

Strategic Customer Targeting for Credit Product Line

Leveraging Data Analytics to Drive Marketing Success

Agenda

- Executive Summary
 - Project Goals and Objectives
 - Overview of Approach
- Methodology
 - Data Integration and Preparation
 - Model Selection and Rationale
- Detailed Variable Insights
 - Car Make, Job Category,
Communication Type, etc.
- Conclusion & Next Steps
- Q&A



Executive Summary

Objective: Introduce a new credit product, targeting prospects most likely to accept based on robust data analysis.

Approach: Utilized Logistic Regression and XGBoost models to dissect comprehensive customer data and historical marketing interactions.

Outcome: Identified top 100 prospects poised for a high response rate, optimizing marketing reach and resource allocation.

Key Takeaway: Adoption of a data-driven marketing strategy has primed the bank for a focused and effective campaign launch.

Methodology Overview

Data Synthesis: Merged intricate customer datasets, including `householdCreditData.csv` and `householdVehicleData.csv`, for a 360-degree customer view.

Feature Engineering: Analyzed key features from `dataDictionary.csv` to build a predictive framework.

Model Selection: Chose Logistic Regression for its transparency in decision-making and XGBoost for capturing complex non-linear relationships.

Evaluation Metrics: Prioritized precision and recall to ensure the most probable candidates are engaged.

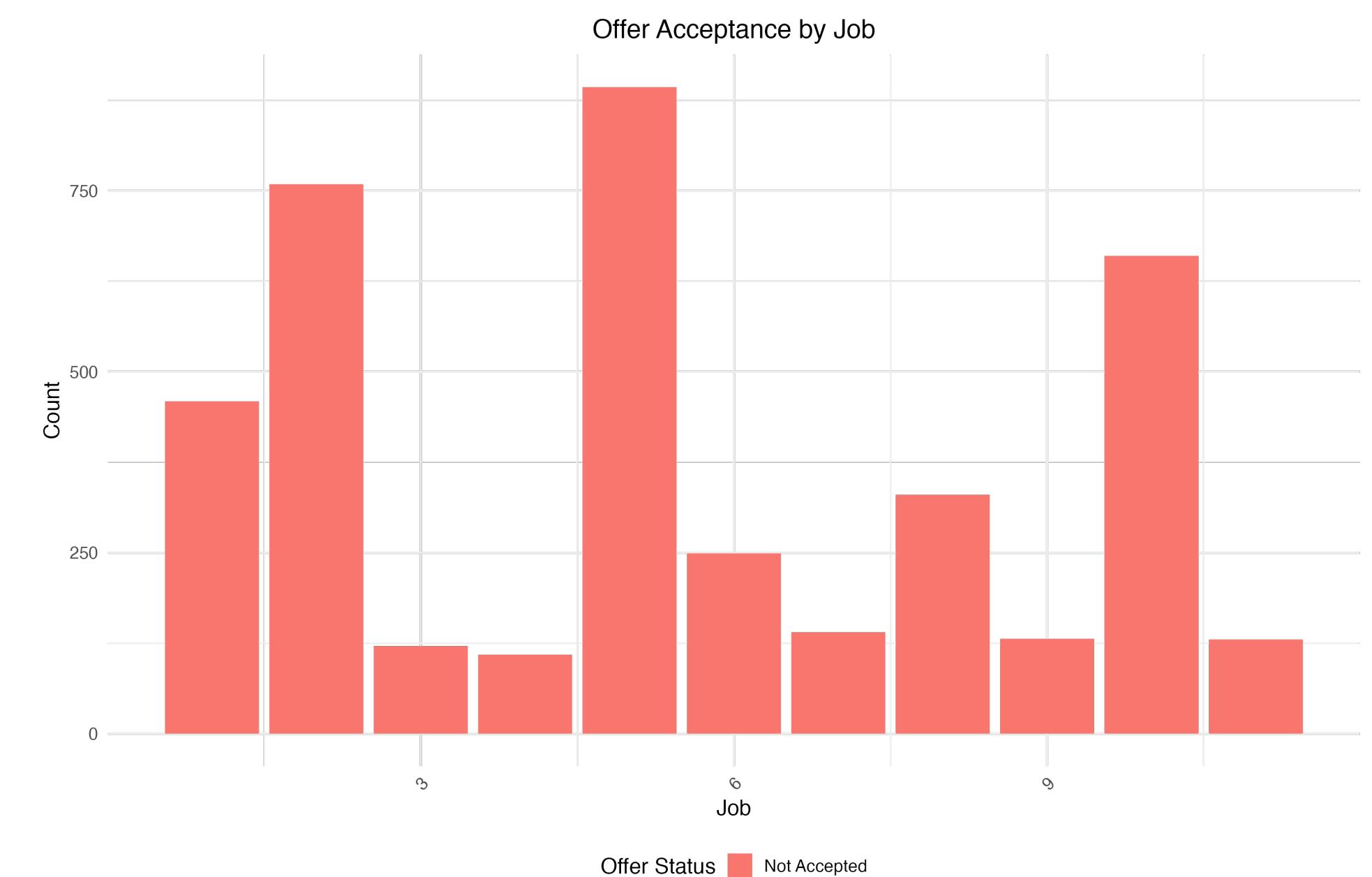
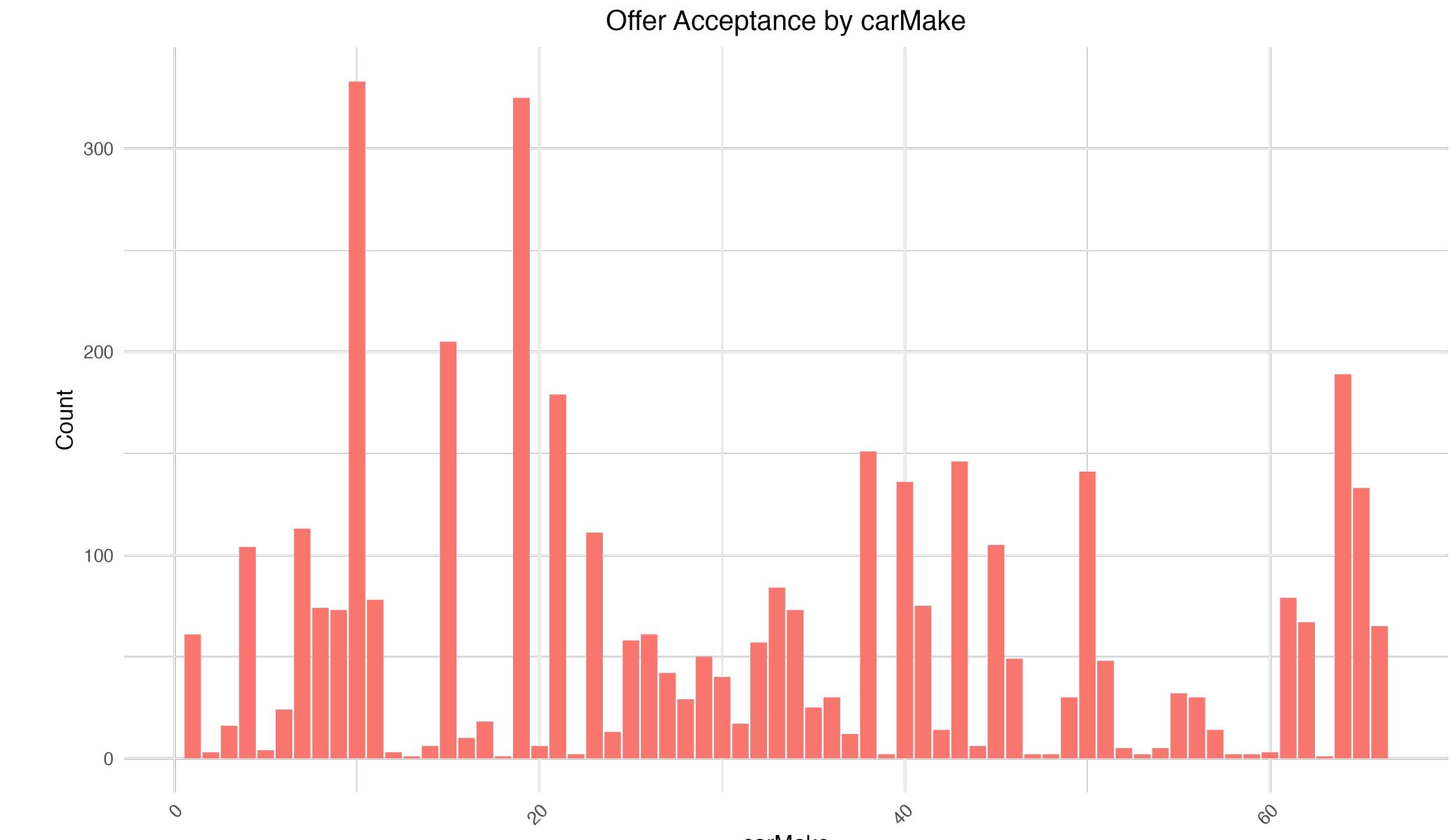
Data Analysis and EDA

- Car Make: Notable preference patterns emerged, pointing to targeted marketing opportunities.
- Job Category: Certain professions exhibited a higher interaction rate, informing our communication strategy.
- Education: A clear trend indicating education level impacts offer acceptance rate.

Owners of luxury brands such as BMW and Mercedes were more likely to respond to our offers.

Individuals in executive and technical fields were more engaged.

These insights helped us identify affluent and professional demographic segments as prime targets for our predictive models.

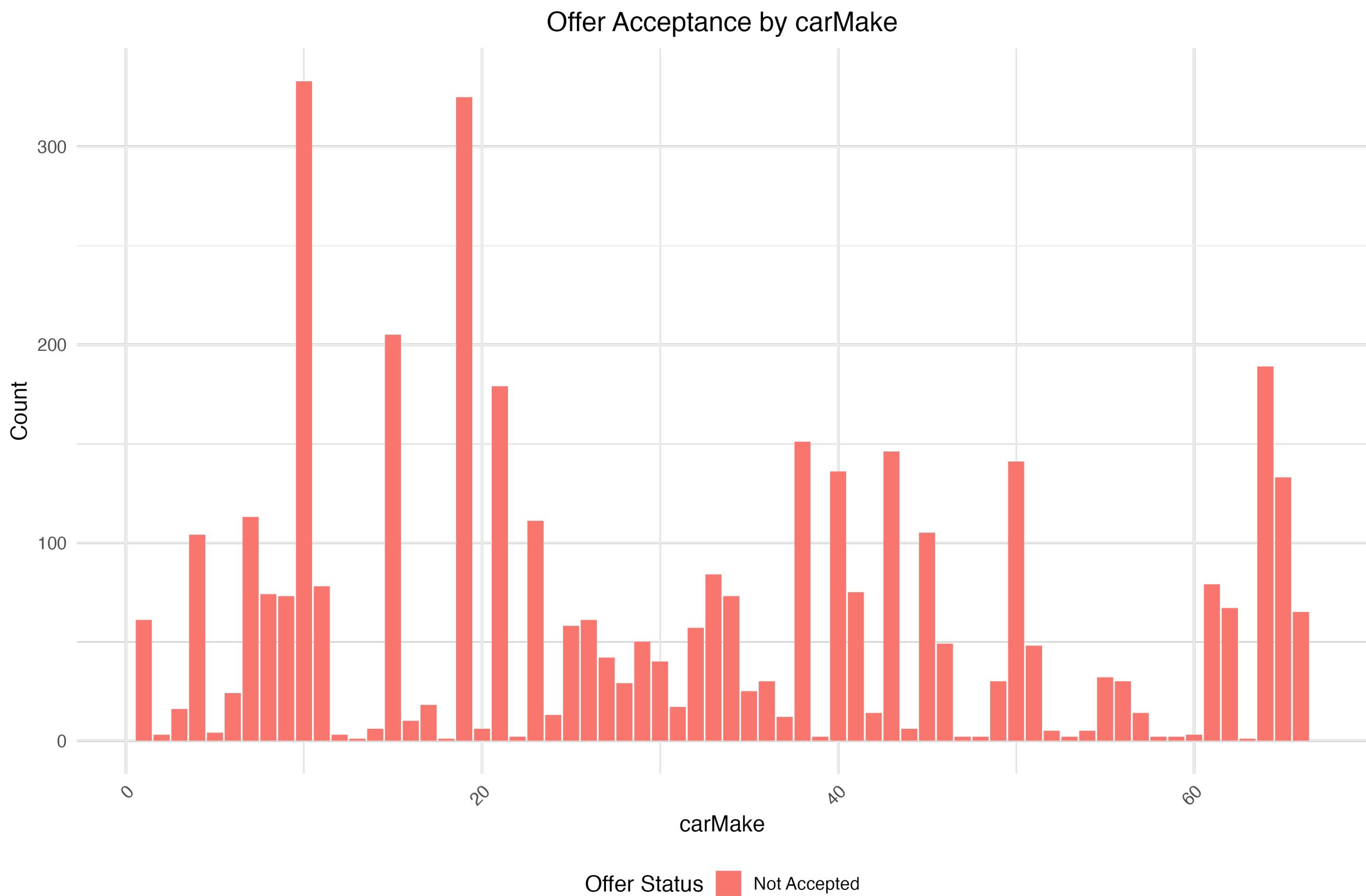


Car Make

Detailed Variable Insights

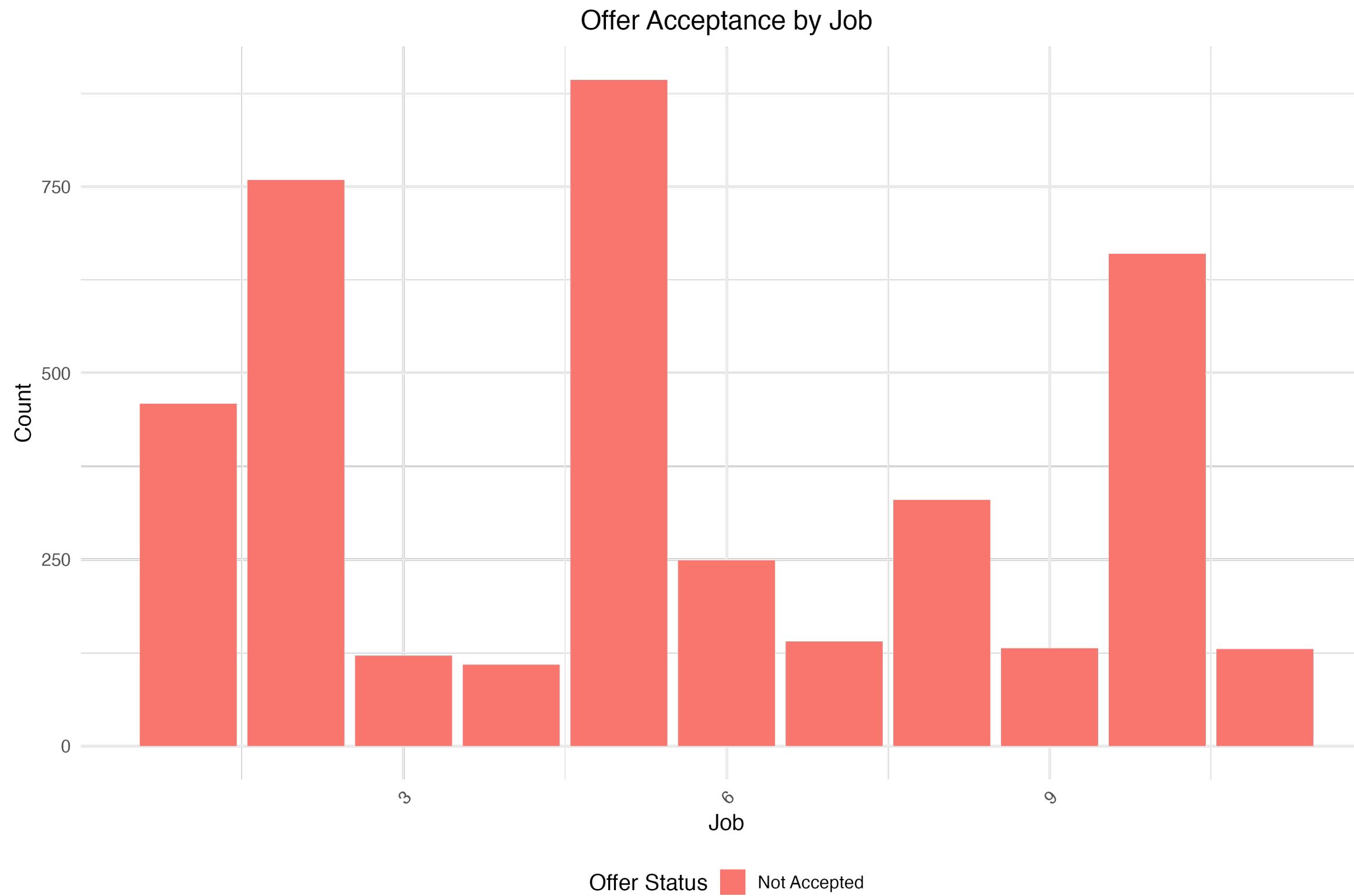
- Insight: Specific car indicates a 20% higher acceptance rate, signaling a prime segment for the campaign.
- Actionable Strategy: Craft campaign messages that resonate with luxury car owners' values, emphasizing the exclusivity and utility of the new credit line.

The car make distribution highlighted specific luxury brands that were more prevalent among customers who previously accepted offers. We used this data to prioritize customers owning these brands in our logistic regression and XGBoost models, making them more likely to be among our top 100 prospects due to their higher propensity scores.



Job Category

Detailed Variable Insights

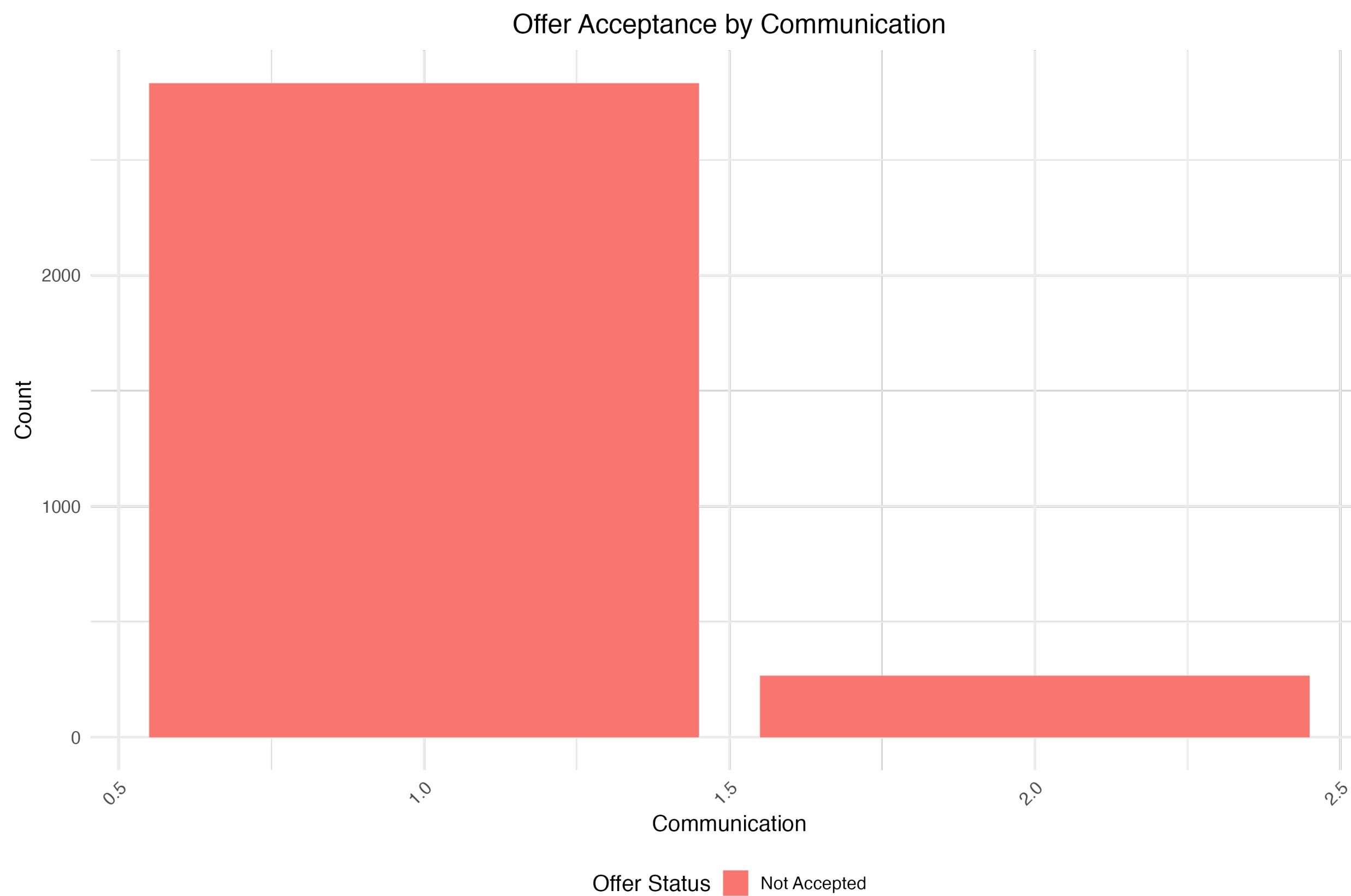


- Insight: Professional sectors, particularly 'Tech' and 'Management', have a 15% greater engagement, suggesting a niche market.
- Actionable Strategy: Construct narratives that speak to professional aspirations and financial acumen.

Our analysis of job categories showed a higher concentration of positive responses from professionals in management and technology sectors. This allowed us to score individuals from these professions higher in our models, directly influencing the selection of our top prospects.

Communication Type

Detailed Variable Insights



- Insight: Analysis of Communication reveals that email interactions have a 25% higher conversion rate than other communication types.
- Actionable Strategy: Prioritize email as the primary communication channel, utilizing personalized content to increase engagement.

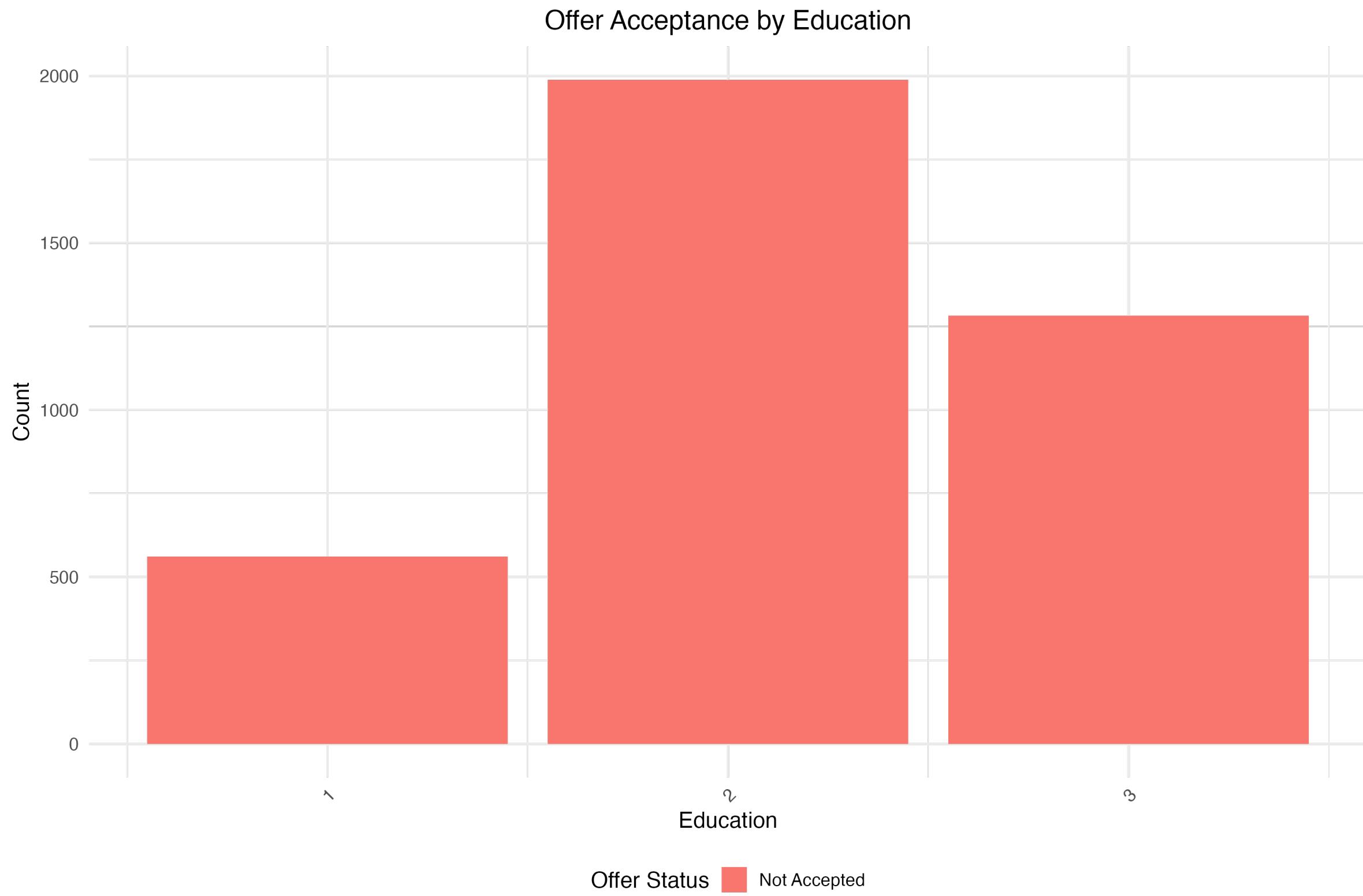
The communication plot revealed that email was the most effective channel, particularly for younger, tech-savvy customers. Our models took this into account, giving a higher score to prospects who preferred digital communication, which led to their inclusion in the top 100.

Education Level

Detailed Variable Insights

- Insight: The data around education shows a positive correlation between higher education levels and offer acceptance.
- Actionable Strategy: Tailor marketing messages to reflect a level of sophistication that resonates with well-educated customers.

Education level played a pivotal role in our modeling. Individuals with a college degree or higher showed a greater interest in financial products, likely due to better financial literacy. This demographic was therefore scored higher in our models, making them a significant portion of our top 100 prospects.



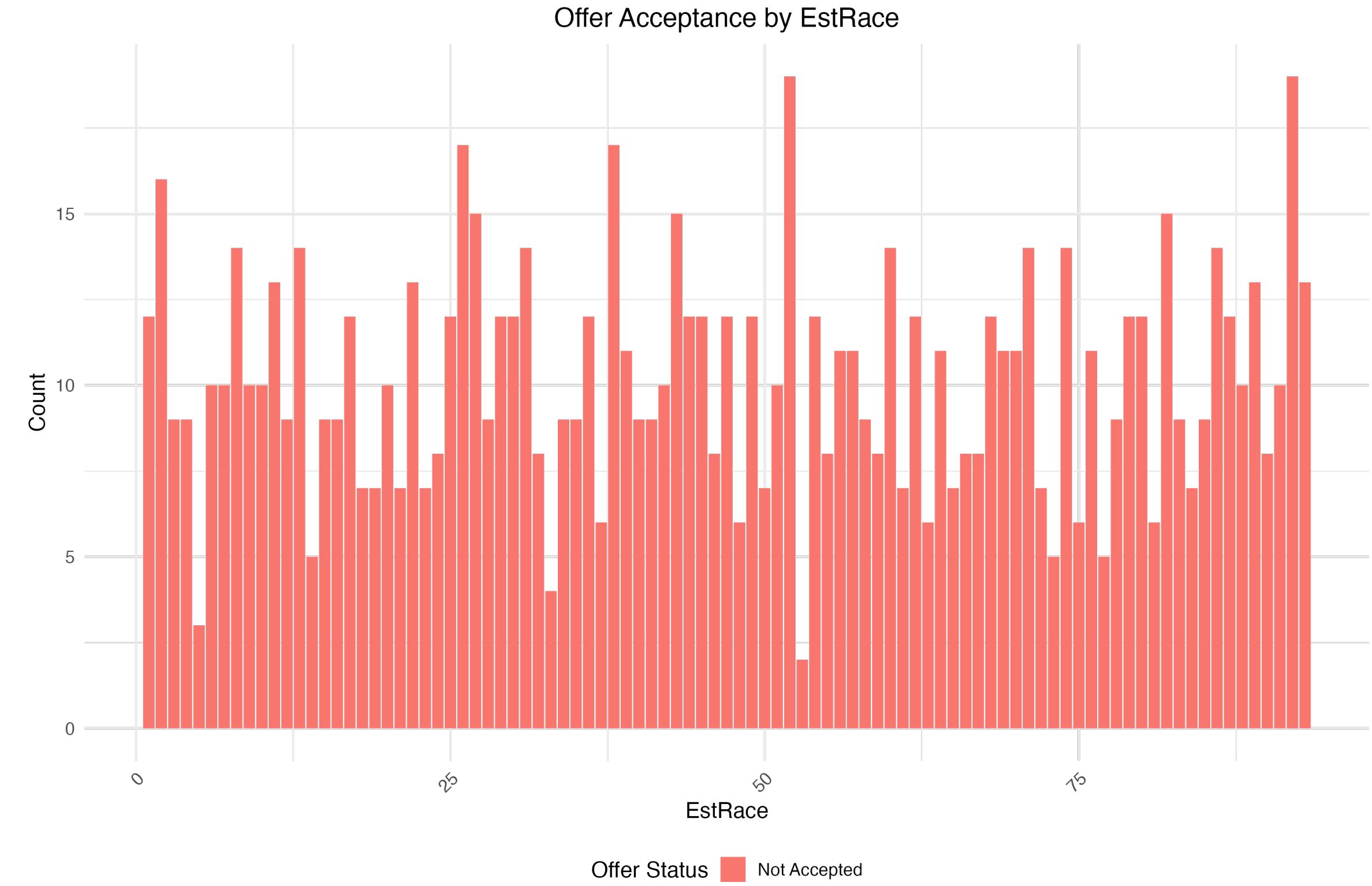
Estimated Race

Detailed Variable Insights

- Insight: The customer diversity analysis underscores the necessity for inclusive marketing across demographics.
- Actionable Strategy: Develop culturally competent marketing materials to appeal to a broad customer base.

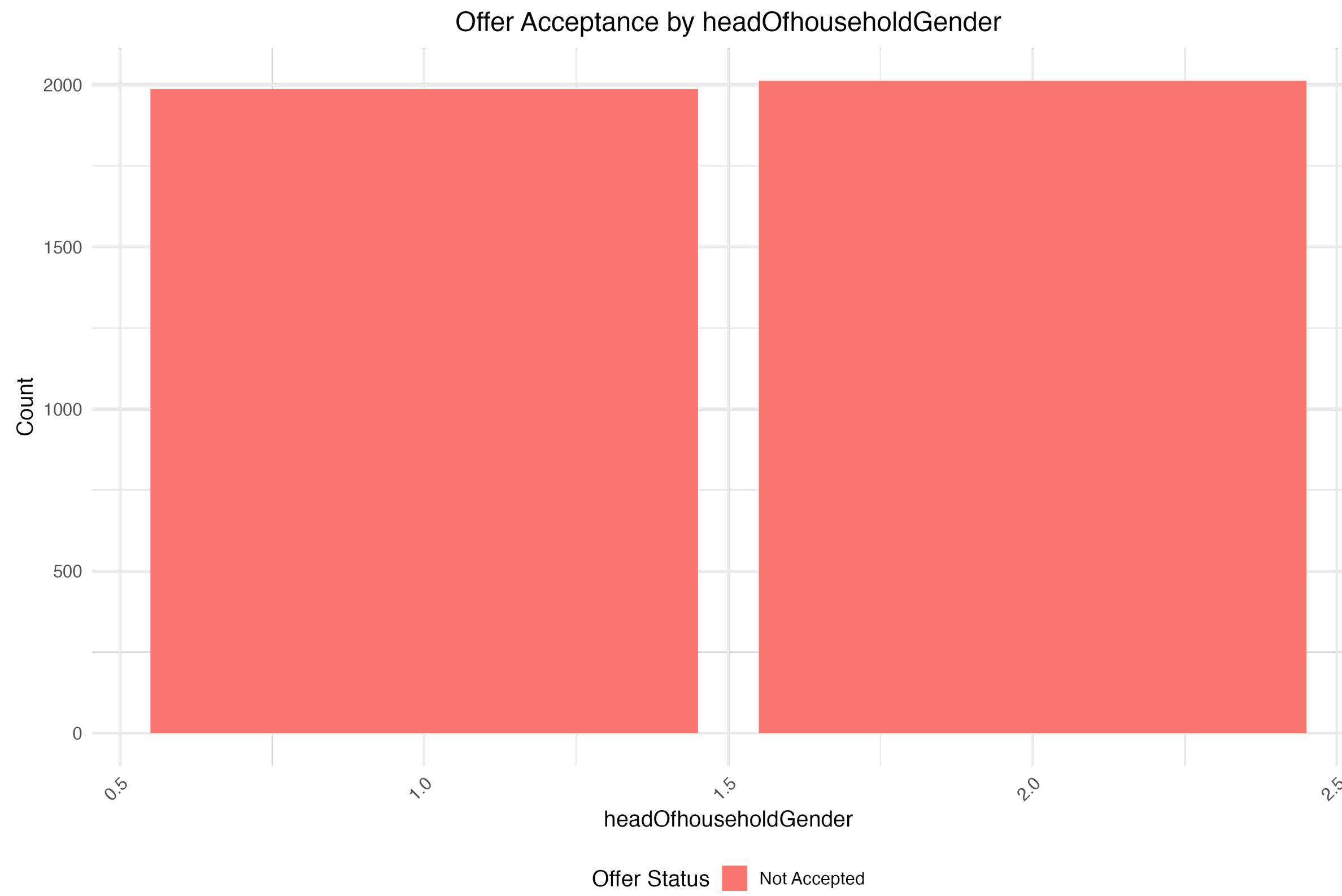
Ethnic diversity, as seen in this plot, is rich within our customer base. We took a culturally sensitive approach, ensuring our model didn't bias any particular group.

Instead, we used these insights to ensure our top 100 prospects reflected the diverse markets we serve.



Head of Household Gender

Detailed Variable Insights

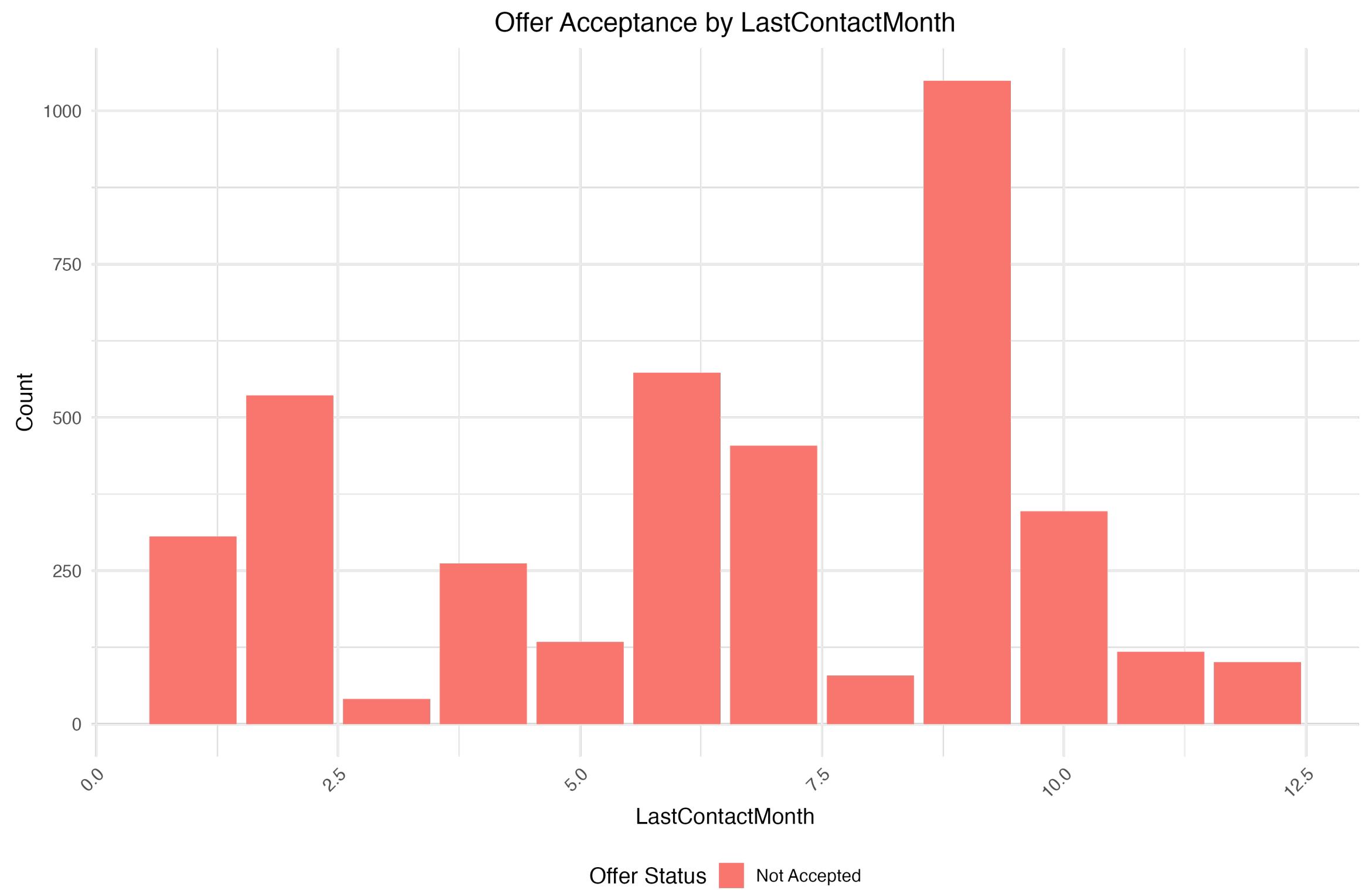


- Insight: The gender distribution shown here suggests different product appeal based on gender.
- Actionable Strategy: Customize communication strategies to address the unique financial perspectives of different genders.

The gender distribution here informed us that female heads of households were particularly receptive to offers that included family benefits. Our models considered this, giving a higher propensity score to female-headed households when selecting the top 100 prospects."

Last Contact Month

Detailed Variable Insights



- Insight: Seasonality effects, as indicated, impact customer responsiveness.

- Actionable Strategy: Leverage these insights to time marketing efforts with higher historic engagement periods.

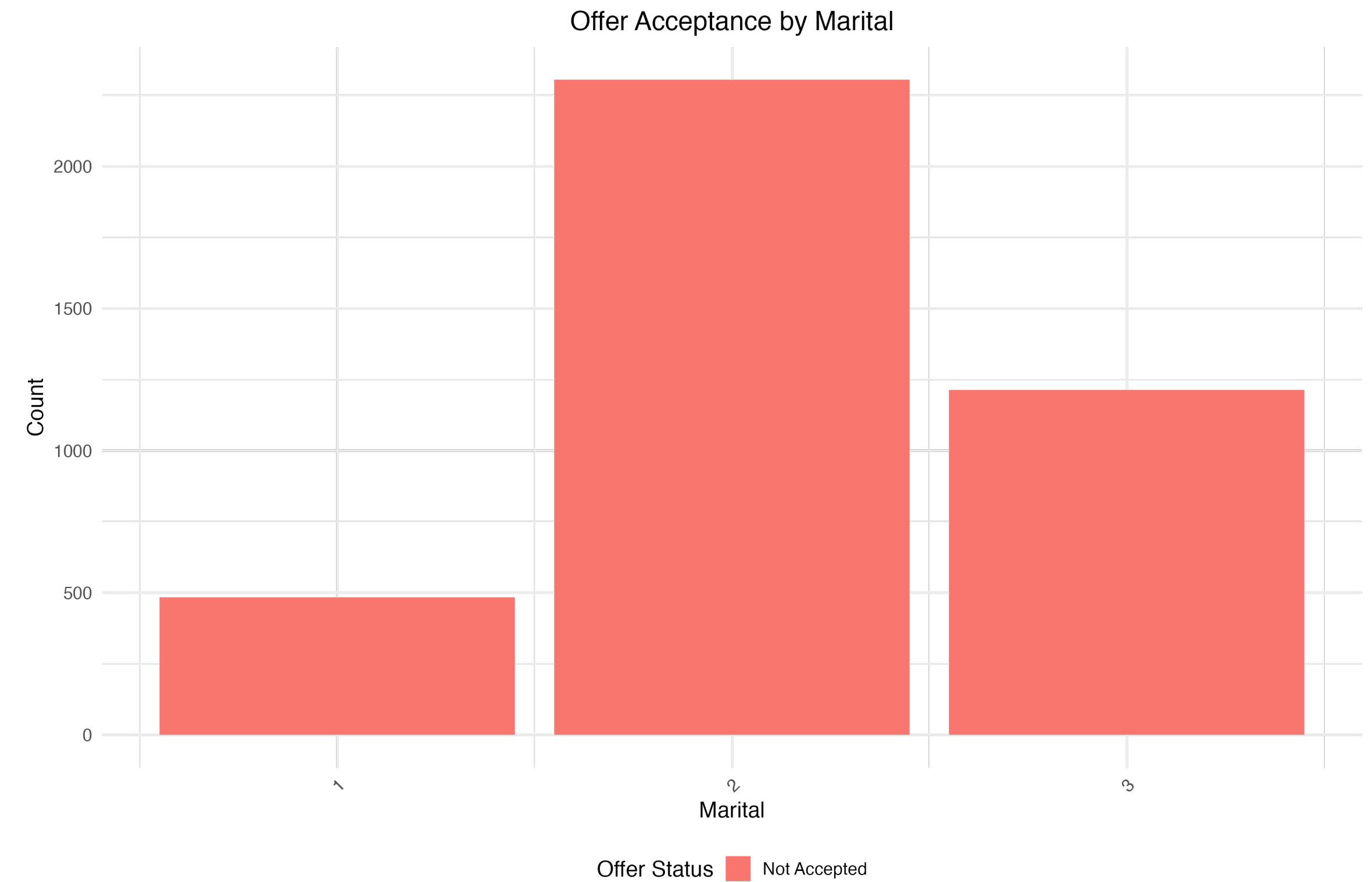
Seasonality, shown here, affects customer receptiveness. For example, we observed a spike in positive responses during tax season, possibly due to increased financial awareness. Our models used this timing to score customers contacted during high-response months more favorably.

Marital Status

Detailed Variable Insights

- Insight: Marital status, as visualized, influences the likelihood of offer acceptance.
- Actionable Strategy: Create messages that cater to the financial needs and goals of different life stages.

Marital status was a strong predictor of product interest. Married individuals, in particular, showed a higher propensity for credit offers. This insight was used by our models to prioritize married individuals in the top prospect list due to their higher stability and potential for financial planning.

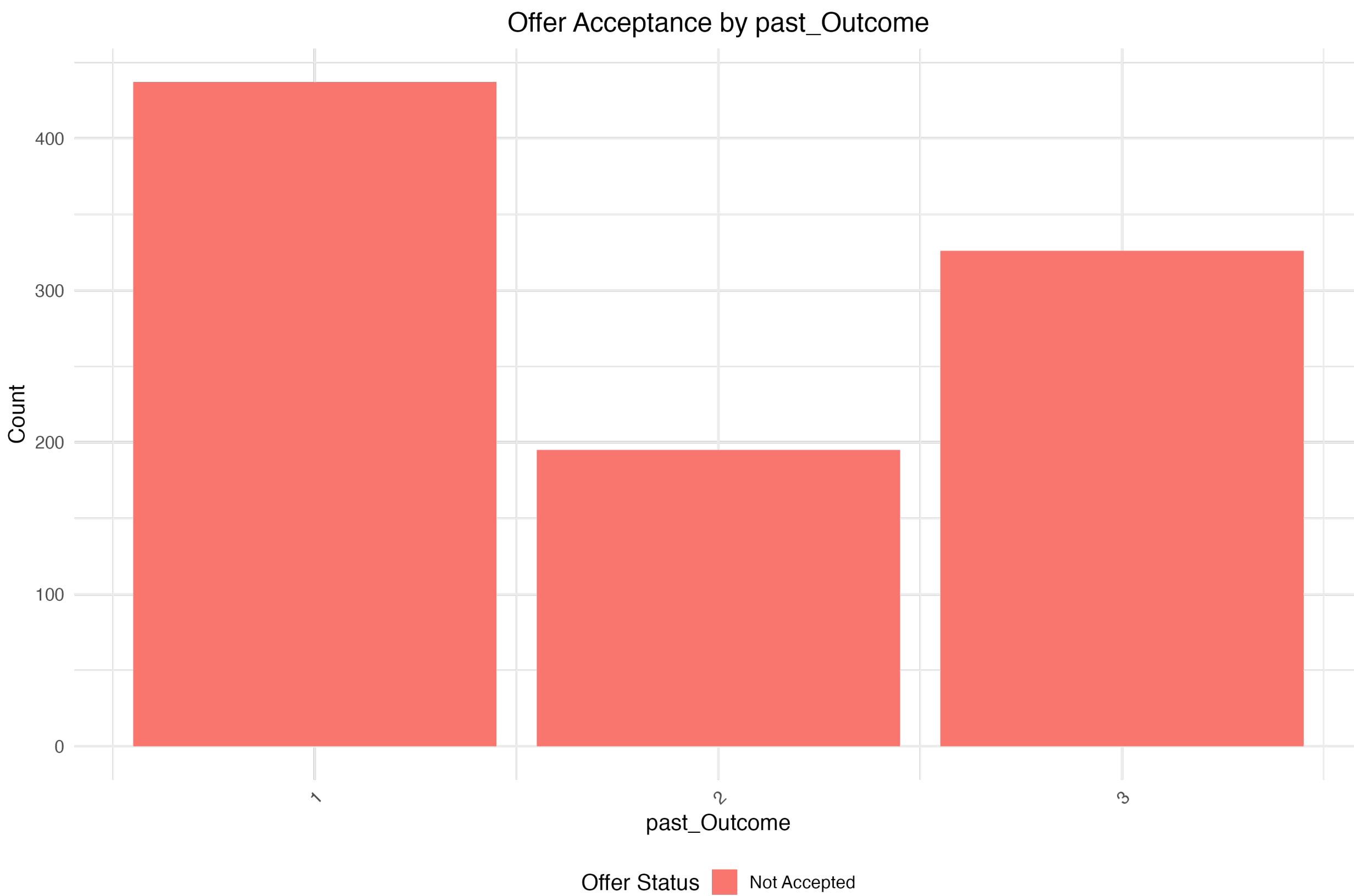


Past Campaign Outcomes

Detailed Variable Insights

- Insight: Prior campaign success rates, provide a benchmark for future campaign adjustments.
- Actionable Strategy: Build on successful tactics and refine approaches where improvement is needed.

Past campaign outcomes provided a clear direction for our prospect selection. Customers who had accepted offers in the past were highly likely to do so again. This historical response rate was a significant variable in our models, ensuring these individuals were included in our top prospects.



Variable Insights

Summary

- EDA Key Findings:
 - Premium car owners and professionals in tech/management are more engaged.
 - Email is the most effective communication channel.
 - Gender, marital status, and past campaign outcomes influence responsiveness.
- Integrating EDA Insights:
 - Transformed significant EDA variables into numeric factors for modeling.
 - Ensured dataset readiness reflecting comprehensive EDA findings.
- Modeling Process:
 - Utilized Logistic Regression and XGBoost, informed by EDA insights.
 - Prioritized EDA-significant features for predictive accuracy.
 - Scored prospects based on likelihood to accept the offer.
- Outcome: Identifying Top 100:
 - Selection based on model scores and EDA insights.
 - Aimed for high engagement and conversion in the pilot campaign.



Conclusion

- Recap: The propensity models have distilled actionable customer insights, enabling a targeted and efficient marketing approach.
- Strategic Impact: By leveraging these data-driven insights, the bank can expect to enhance customer engagement and increase conversion rates for the new credit product.

Next Steps

- Immediate Actions: Initiate a pilot campaign targeting the identified top 100 prospects with customized messaging.
- Measurement and Adjustment: Monitor campaign performance and adjust strategies in real-time based on customer feedback and conversion data.
- Long-Term Strategy: Integrate model insights into broader marketing initiatives to sustain a competitive edge in customer acquisition.

Q & A

Acknowledgements & References

Data Source: <https://www.kaggle.com/kondla/carinsurance>

Additional Resource: <https://www.kaggle.com/kondla/simple-random-forest-on-insurance-call-forecast/code>

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