not have traditional forms of credit This project proposed a machine learning approach to predict acceptance.
- Data obtained from **Historical customer creditworthiness** has been used to analyze machine learning algorithms
- Following extensive testing, **XGBoost emerged as the most efficient algorithm.**
- Equips financial institutions with a powerful tool to **minimize risks and enhance customer satisfaction** in credit evaluations



PROBLEM STATEMENT

1. **Bad choices** lead to decreased profits, increased costs, and even financial instability for the bank institution
 2. Traditional credit card scoring models are often **complex and difficult to interpret** and this may lead to lack of reliable and accurate predictors.
 3. Consumers have **unpaid credit card debt**.
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RESEARCH OBJECTIVES

01.

To determine the **most important features** that influence credit card approval decisions.

1) xxxxxxxxxxxx (RO1)

02.

To compare the performance of **different machine learning algorithms** for predicting credit card approval.

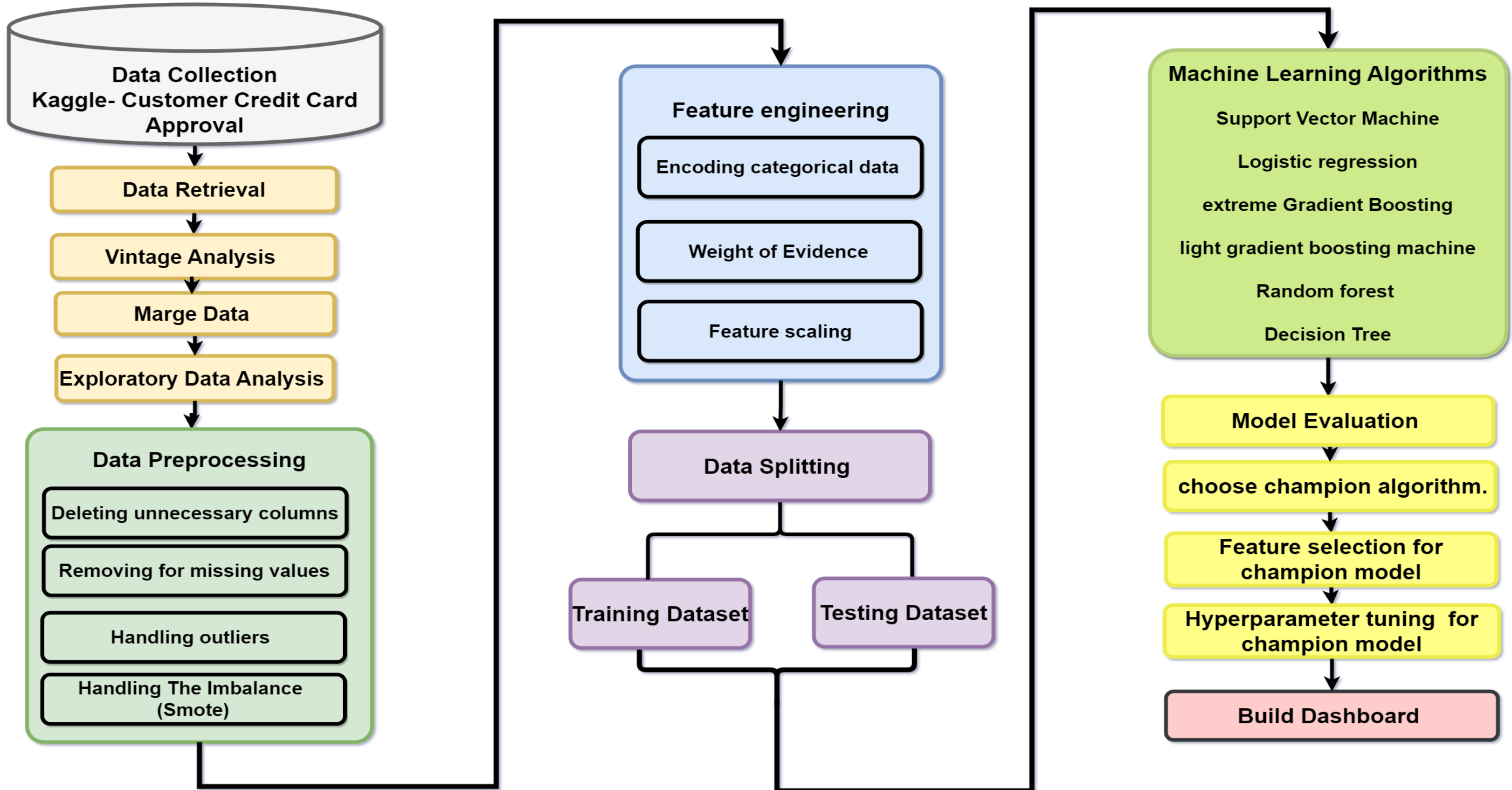
2) xxxxxxxxxxxx (RO2)

03.

To identify the **champions machine learning model** that can accurately predict whether a credit card application will be approved or rejected

3) The champion model is XGB (RO3)

Methodology

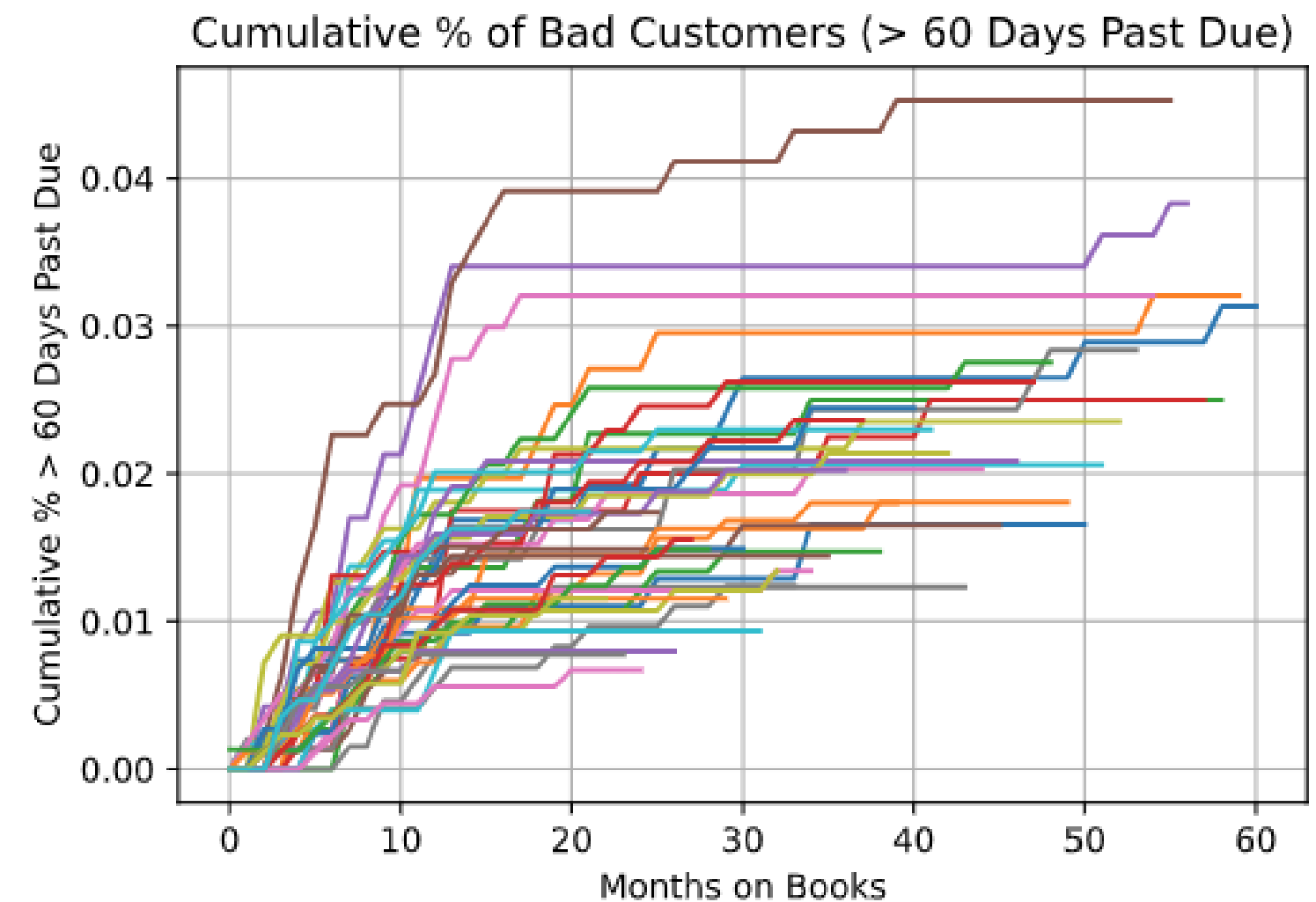


DISCUSSION

vintage analysis

The graph illustrates the cumulative percentage of customers more than 60 days past due, indicating a **steady increase in bad customers** over the past months.

Possible contributing factors to this trend include changes in the economy, adjustments in the **company's credit policies**, or **fluctuations in the quality of its customer base**.



Comparison of Performance Metrics

XGBoost is the best confusion matrix based

Model	Accuracy Score	F1 Score	Recall	Precision
Random Forest	0.92%	0.92%	0.92%	0.923%
Decision Tree	0.92%	0.92%	0.92%	0.92%
Support Vector Machine	0.86%	0.87%	0.86%	0.86%
Logistic Regression	0.64%	0.65%	0.64%	0.64%
XGBoost	0.93%	0.93%	0.93%	0.93%
LGBM	0.92%	0.92%	0.920%	0.92%

Credit Card Dashboard

Target

Bad

Good



25K

Total customers



16K

Female



9504

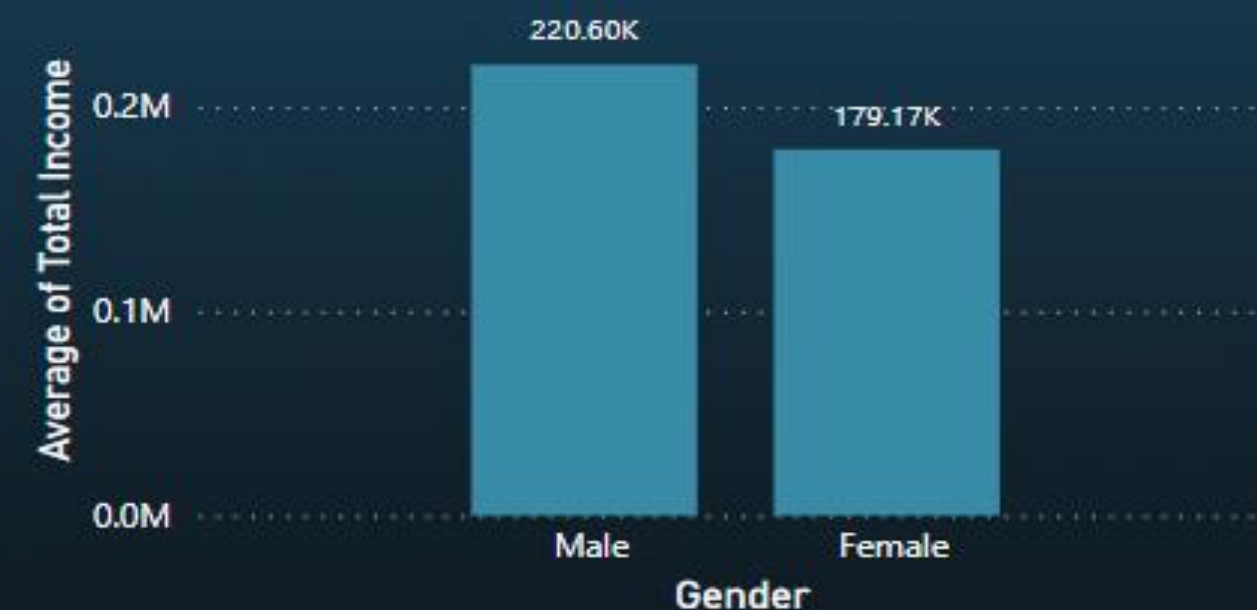
Male

Total customers by Age and Realty

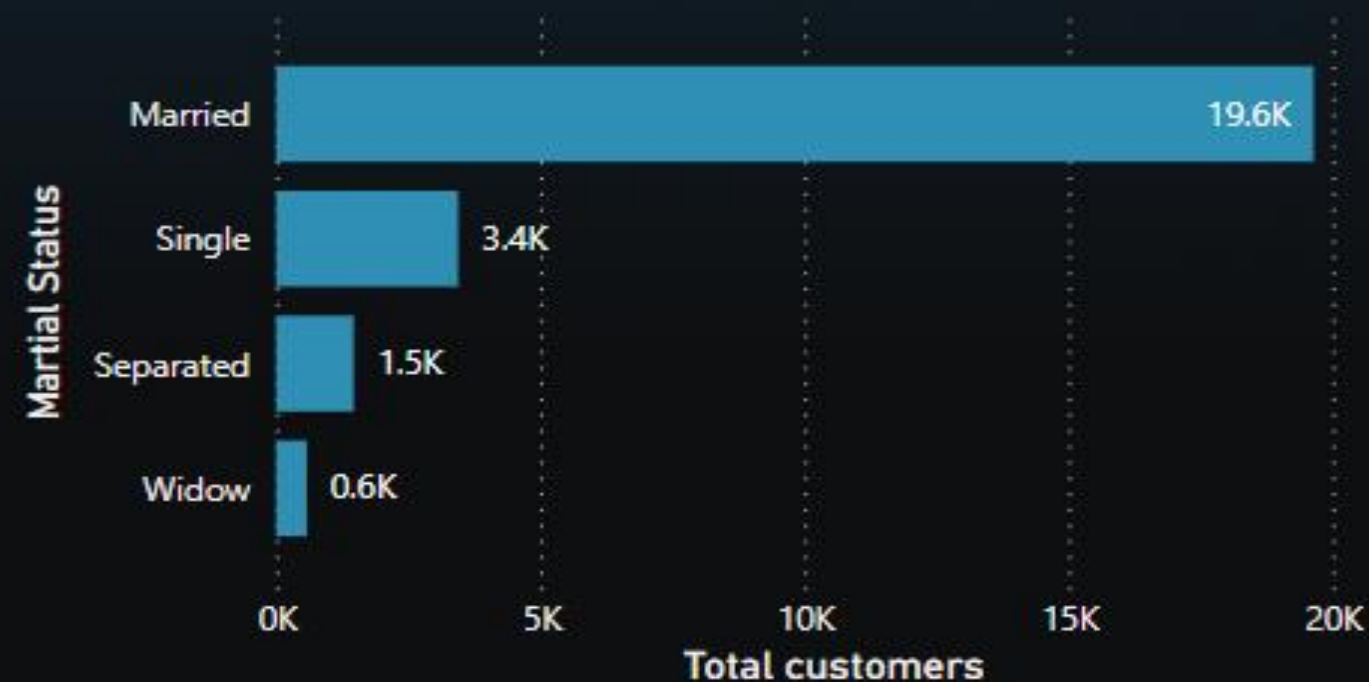
Realty ● No ● Yes



Average of Total Income by Gender

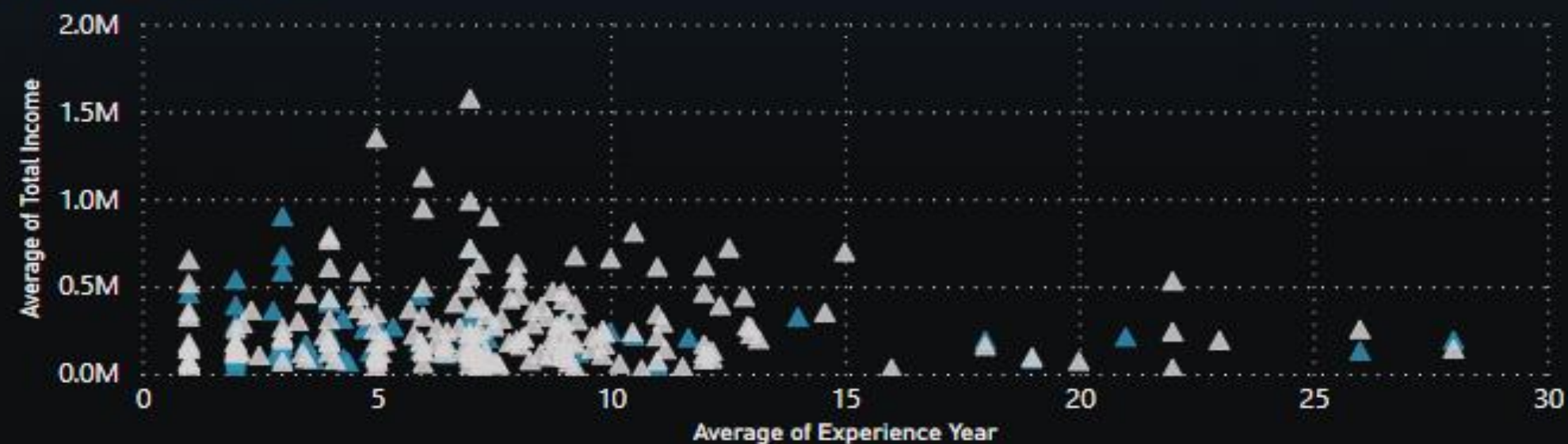


Total customers by Martial Status



Average of Experience Year and Average of Total Income by Total Income and Target

Target ▲ Bad ▲ Good



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CONCLUSION

1

The most important features that influence credit card approval decisions are Work Experience, Age, Matrial Status, Reality, Gender, Education, F

2

By implementing these recommendations, financial institutions and credit card companies can enhance their credit card approval processes

3

the limitations of machine learning in credit card approval prediction encompass the size and quality of the dataset.

CONCLUSION

1

Higher income and longer work experience are likely indicators of clients accepting a loan, reflecting financial stability and repayment capacity. However, it's important to note that Credit approval is based on a comprehensive assessment of creditworthiness

2

By implementing these recommendations, financial institutions and credit card companies can enhance their credit card approval processes

3

the limitations of machine learning in credit card approval prediction encompass the size and quality of the dataset.

The background features four decorative geometric patterns in the corners. The top-left corner has a series of dark blue diagonal lines and a light blue curved line. The top-right corner has a pattern of dark blue and light blue semi-circles. The bottom-left corner has a pattern of light blue and dark blue semi-circles. The bottom-right corner has a series of dark blue diagonal lines and a light blue curved line.

Thank you