

February 9, 2025

EMC MARKETING CHALLENGE

- LEVERAGING DATA TO DRIVE CUSTOMER WELLBEING AND BUSINESS GROWTH



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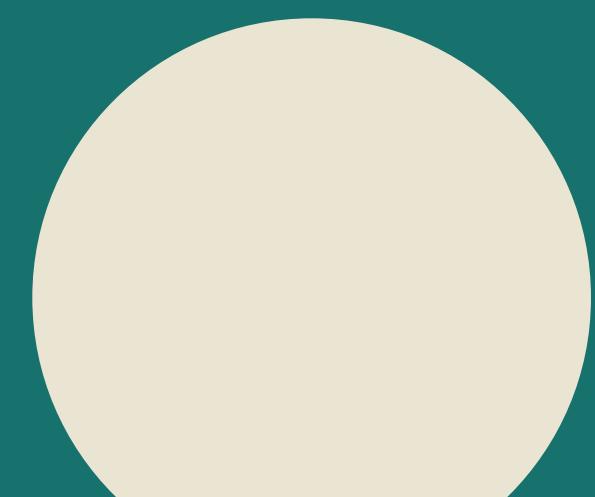
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PROBLEM STATEMENT

CHALLENGES AND OBJECTIVES



Parachute Corp, a loan consolidation company, is facing challenges with high loan defaults, limited customer engagement, and a lack of personalized financial interventions. Improving financial wellbeing is critical for their customers' satisfaction and long-term business success.

Motivation:

- For Customers: Achieve financial stability and reduce debt stress.
- For Parachute: Reduce defaults, increase engagement, and gain a competitive edge.

SMART Objectives:

- Specific: Identify drivers of success.
- Measurable: Achieve strong predictive accuracy.
- Achievable: Analyze 2 years of customer data.
- Relevant: Align with Parachute's mission to foster financial empowerment.
- Time-bound: Deliver insights by February 9, 2025.



DATASET AT A GLANCE

- Source Data Overview:
 - Processed 452 worksheets into structured set, ensuring data quality and usability.
- Business-ready dataset:
 - Loan & Compliance Dataset with 50 attributes like SR Compliance and Loan Status for operational impact.
- Merged dataset:
 - Financial Wellness Dataset dataset with 120 attributes capturing wellness scores and engagement for customer-focused strategies.



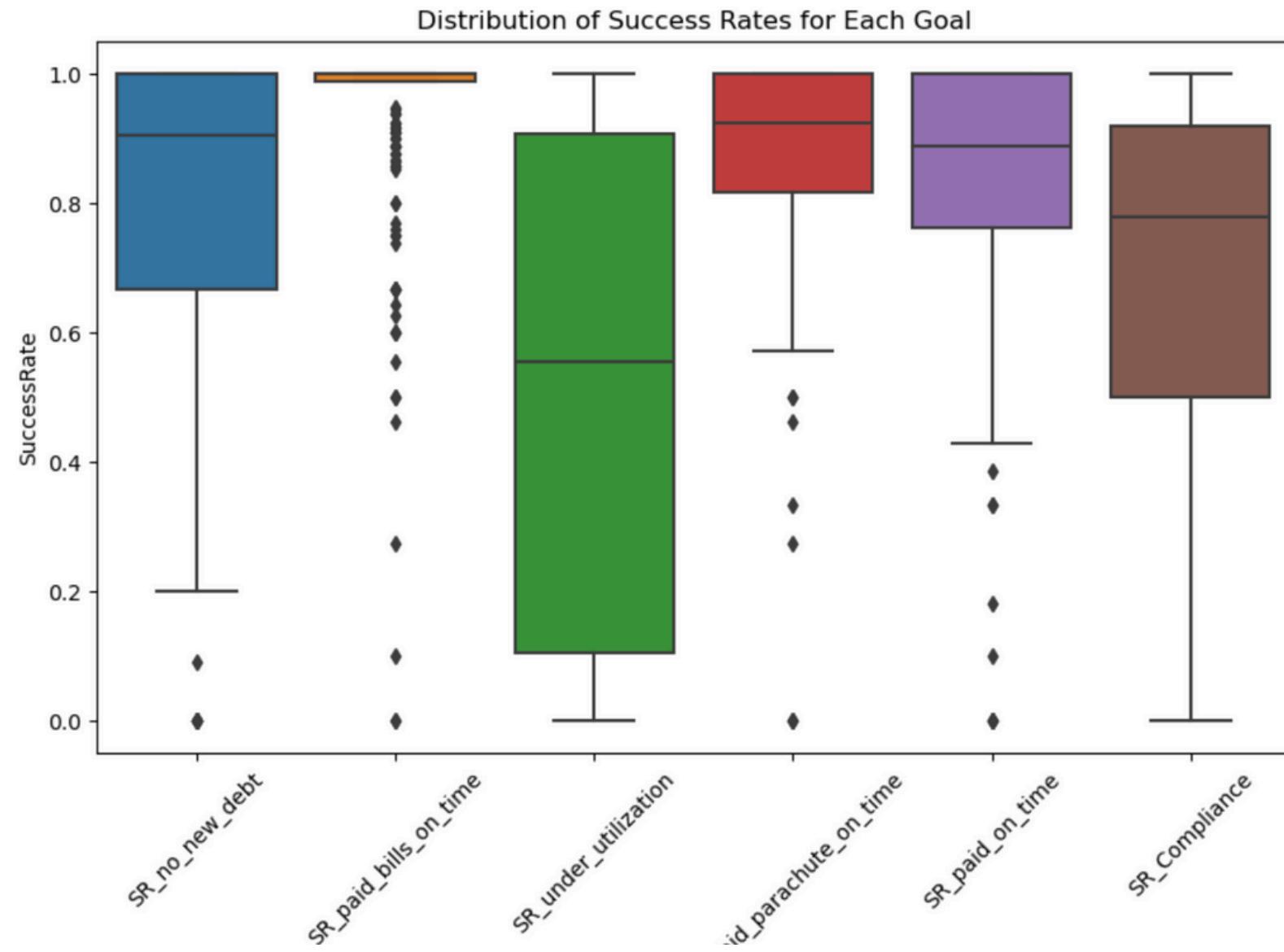
452 Worksheets extracted,
processed and cleaned from
Source files

8 Entities Created: Cross Section, Scheduled
Payments, Actual Payments, Client Balances,
Deferrals, Wellness, Goals & Plans, and

1 Merged Dataset with
120 Attributes

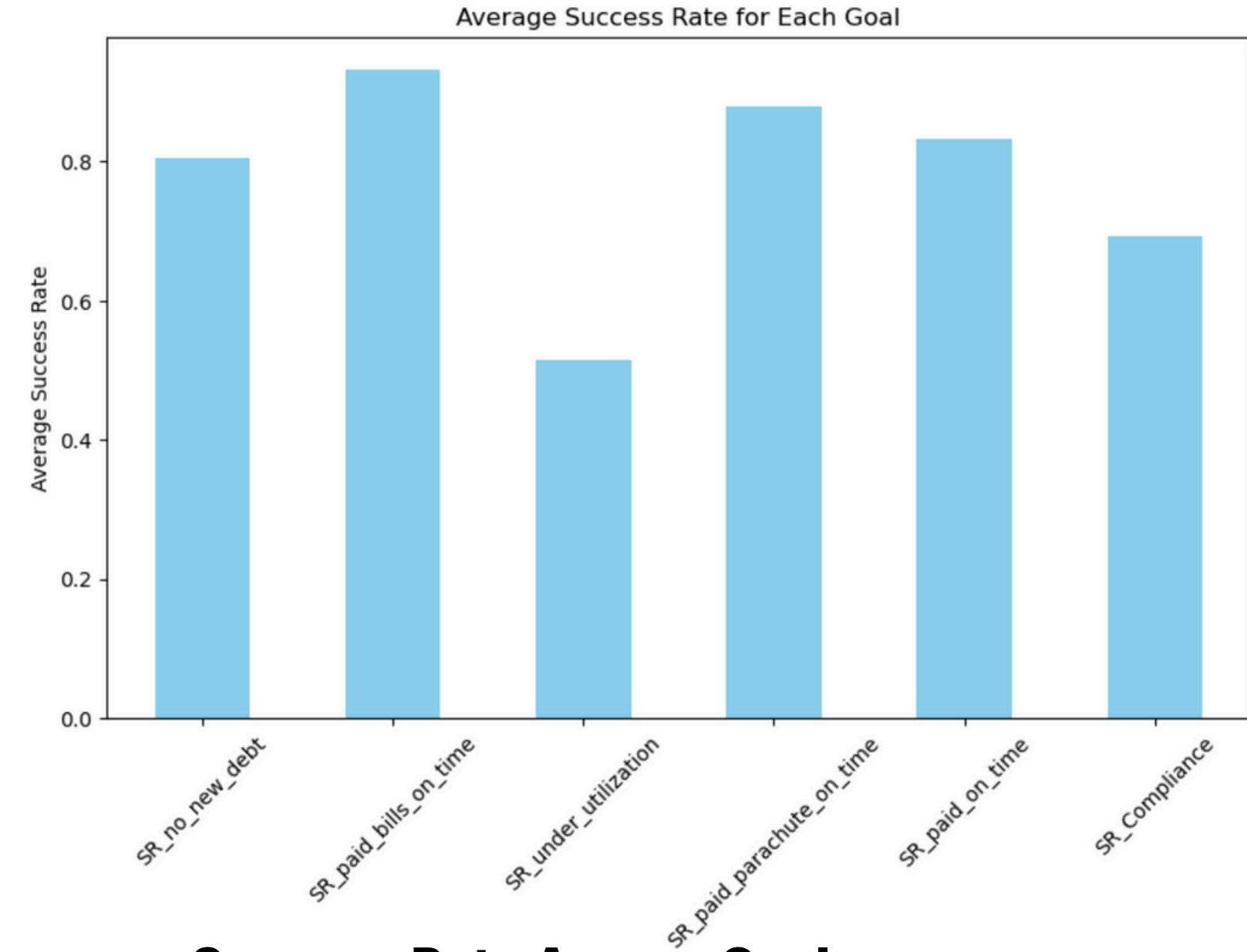
50 Attributes with Business
Friendly Names and New
Engineered Features e.g. SR

DATA DISCOVERY: KEY INSIGHTS



Distribution of Success Rates for Each Goal

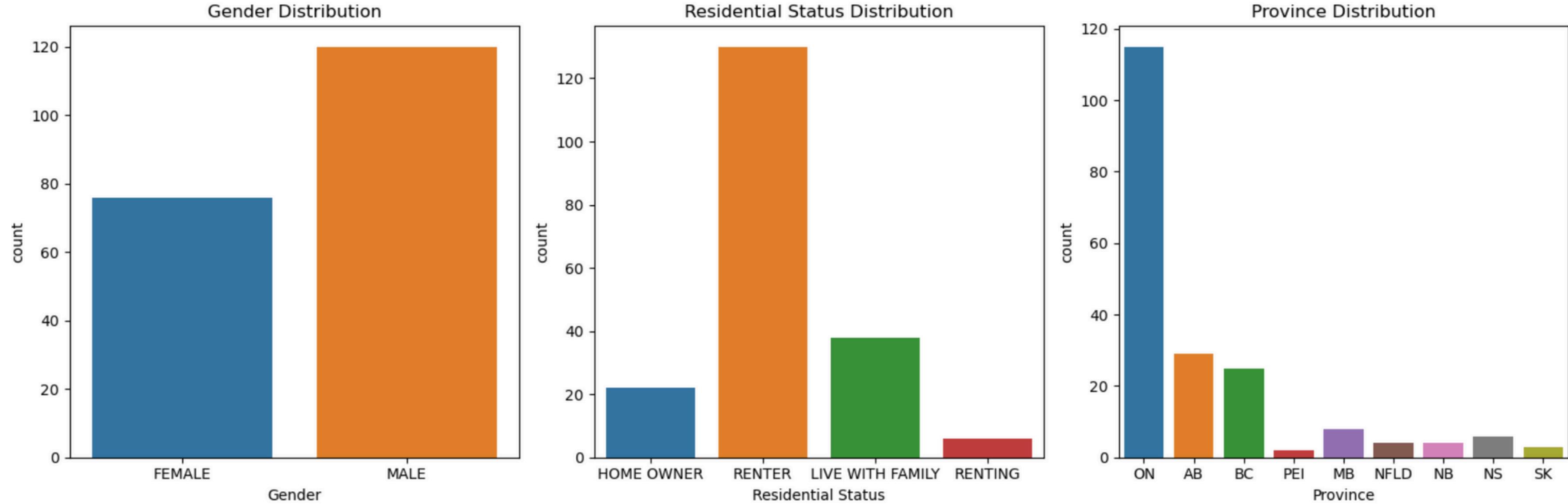
- Goals like Pay bills on time show near-perfect success rates, indicating consistent performance.
- No new debt and compliance-related goals also exhibit strong performance with minimal variability.



Average Success Rate Across Goals

- Goals focused on timely payments (Paid bills on time, Paid Parachute on time, and Paid on time) achieve the highest average success rates.
- Overall, most goals exceed an 80% success rate, except Under utilization and Compliance, which lags at under 80%.

DATA DISCOVERY: CLIENT DEMOGRAPHICS



Gender Distribution

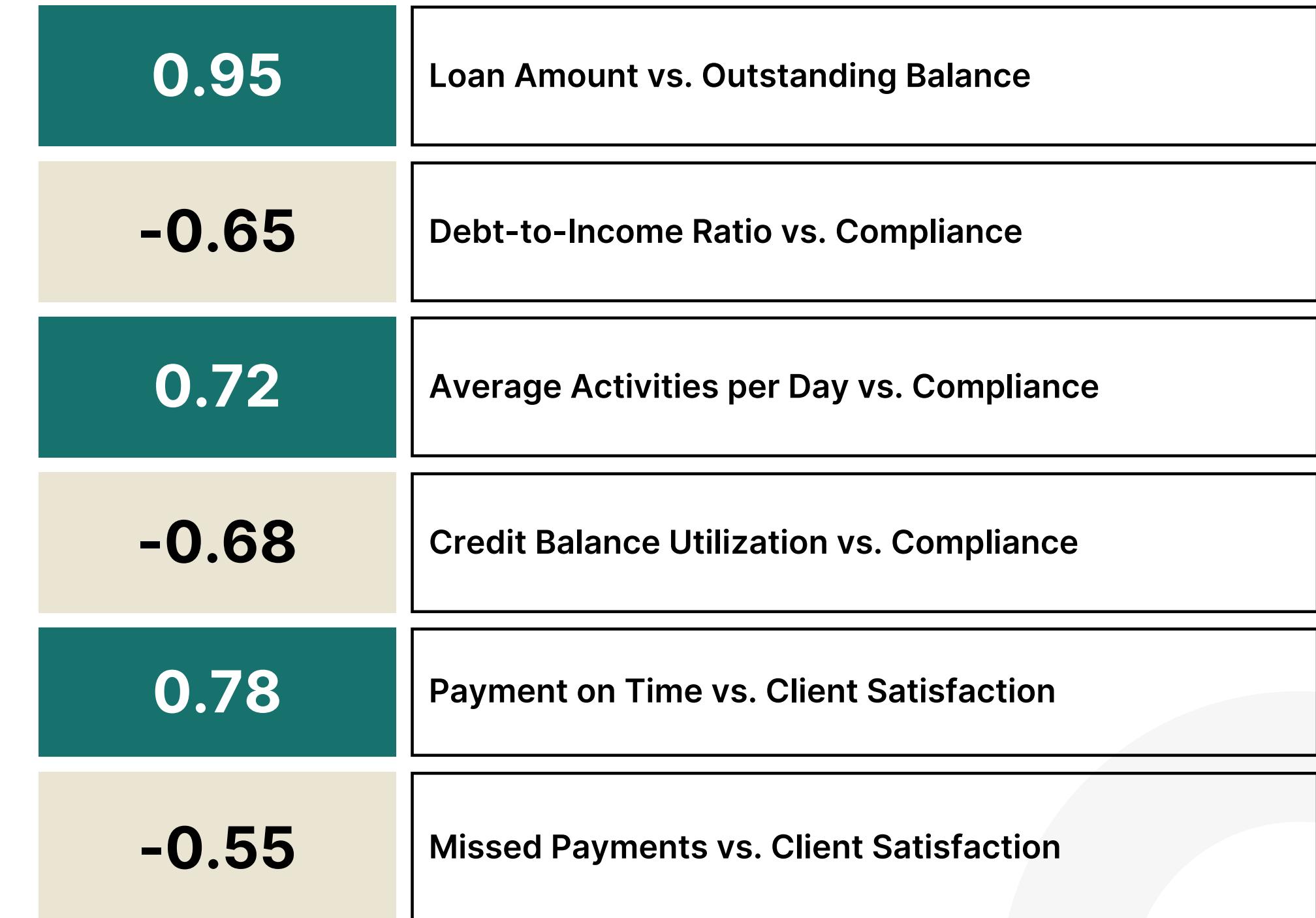
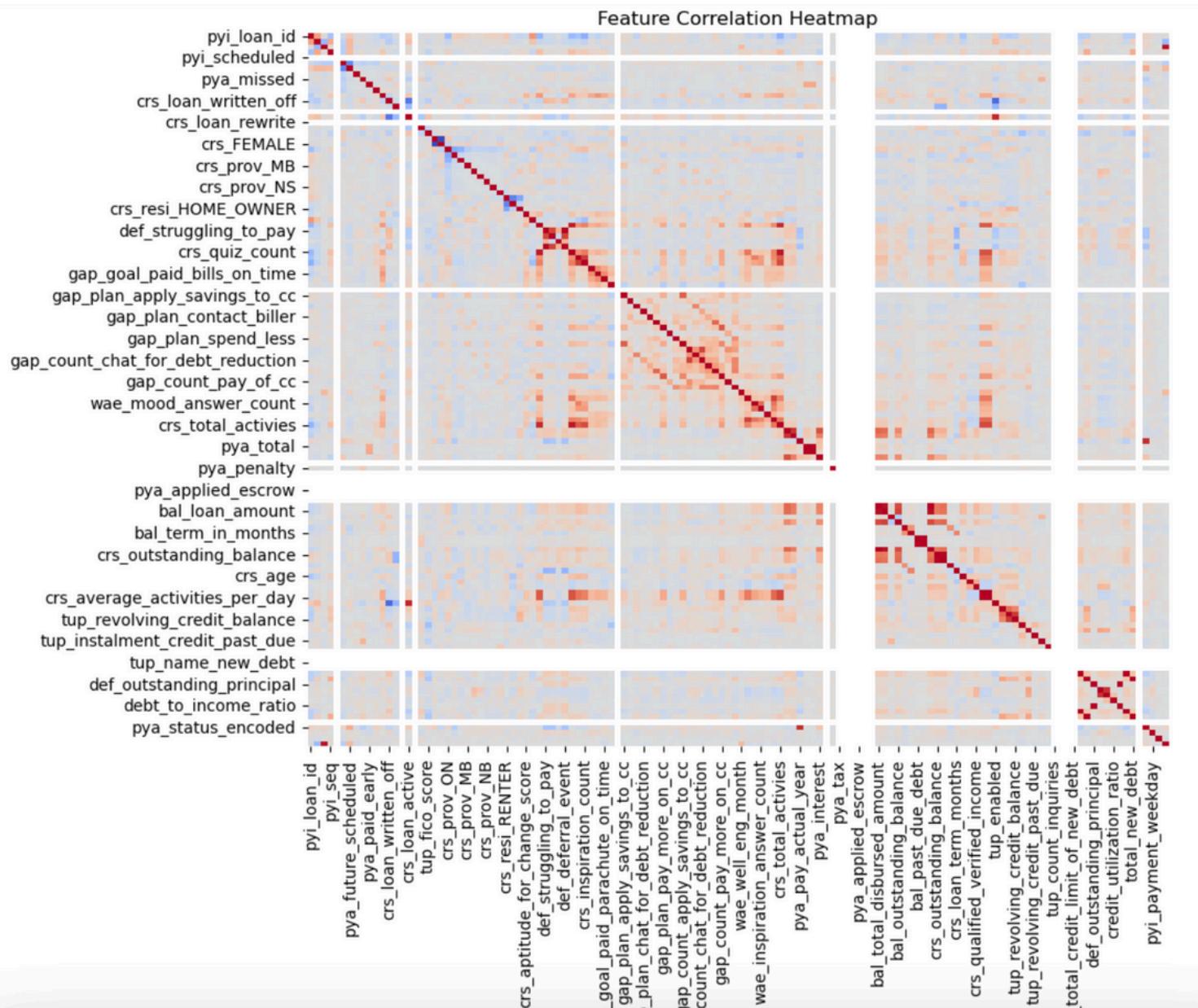
- Male clients represent the majority of the dataset, accounting for over 60% of total clients.
- Female clients show significant engagement, contributing actively across all services provided.

Residential Status

- Renters are the dominant residential group in the dataset, comprising 68% of all clients.
- Homeowners form a smaller yet essential demographic, making up 12% of the client base.

DATA DISCOVERY: CORRELATION MATRIX

KEY INSIGHTS COLLECTED:



METHODOLOGY & MODEL OVERVIEW

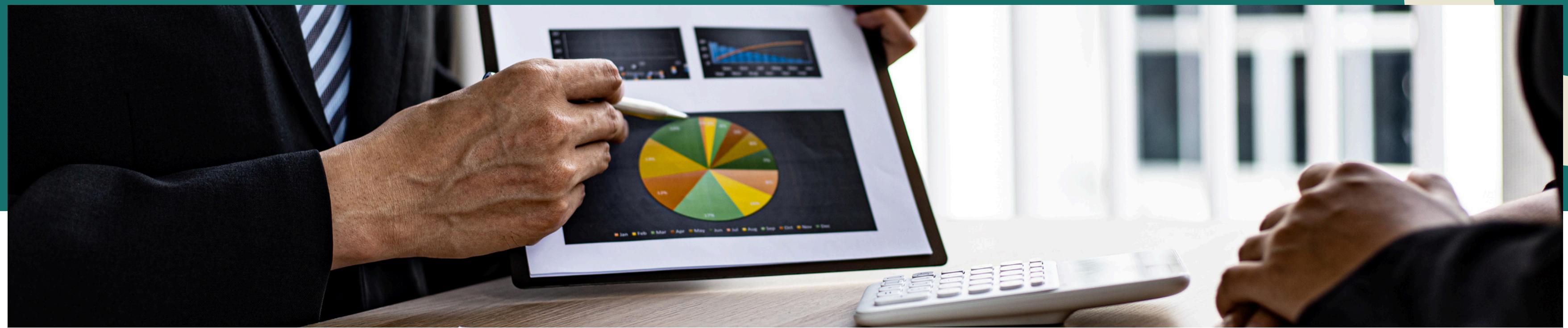


METHODOLOGY AT A GLANCE

- Data Collection: Combined datasets for comprehensive insights.
- Preprocessing: Cleaned data with scaling and outlier handling.
- Model Development: Applied and tuned machine learning algorithms.
- Evaluation: Validated models with cross-validation and metrics comparison.

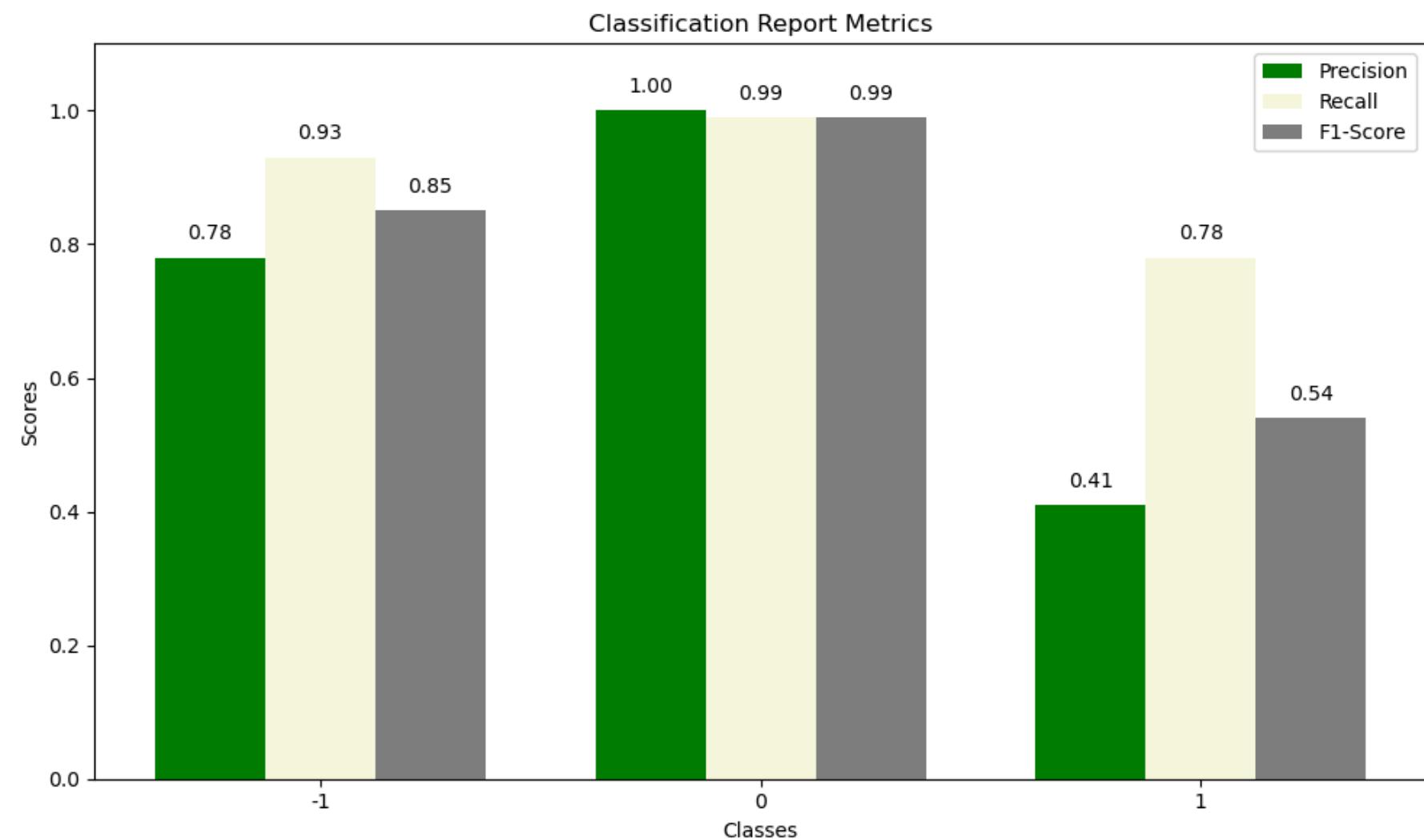
MODELS OVERVIEW

- Model 1: Financial Wellness Change
 - Target: Improvement, Decline, or No Change in financial wellness.
- Model 2: Loan Status
 - Target: Active or Completed loan status.
- Model 3: Compliance Success Rate
 - Target: Predicting compliance rates.



FINANCIAL WELLNESS CHANGE

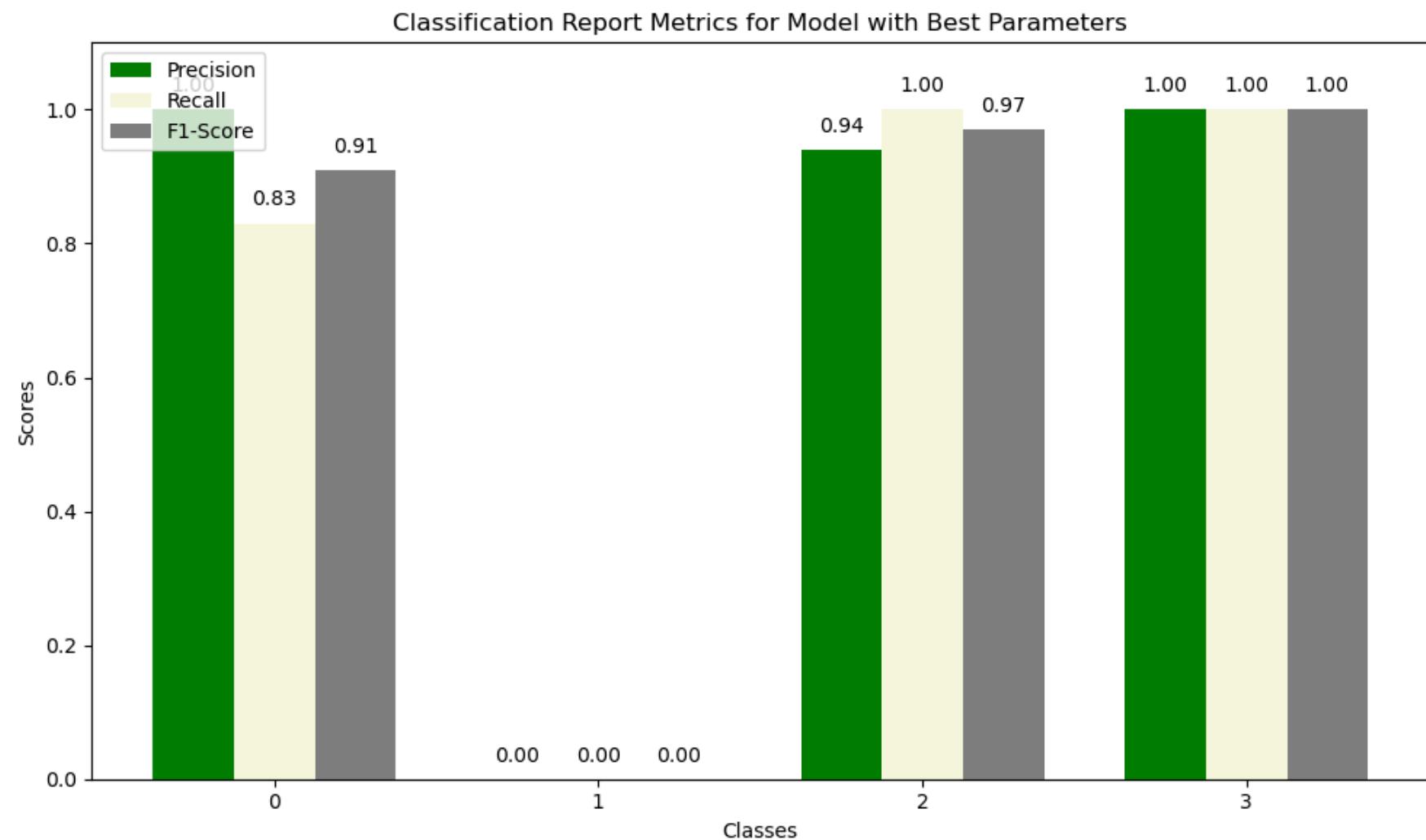
- Financial Decline (-1):
 - High recall (0.93) and strong F1-score (0.85) ensure reliable identification of individuals at financial risk, enabling targeted campaigns for debt management or financial planning support.
- No Change (0):
 - Exceptional precision and recall (F1-score: 0.99) ensure accurate identification of stable individuals, supporting retention strategies like loyalty programs.
- Financial Improvement (1):
 - Moderate recall (0.78) and low precision (0.41) highlight improvement opportunities, for strategies to reward positive financial behaviors.

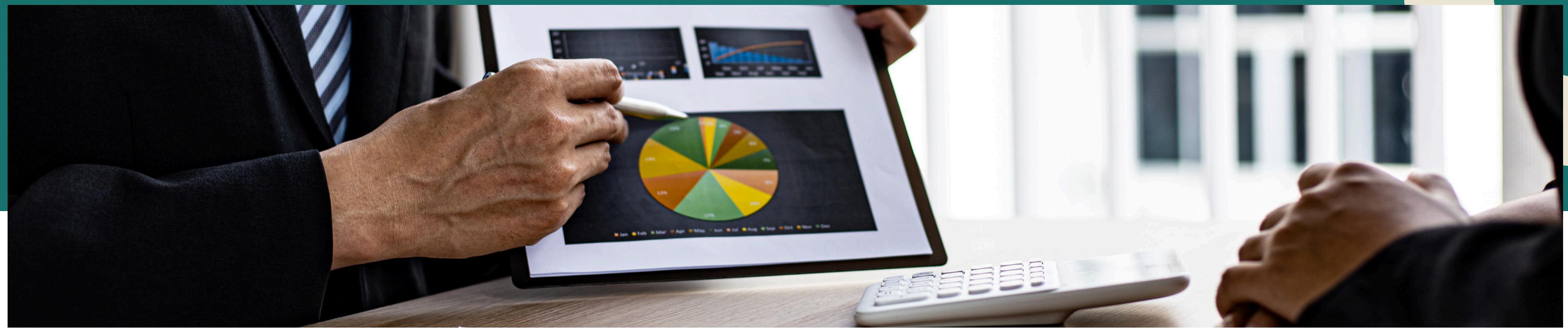




LOAN STATUS

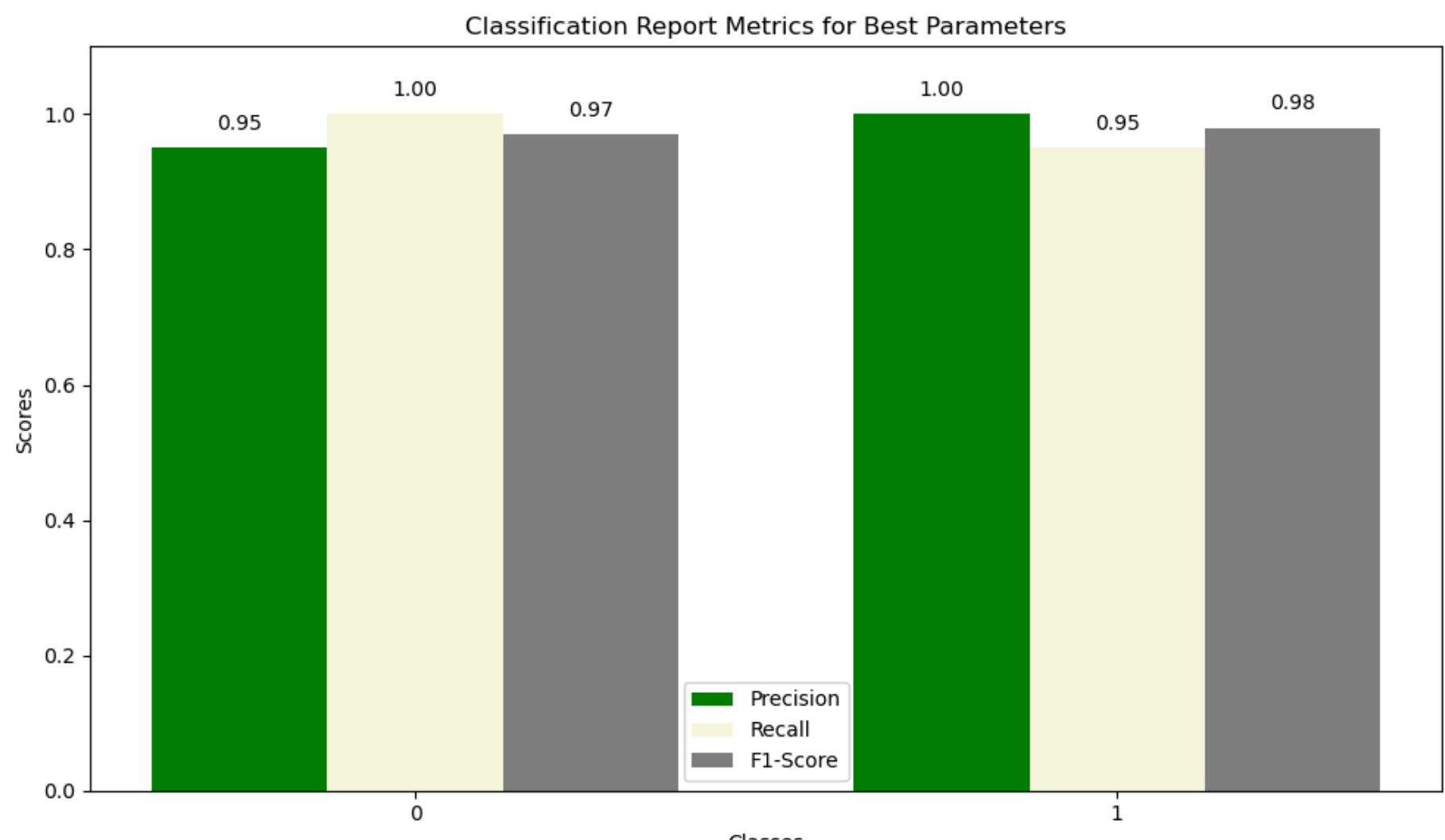
- Loan Default (0):
 - High precision (1.00) and strong recall (0.83) ensure effective targeting of at-risk borrowers, enabling proactive measures to reduce losses.
- Loan Fully Paid (1):
 - Limited data restricts the model's ability to classify this group.
- Active Loan (2):
 - Excellent performance (precision 0.94, recall 1.00) supports accurate identification of active borrowers, aiding personalized offers and customer engagement.
- Loan Grace Period (3):
 - Perfect classification ensures timely interventions to support borrowers in grace periods, improving customer satisfaction and recovery rates.





COMPLIANCE SUCCESS RATE

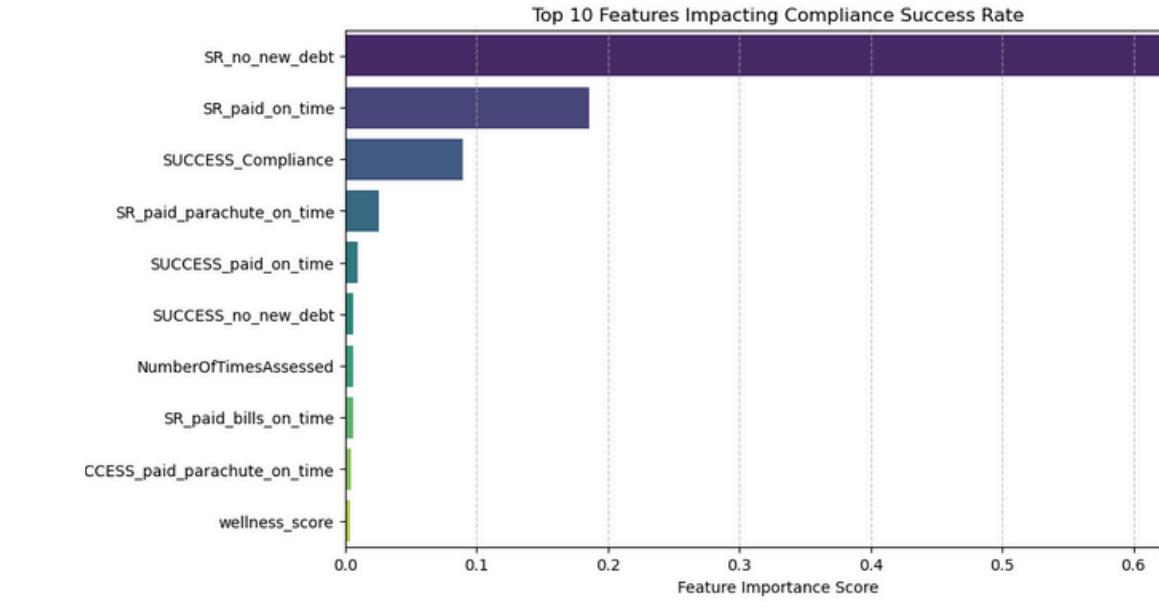
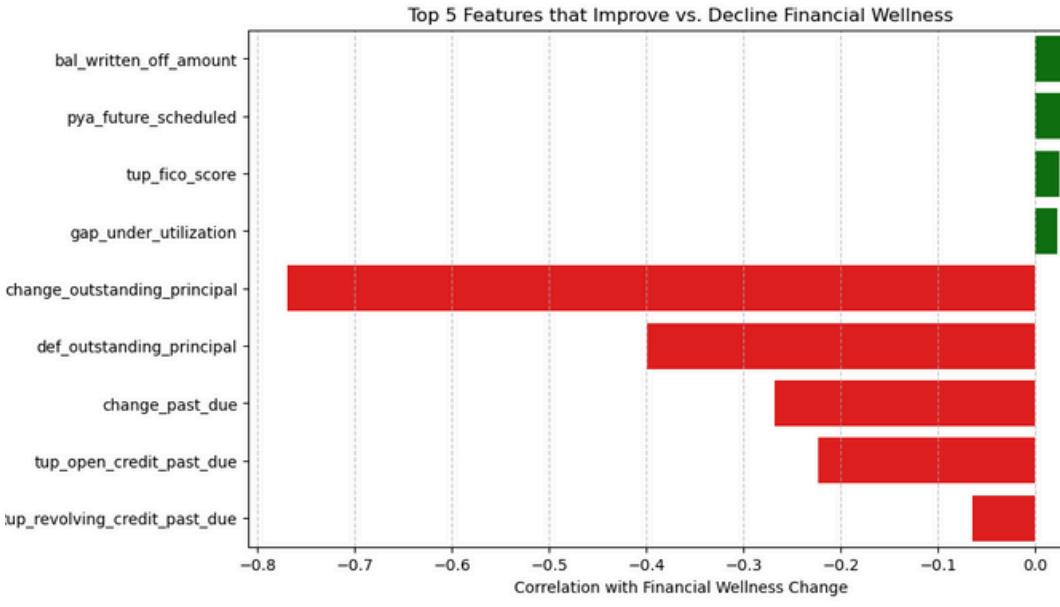
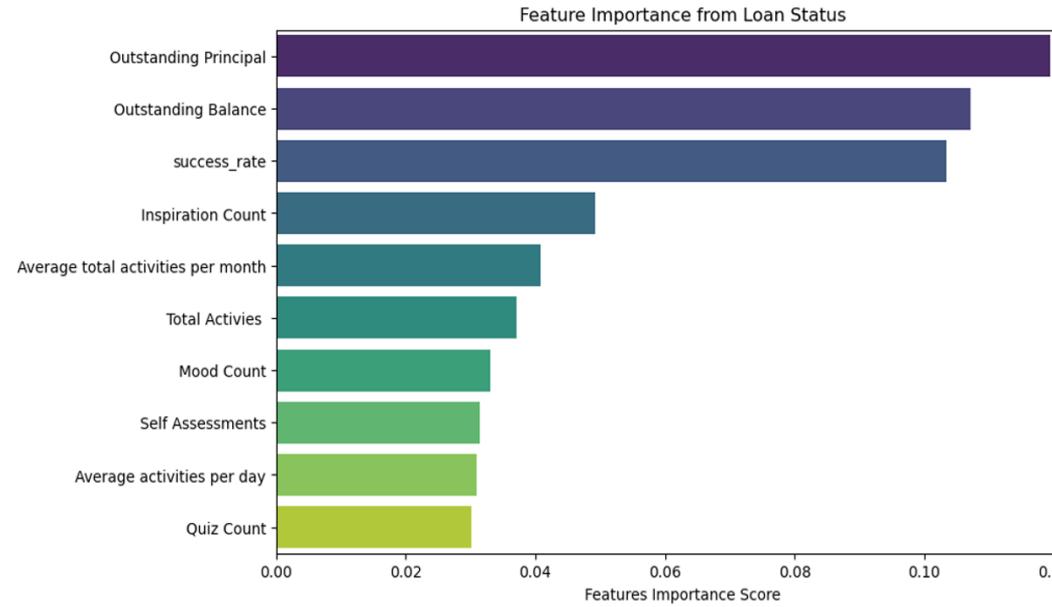
- Doesn't Reach Compliance (0):
 - High recall (1.00) and strong F1-score (0.97) highlight the model's ability to identify non-compliant cases effectively. This is critical for designing proactive measures and interventions to help these individuals achieve compliance.
- Reaches Compliance (1):
 - Perfect precision (1.00) and high F1-score (0.98) ensure accurate identification of compliant individuals. This supports personalized marketing strategies, such as promoting premium products or offering rewards for continued success.



MODEL RESULTS



WHAT WE DISCOVERED



Loan Status

- Outstanding Principal:
 - Promote refinancing options.
- Outstanding Balance:
 - Key for loan status; offer repayment plans.
- Success Rate:
 - Boost engagement with financial counseling.
- Mood/Inspiration Behavior Metrics:
 - Leverage for emotional marketing.
- Activities:
 - Incentivize consistent financial actions.

Financial Wellness Change

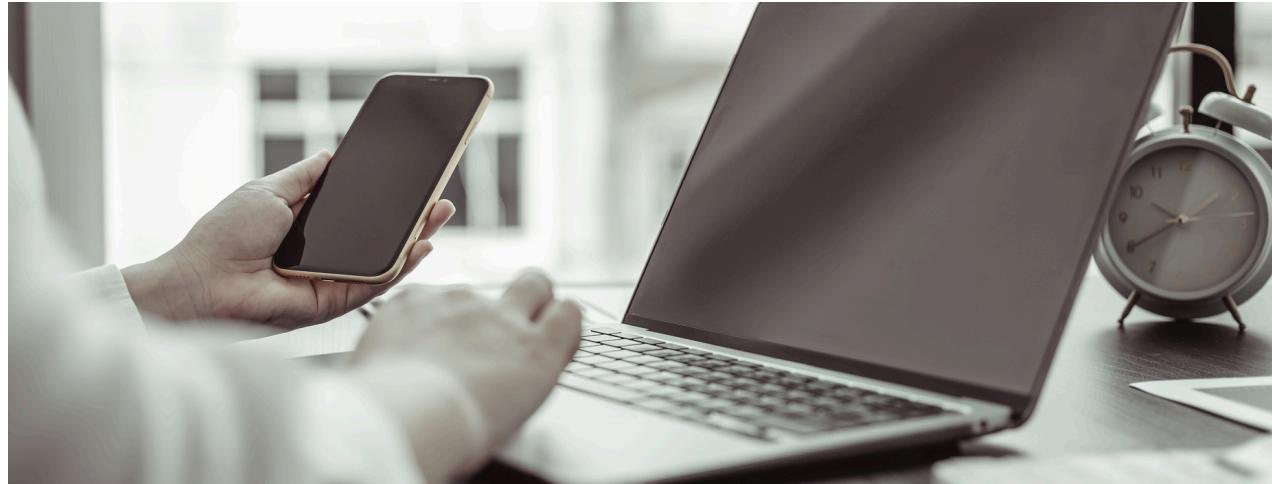
- Improving:
 - Promote savings habits and scheduled payments for loyalty.
- Declining:
 - Address overdue balances with early intervention.
- Strategy:
 - Segment audiences for targeted and personalized campaigns.

Compliance Success Rate

- Timely Payments:
 - Reward on-time behavior to sustain compliance.
- Risk Factors:
 - Focus re-engagement efforts on users at higher risk of non-compliance.
- Marketing:
 - Use compliance insights to craft customized campaigns and offers.

MARKETING STRATEGY

DATA DRIVEN SOLUTIONS



1

Target Financial Decline

- Metric: Reduce default loan rate to 10% through targeted support campaigns.
- Strategy: Leverage high recall predictions to identify at-risk individuals and provide tailored financial solutions or guidance.

2

Boost Compliance Success

- Metric: Increase compliance rates by 10% within the next quarter.
- Strategy: Use insights from compliance success features to create outreach campaigns, emphasize resource optimization and cost savings.

3

Feature-Driven Personalization

- Metric: Increase customer assessment by 30% among defaulters.
- Strategy: Use personalized messaging focused on reducing new debts, promoting on-time payments, and encouraging better credit utilization.

BUSINESS IMPACT

HOW DOES THIS HELP?

01 Target Financial Decline

- High Default Rates:
 - 20% of loans are in default, far above the 10% industry benchmark, reducing profitability & strain ops.
- Cost Savings:
 - Reducing defaults to 10% could save over \$300,000.
- Strategic Focus:
 - Use predictive modeling to identify at-risk borrowers and reduce defaults before they happen.



02 Boost Compliance Success

- Target Default Borrowers:
 - Focus on defaulters with 50% compliance to improve their rates.
- Reduce New Debt:
 - Lower new debt cases by 20% through advisory plans.
- Increase Compliance Scores:
 - Boost compliance score from 70% to 80% with refined outreach to approach 80% industry average.

03 Feature-Driven Personalization

- Targeted Assessments:
 - Defaulting customers engage in personal assessments 30% less than the company average.
- Debt Recovery:
 - Improving compliance among defaulters could save \$200,000 annually by reducing outstanding balances.
- Strategic Focus:
 - Personalized messaging for defaulters bridges the engagement gap, driving financial retention.

IN SUMMARY:

DRIVING GROWTH THROUGH DATA-DRIVEN INSIGHTS

- Reducing Loan Defaults:
 - Identifying defaulters and aligning compliance to industry benchmarks could save the company over \$300,000 annually, strengthening financial stability.
- Boosting Compliance Rates:
 - Personalized strategies for low-compliance customers, especially defaulters (50% compliance vs. 80% benchmark), unlock untapped opportunities for increased repayments and improved client outcomes.
- Enhancing Customer Engagement:
 - Leveraging data on outstanding balances and credit utilization drives personalized marketing, closing the 30% engagement gap for defaulters, with potential annual savings of \$200,000.
- Actionable Insights:
 - Top features influencing financial well-being and compliance guide targeted support and tailored offers, maximizing impact and resource efficiency.



February 9, 2025

THANK YOU

● FOR YOUR NICE ATTENTION