JAR CONSULTING

AI-Powered Credit Card Approval

Unlocking Credit Potential with AI-Powered Approval Insights

Overview

Our primary objective is to boost **Tidal Bank's** overall profit by expanding the customer base of TidalOne credit card holders. This will be achieved by increasing the number of approvals for **high-quality customers**. To accomplish this, JAR Consulting AI Division has conducted a thorough evaluation of various AI models to identify the most effective approach for achieving our goal.

Through our expertise in **AI-driven solutions**, we will implement **advanced credit assessment models** that leverage cutting-edge algorithms and data analysis techniques. Our aim is to **optimize the approval process**, ensuring that quality customers are efficiently identified and granted TidalOne credit cards, resulting in a significant boost to Tidal Bank's profitability.
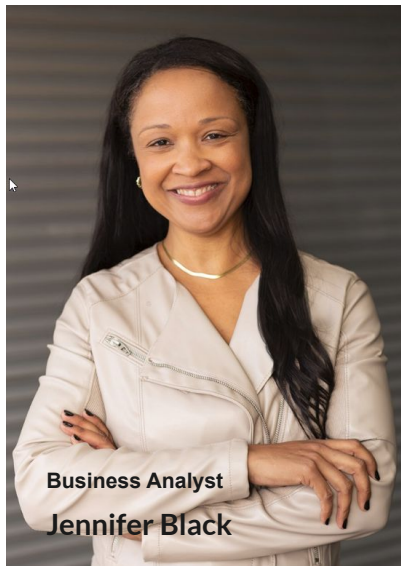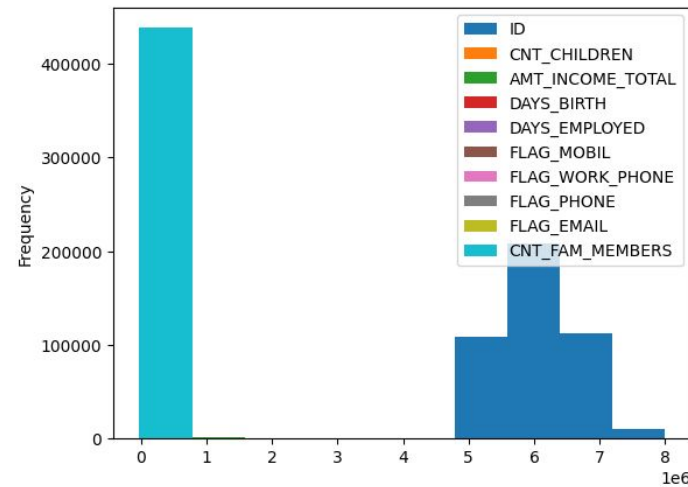
Team

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J: Jennifer Black, Business Analysist

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Business Analyst
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Data Scientist
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Data Analysis

- Identify credit approval criteria by determining a **target variable** in the training dataset.
- The target value from the training data distinguishes **"good risk"** from **"bad risk"** customers.
- A "bad risk" customer has one or more late payments **exceeding 90 days**, while a "good risk" customer has **no such late payments**.
- Target value identified results in an imbalanced dataset which impacts the feature engineering methods and modeling techniques

Model Selection

LIGHT GBM

Gradient boosting framework that uses a tree-based learning algorithm to efficiently handle large datasets and make precise credit approval predictions.

XGBoost Algorithm

RANDOM FOREST

Ensemble learning algorithm that constructs multiple decision trees and combines their predictions to make accurate credit approval decisions.

Leaf-Wise Tree Growth

LIGHT GBM

XGBOOST

Optimized gradient boosting algorithm that incorporates regularization techniques and parallel processing to achieve high performance and accurate credit approval predictions

Model Evaluation

RANDOM FOREST

Validation ROC-AUC: 0.925

Precision: 0.6625

Recall: 0.8548

*Demonstrates the highest performance with a higher ROC-AUC, precision, and recall values, indicating its **effectiveness** in **accurately** predicting good candidates in the credit approval process*

LIGHT GBM

Validation ROC-AUC: 0.889

Precision: 0.1604

Recall: 0.8226

*Shows relatively **lower precision** but a **reasonable recall rate**.*

XG BOOST

Validation ROC-AUC: 0.915

Precision: 0.6625

Recall: 0.8387

*Performs well, but its **precision is lower** compared to Random Forest.*

SUMMARY / RECOMMENDATIONS

AI models holds **significant potential** for Tidal Bank to boost its **overall profit** by expanding the customer base of TidalOne credit card holders.

Prerequisites for success would include more robust data review and a cloud-based strategy for development, QA, and production system deployment.

By leveraging the predictive power of AI Tidal Bank can increase the number of approvals fo**r high-quality customers**, ensuring accurate c**reditworthiness assessment** and promoting **sustainable growth.**

Thank you.