

Predictive Analytics for Enhancing BBY's Loyalty Program

Bedding Bathing & Yonder (BBY)

Michael Charara | 12.2023

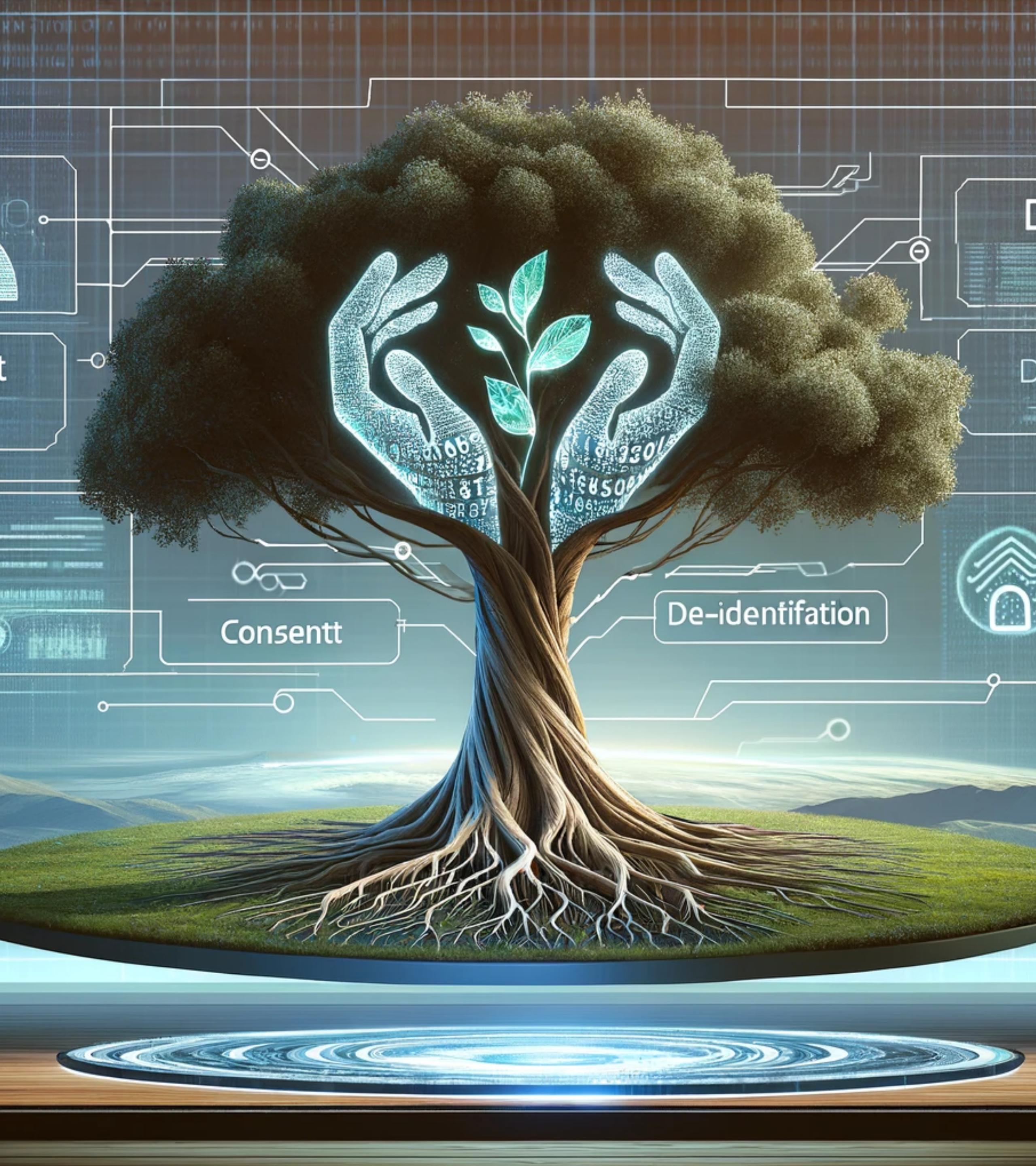
Introduction

- Welcome to BBY's Data-Driven Insight Presentation
- Harnessing Loyalty Program Data
- Maximizing Customer Value through Predictive Analytics



Ethical Considerations

- Commitment to Privacy: All data is anonymized and randomized to protect individual identities.
- Respect for Consent: Data synthesized from proprietary sets with permissions, ensuring ethical use.
- Integrity in Data Science: Geolocation attributes fully de-identified to prevent any potential misuse.





AGENDA

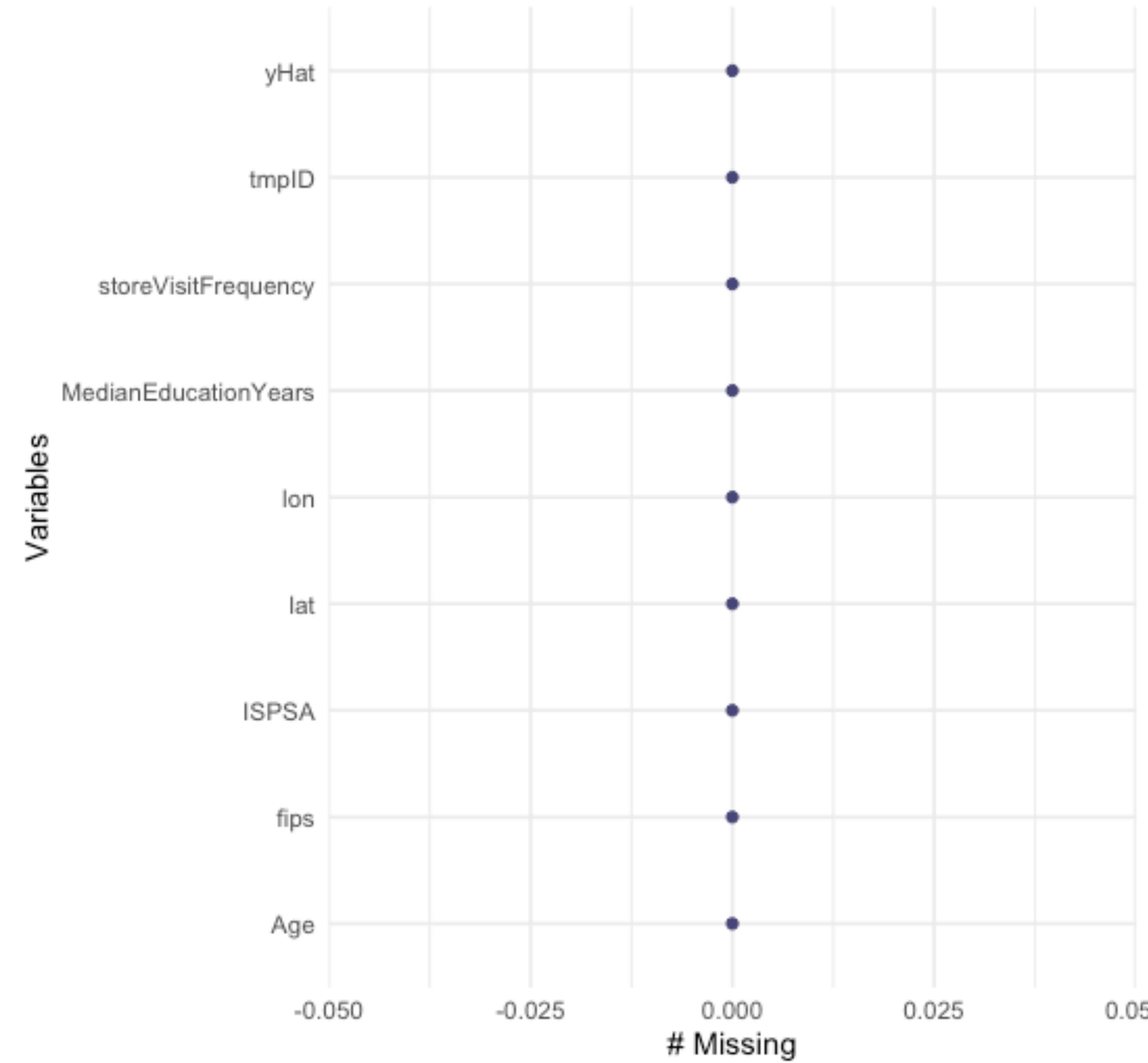
- Data Overview
- Data Completeness
- Exploratory Data Analysis
- Store Visit Frequency
- Spending Distribution
- Feature Importance
- Model Comparison
- Model Implications
- Conclusion and Q&A

Data Overview



- 15,000 Households, Multi-Dimensional Analysis
- Key Variables: Purchasing Habits, Donation History, Magazine Subscriptions
- Objective: Predictive Modelling for Enhancing Customer Experience

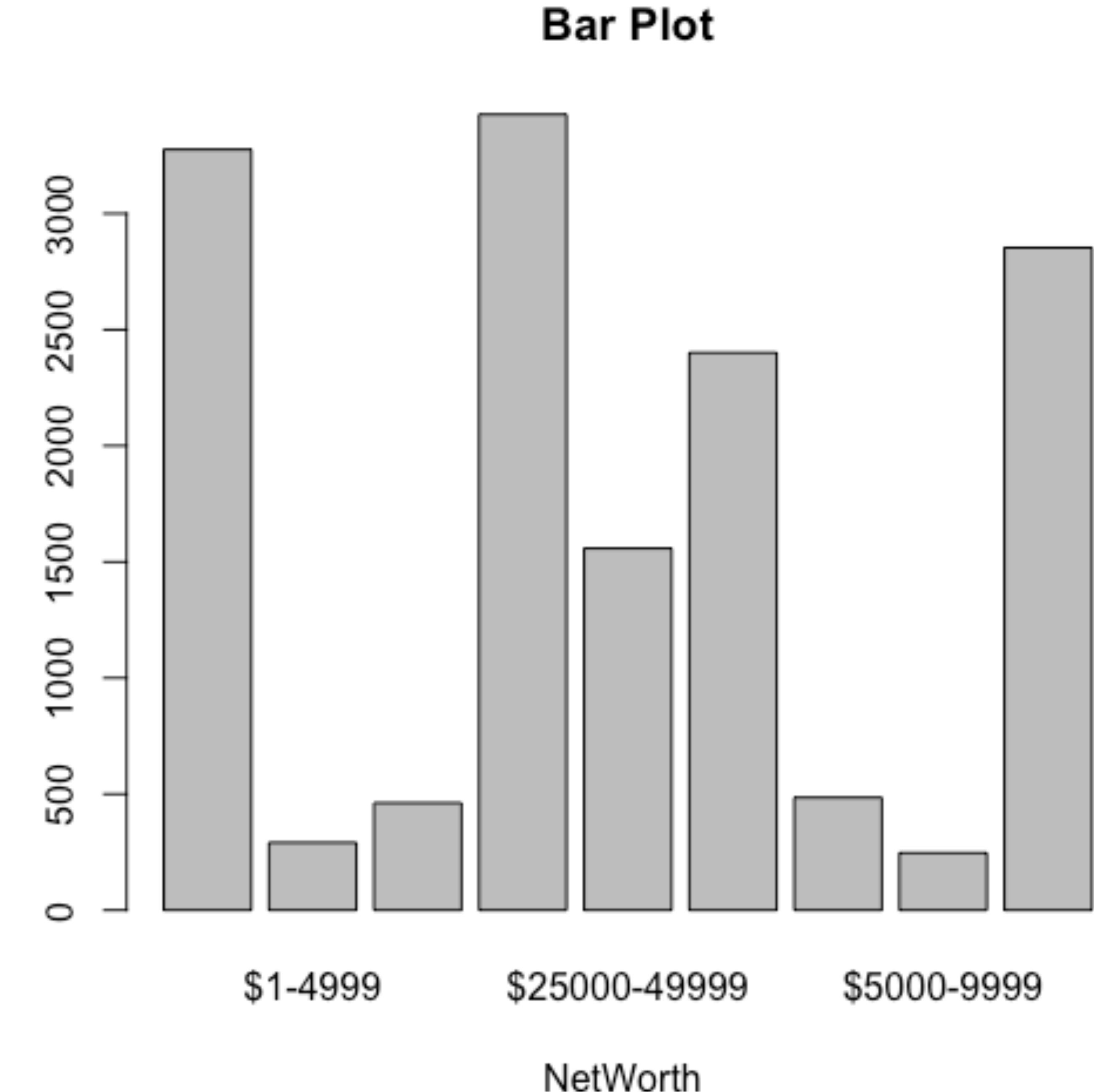
Data Completeness



- High Level of Data Completeness and Integrity
- Minimal Missing Values, High Dataset Robustness
- Foundation for Accurate Predictive Modelling

Exploratory Data Analysis - Net Worth

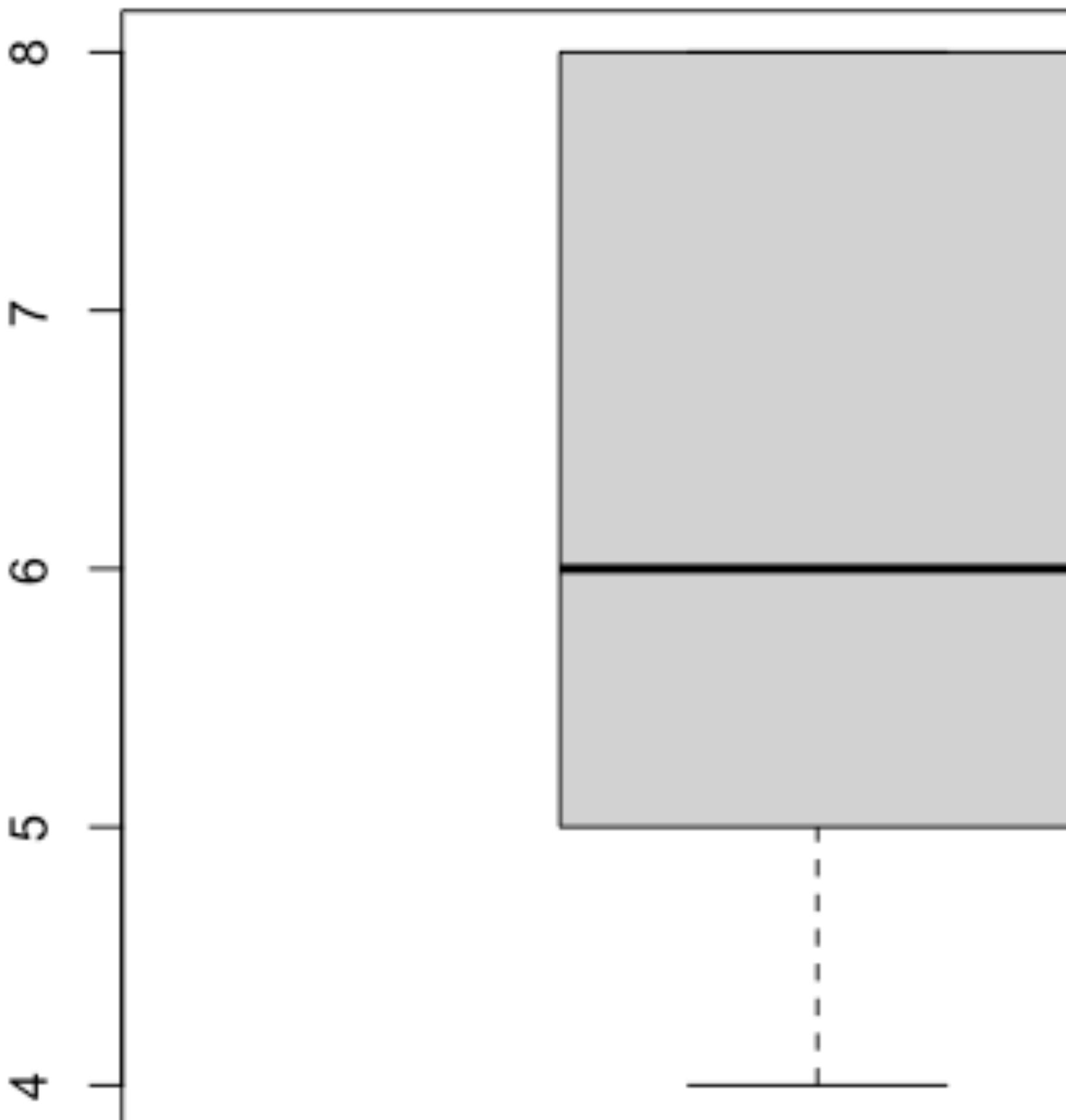
- Wealth Distribution Among Customers
- Identifying Target Segments for Marketing Strategies
- Insight: Relationship between Net Worth and Spending Habits



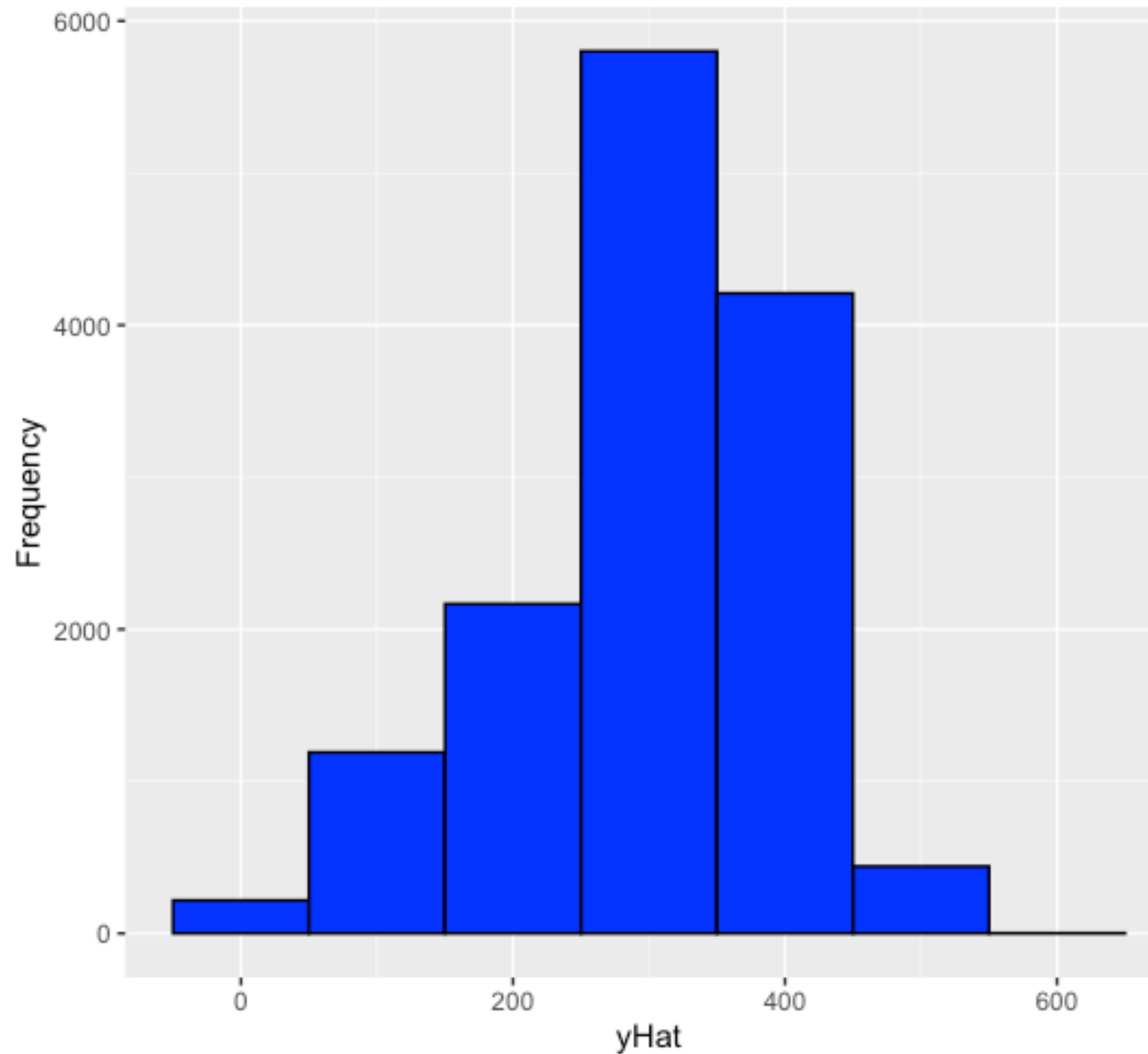
Store Visit Frequency Analysis

- Analysis of Customer Store Visit Patterns
- Opportunities to Improve Customer In-Store Experience
- Insight: Frequency of Visits Correlated with Spending

Boxplot



Distribution of average household spend with BBY in USD

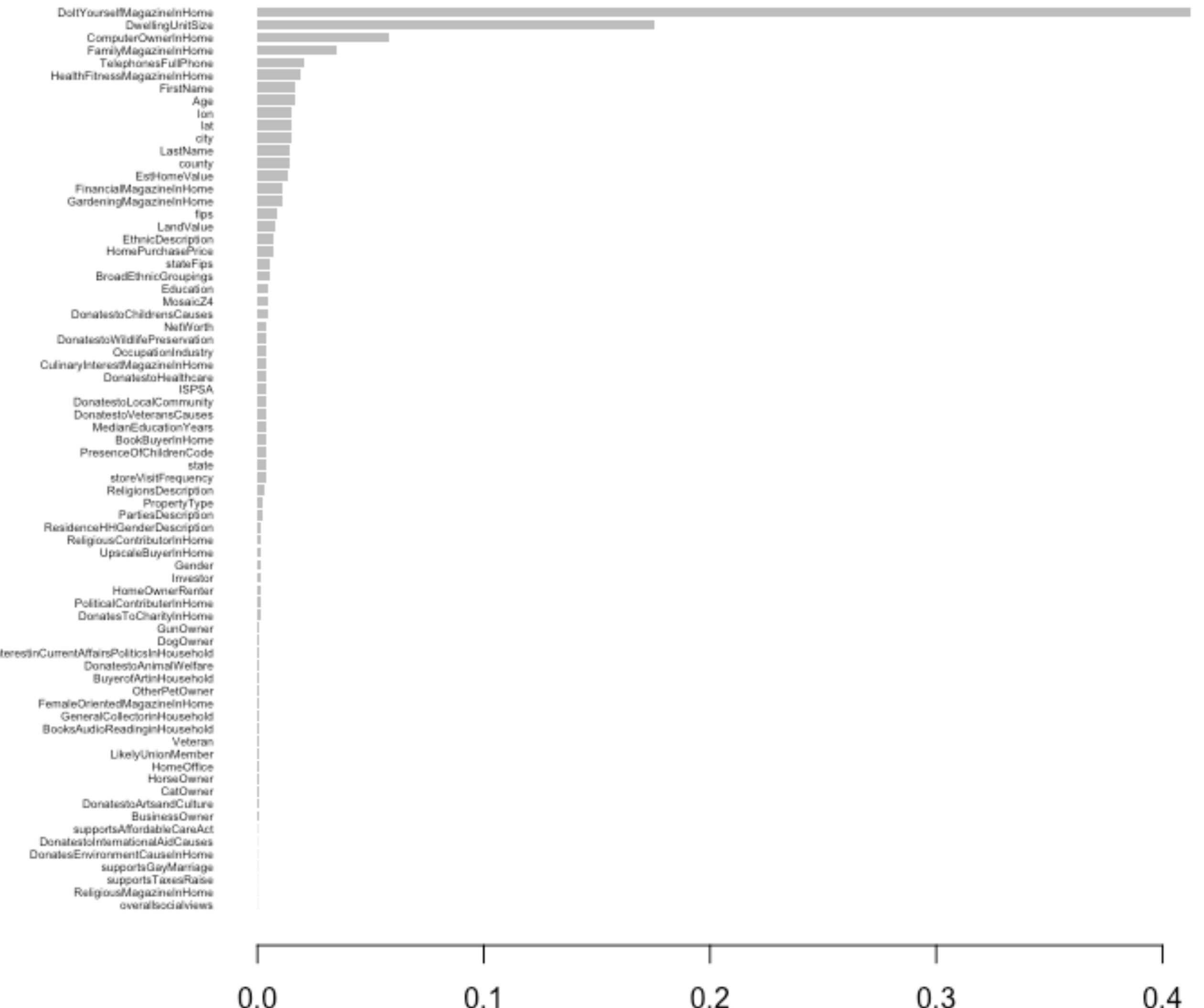


Spending Distribution

- Household Spend Distribution with BBY
- Insights for Customer Segmentation and Targeting
- Understanding Key Spending Patterns

Feature Importance

- Key Predictive Variables Identified
- Influencers: Magazine Subscriptions & DIY Projects
- Guiding Marketing Content Curation and Offers



Model Comparison

- Comparative Analysis: XGBoost, Random Forest, and Linear Regression
- Metrics Used: RMSE Across Training and Test Sets
- Insight: Random Forest Outperforms in Predictive Consistency

Model Comparison Results

Model	Train_RMSE	Test_RMSE	Prospect_Predictions
XGBoost	42.26481	73.81260	301.2789
Random Forest	28.38174	64.64766	300.7906
Linear Regression	83.32191	83.98427	300.5562

Predict future household spend



Model Implications and Next Steps

- Finalized Model to Predict Future Household Spend
- Strategic Offer Tailoring Based on Predicted Spend
- Driving Campaign Design with Data Predictions



Conclusion and Questions

- Data-Driven Approach for Strategic Marketing
- Deep Customer Lifestyle Insights Shaping Future Strategies
- Open Discussion and Q&A Session

References

- Pexels Room Image: <https://www.pexels.com/photo/person-showing-bedroom-interior-237371/>
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