

# Credit Card Spending Behavior Analysis

A deep dive into customer  
loyalty, transaction trends,  
and forecasting



# Spenderlytics Overview

- Our software company specializes in analyzing credit card transaction data to provide actionable insights, accurate forecasting, and intelligent dashboards that help companies make data-driven decisions.
- Today, we will present how we can use your credit card transaction data to uncover trends, improve customer targeting, and forecast spending behavior.





# Founding Team

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Asif Khan

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Jason Brooks

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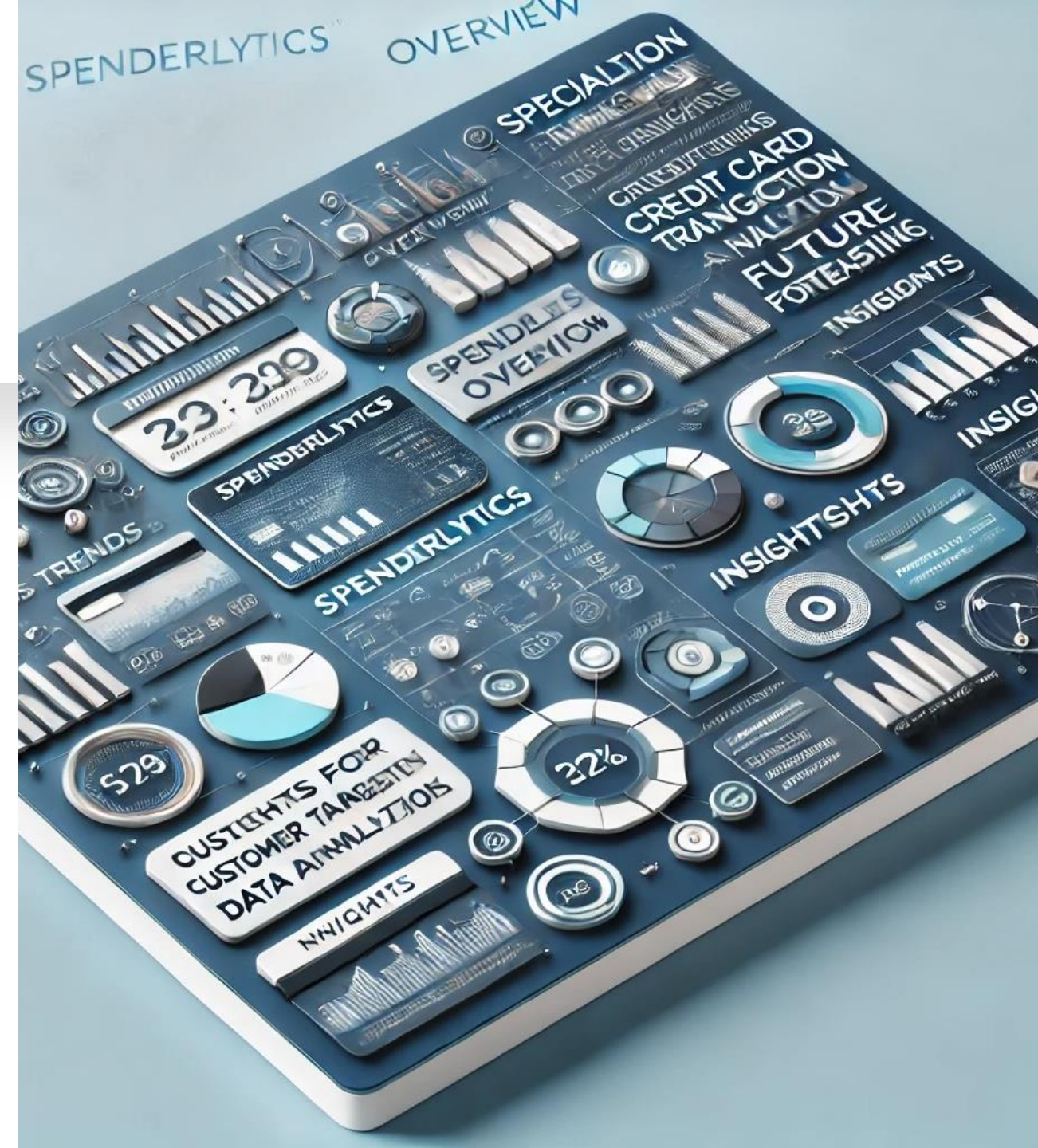
Amit Gaikwad

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Kade Thomas

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Simranpreet Saini





- **Data Source:**
  - **Kaggle** (Credit Card Transactions Dataset)
- **Data Columns:**
  - Date: Transaction date & Time
  - Credit Card Number
  - Amount: Transaction amount.
  - Merchant
  - Category: Spending category (e.g., Groceries, Dining, Travel, etc.)
  - Geo Information: State/City/Population
  - User Info: Gender/Job/Age
- **Data Size:**
  - 1.5 years
  - 983 Unique Credit Cards
  - 1.29M records



# Key Analysis Areas

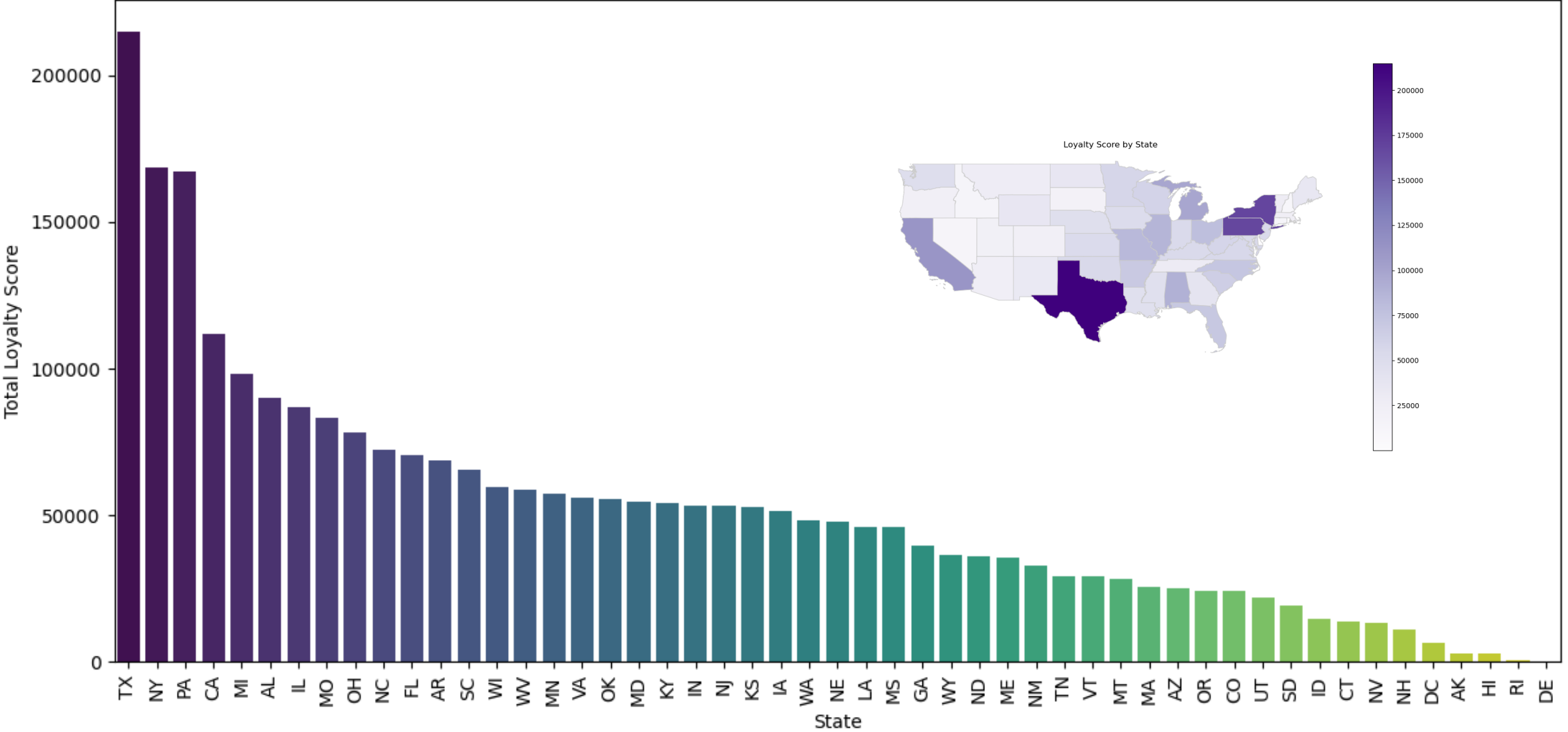




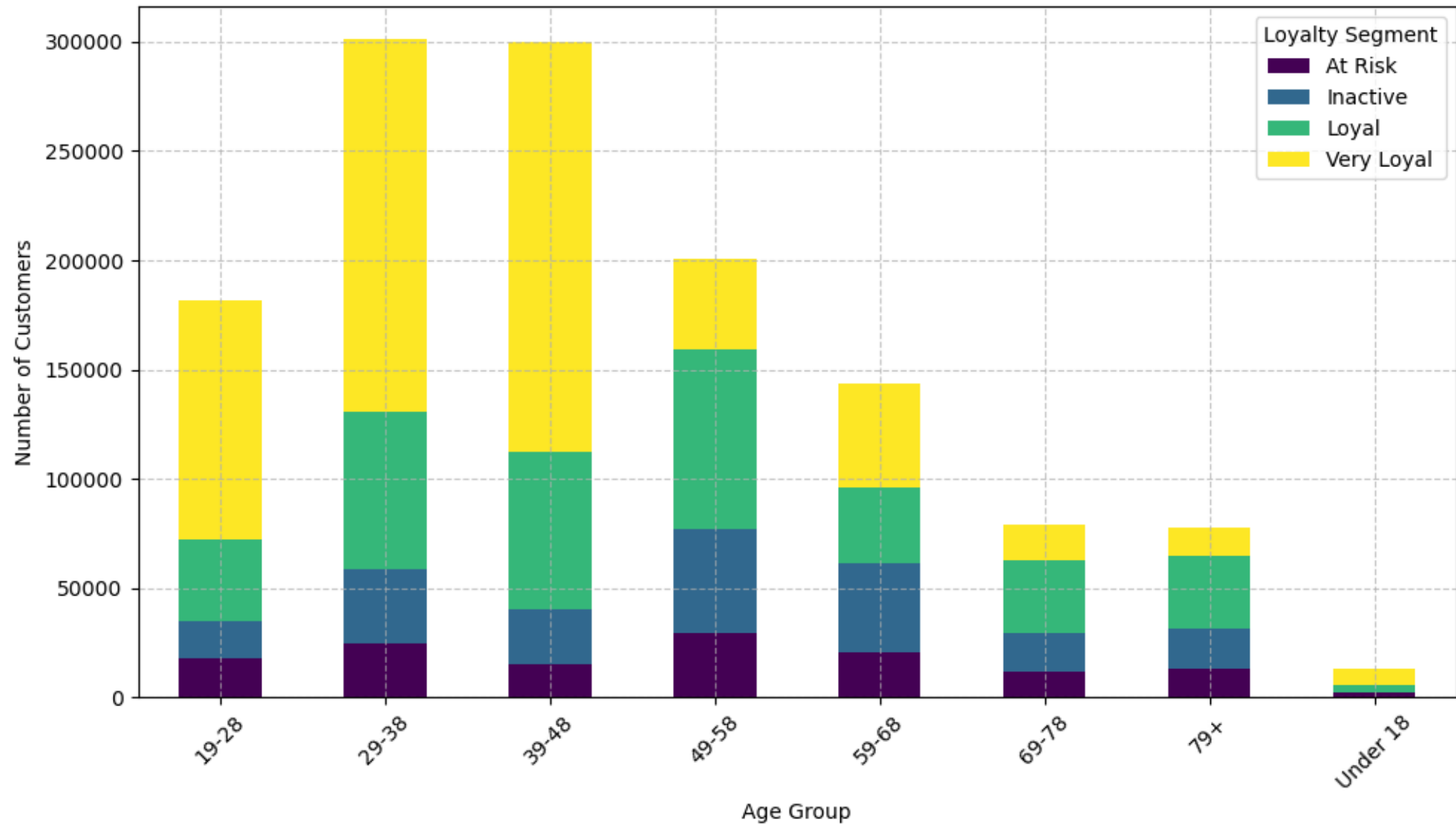
# Customer Loyalty Analysis



Loyalty Score by State (Sorted in Descending Order)

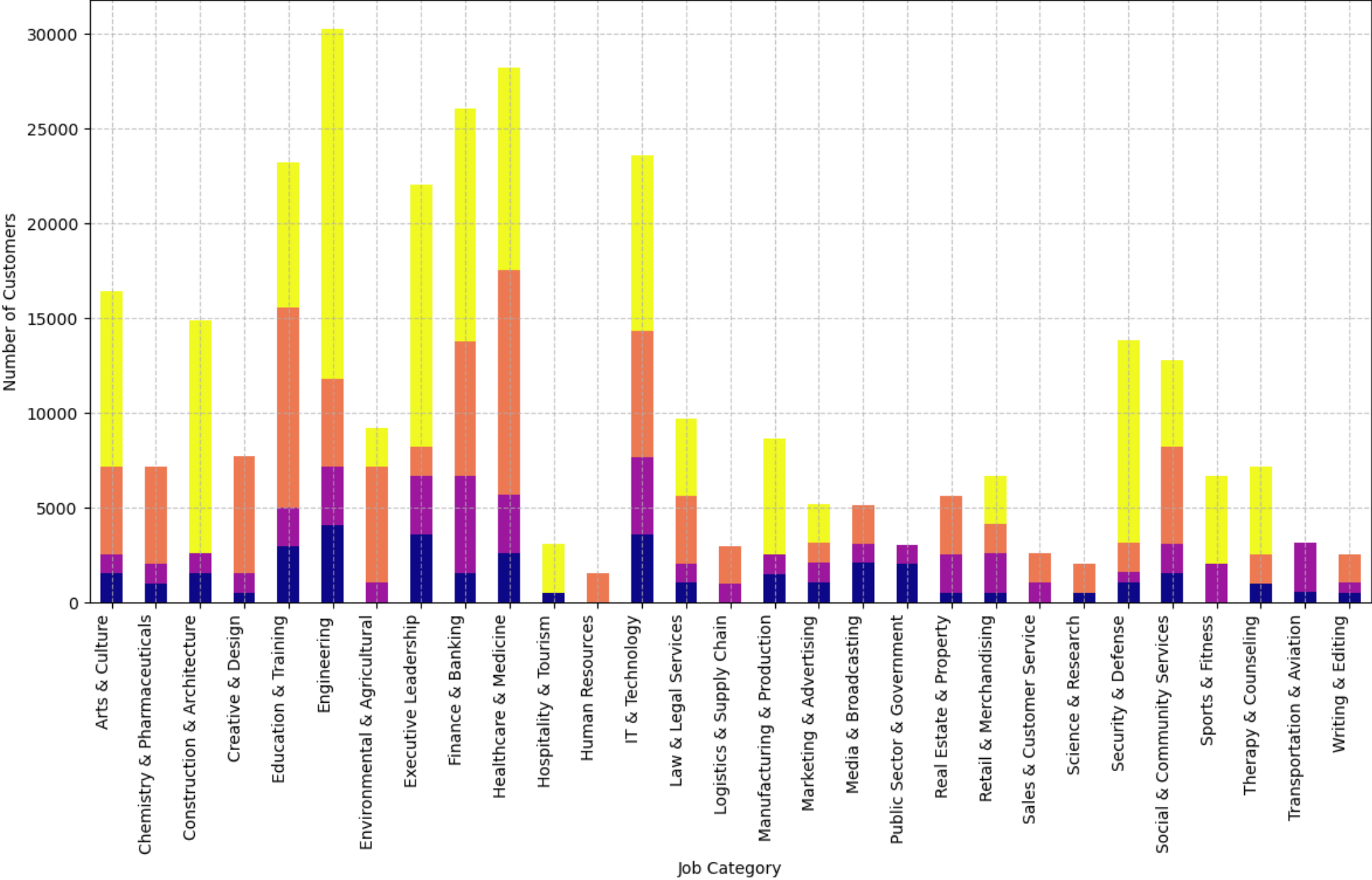


Loyalty Segments by Age Group





Loyalty Segments by Job Category (Excluding Miscellaneous)



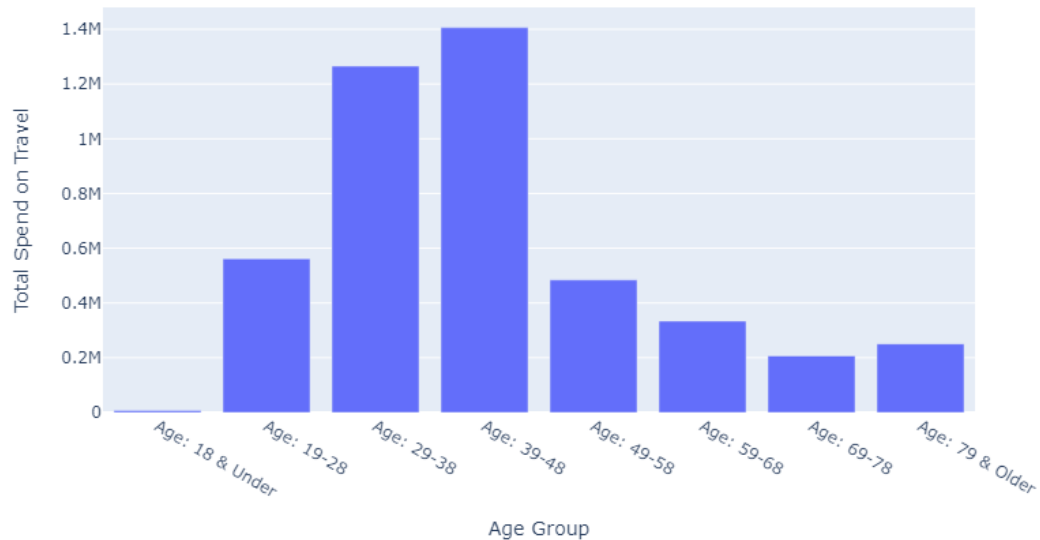
# Age Segmentation Analysis



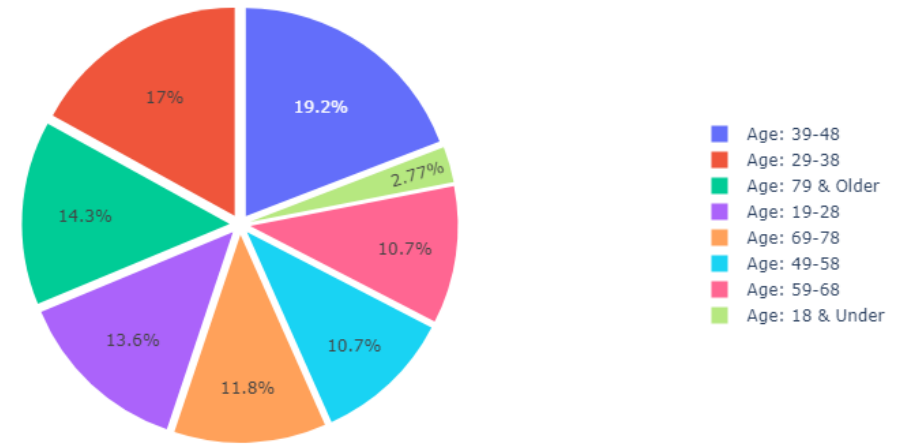


# Travel Spend Opportunities

Total Spending on Travel by Age Group

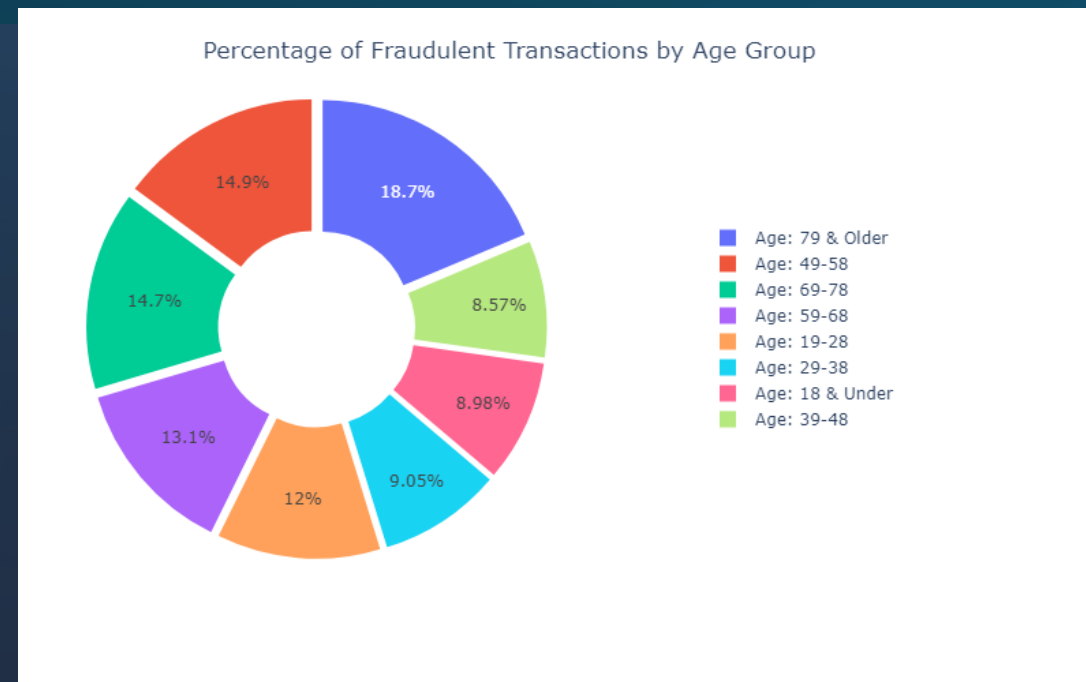
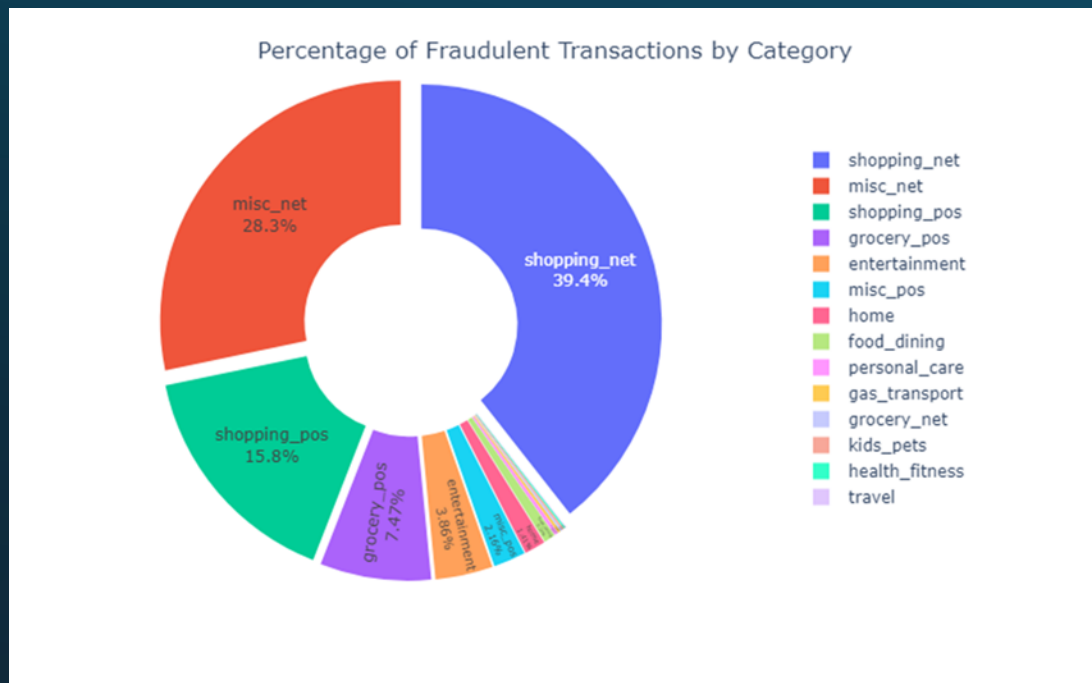


Percentage of Travel Spending as Part of Total Spending by Age Group



- Target Ages : 49-58, 58-68, 69-78
- Tailored Reward Points Incentives: 3X points on travel spend
- Complimentary Travel Insurance
- Family Bonus : 3+ more airline ticket purchases – 5000 points
- Health and Wellness Travel Perks : Partner with Spa Resorts, Health Retreats, Medical Travel

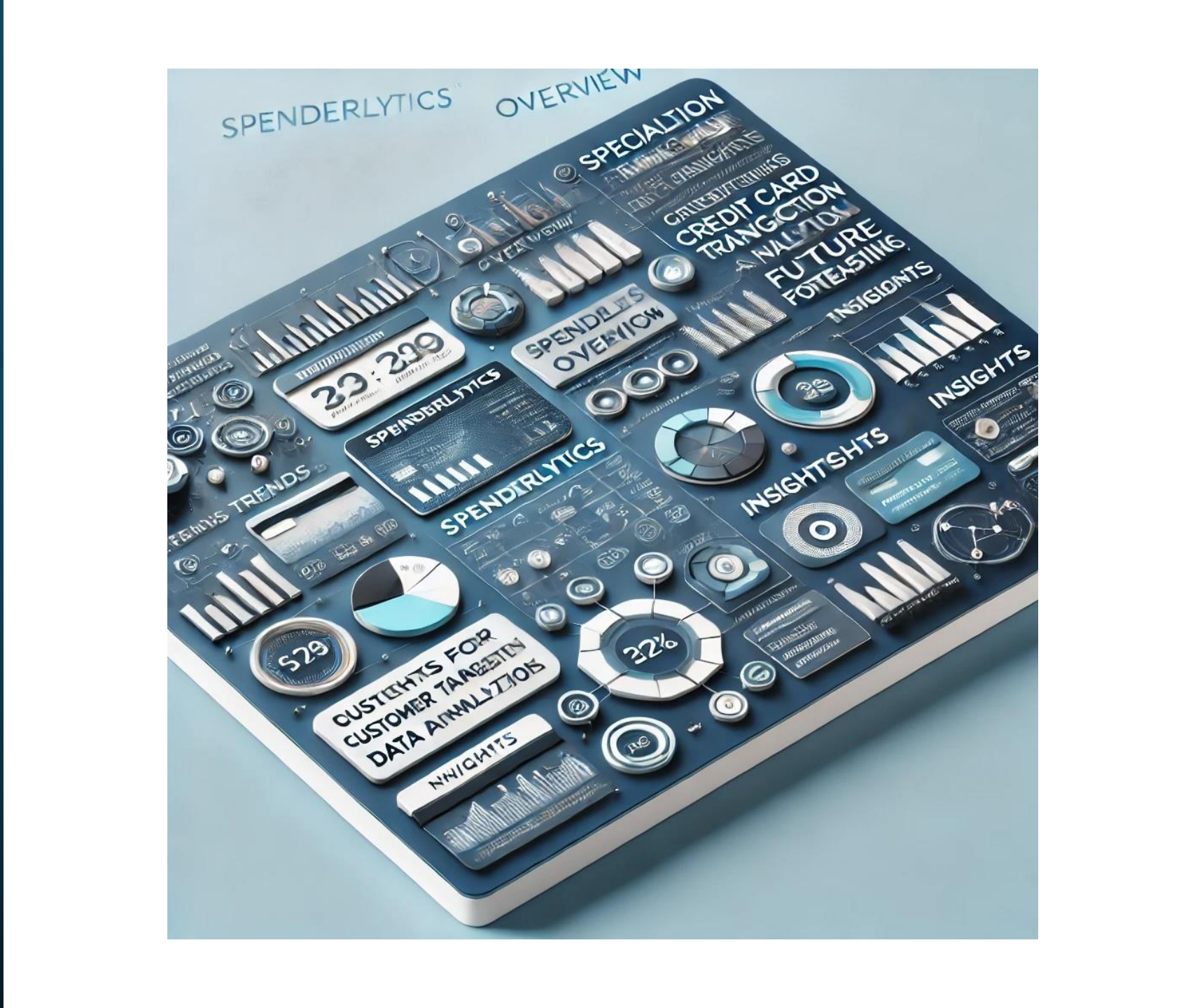
# Fraud Among the Ages



- Target Ages and Categories: 79 & Older – 67.7% Fraud transactions online shopping (misc\_net, shopping\_net)
- Increase security of online shopping
  - Dynamic MFA
  - Biometrics
  - Make OTP mandatory
  - Tokenization
  - AI “Smart Guard” – analyzing spending patterns in real time

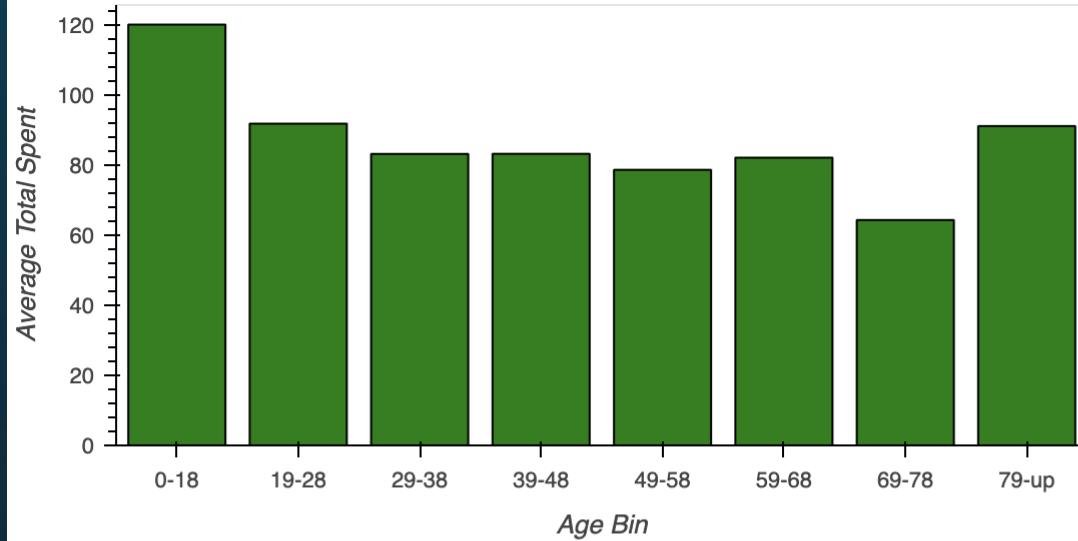


# Marketing Opportunities & Fraud Forecasting

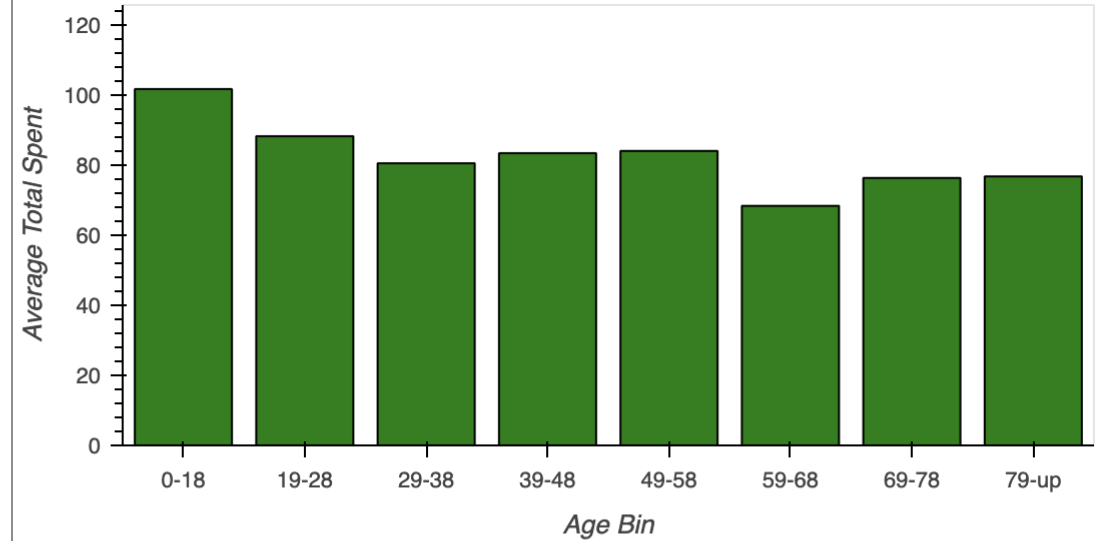


# Marketing Opportunities

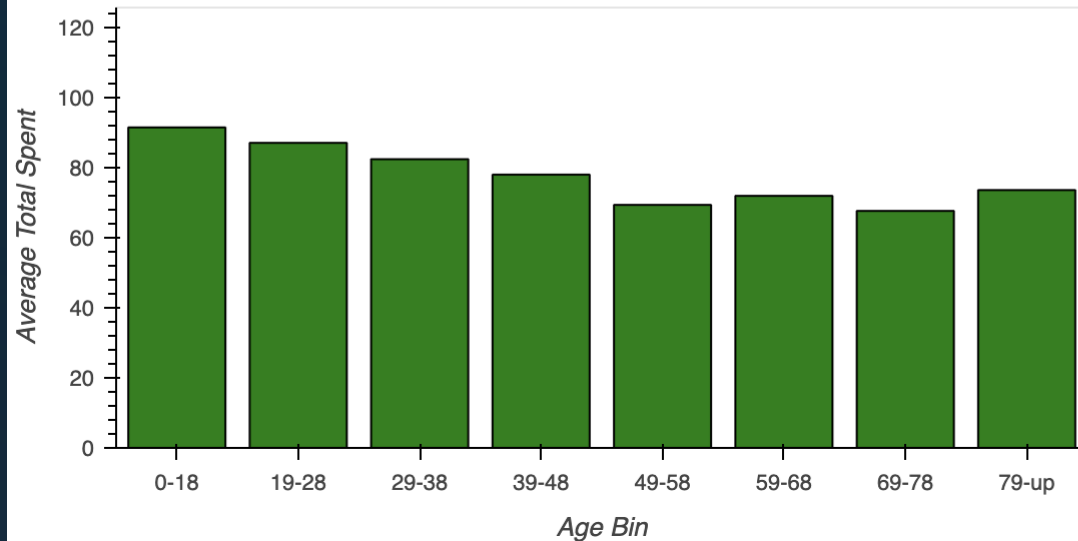
**Average Spending by Age Bin for misc\_net in Winter**



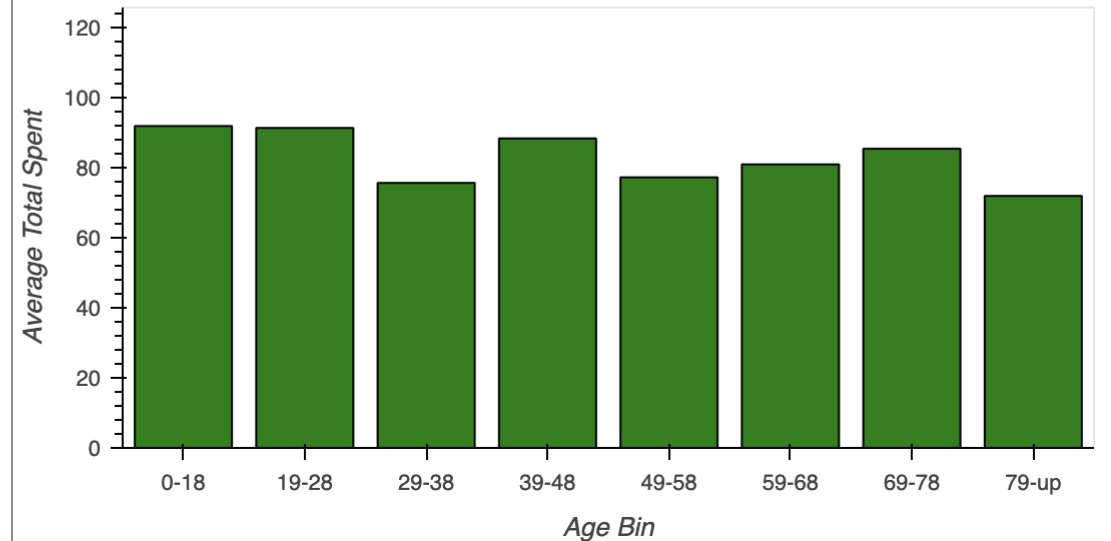
**Average Spending by Age Bin for misc\_net in Spring**



**Average Spending by Age Bin for misc\_net in Summer**



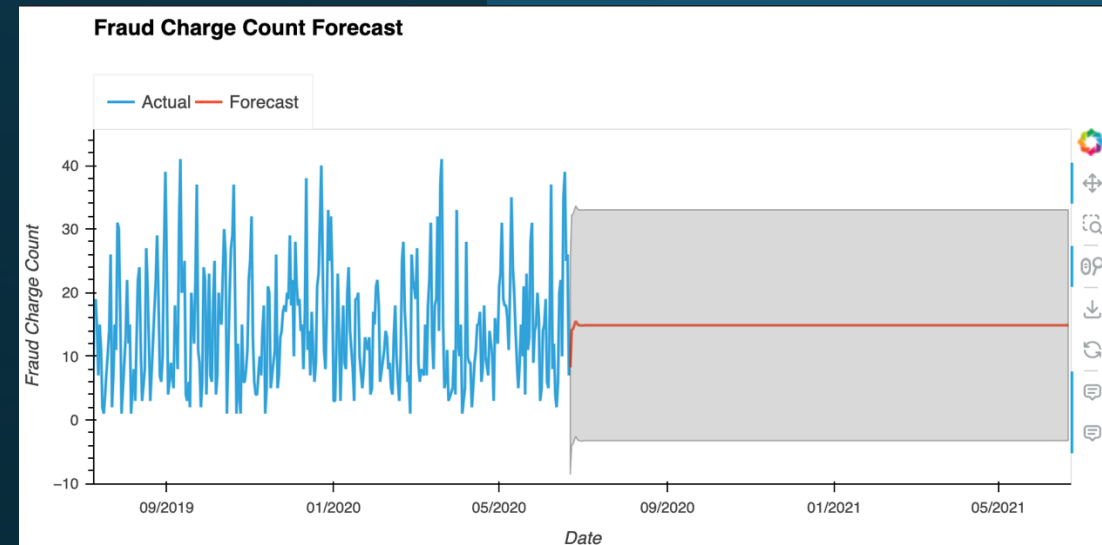
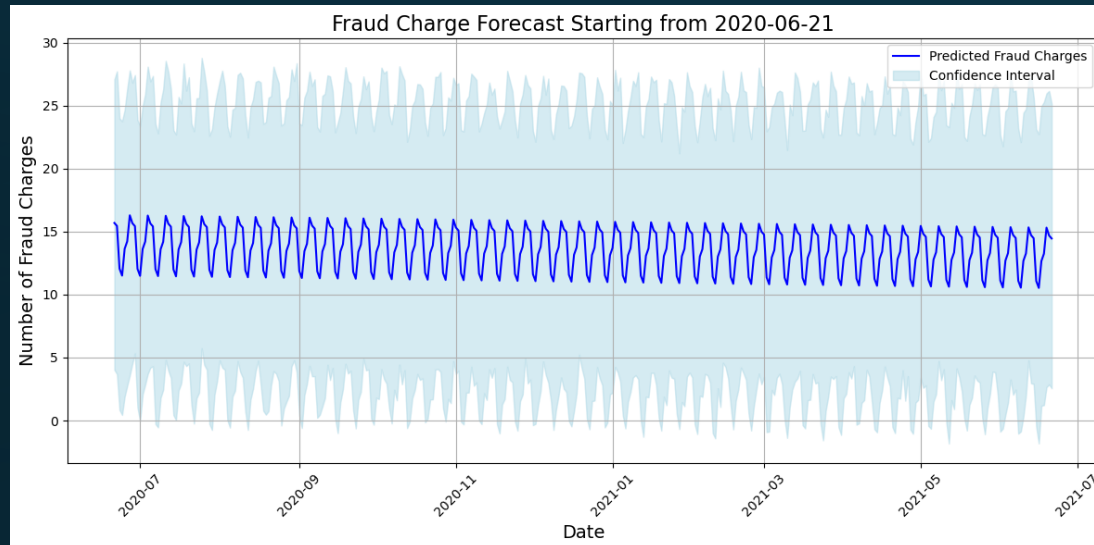
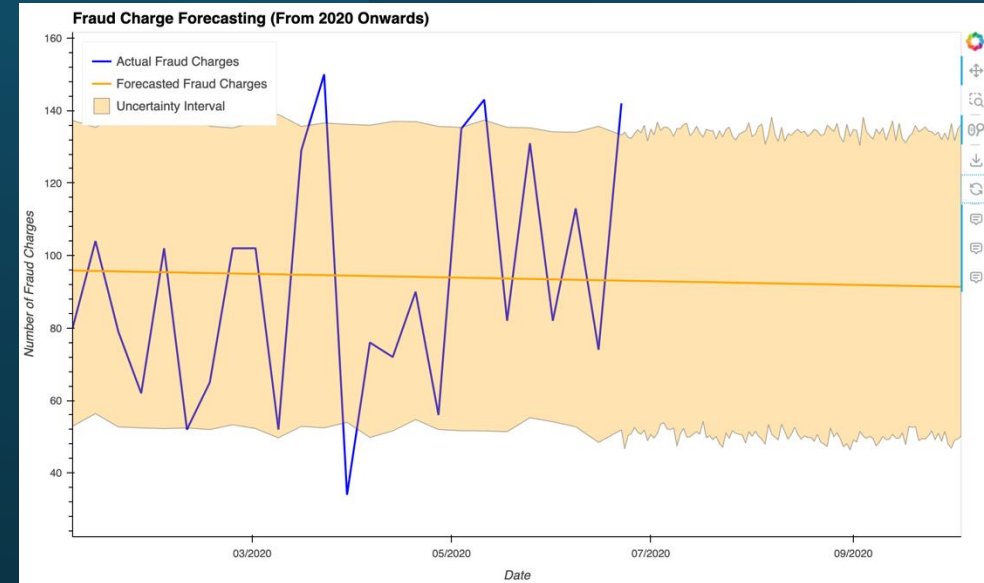
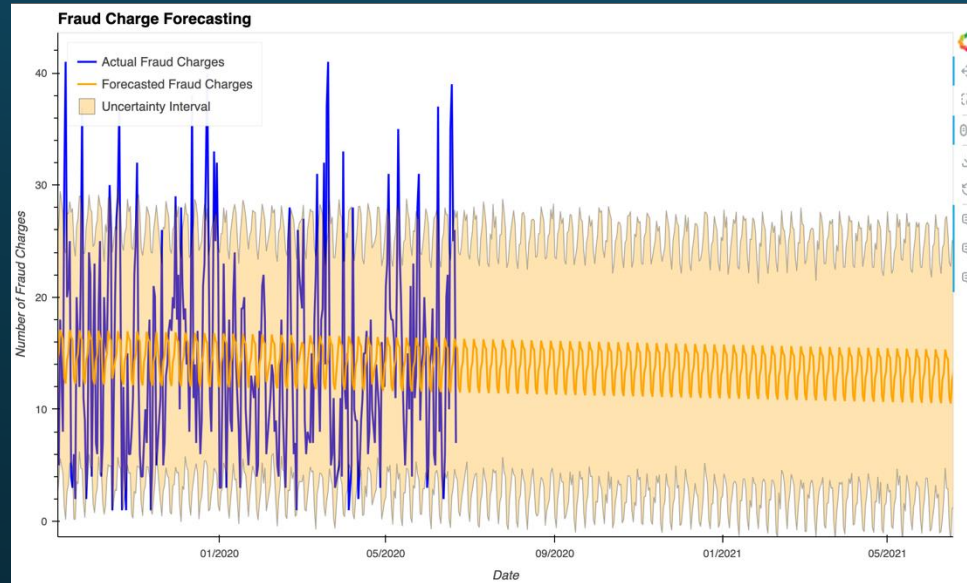
**Average Spending by Age Bin for misc\_net in Fall**





# Fraud Forecast

- Neural Prophet, Prophet, and ARIMA models
- Excessive outliers
- Daily fraud range:



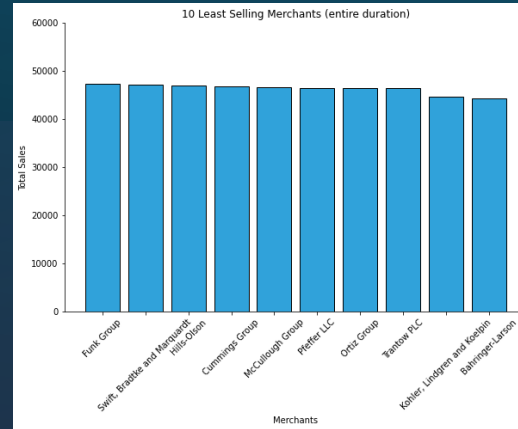
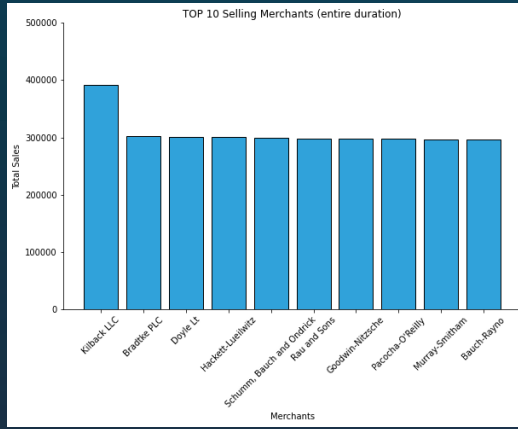
# Spending Behavior by Merchants





# Merchant Sales Performance Overview

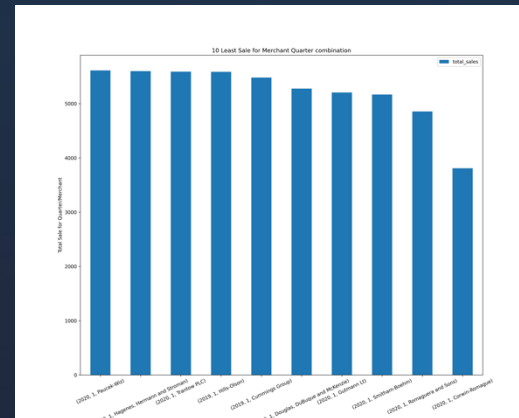
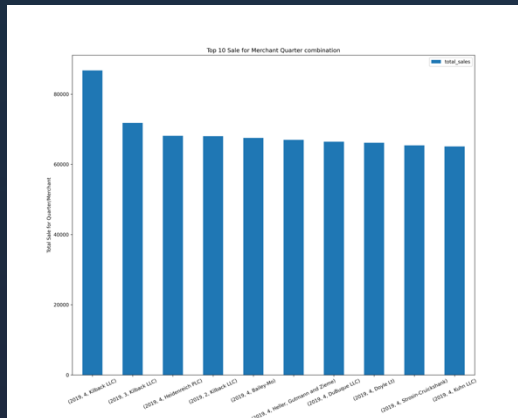
## Top and Least Ten Selling Merchants for entire duration.



- Market Trends and Insights

- Potential Market Trends: Identify emerging trends based on sales data.

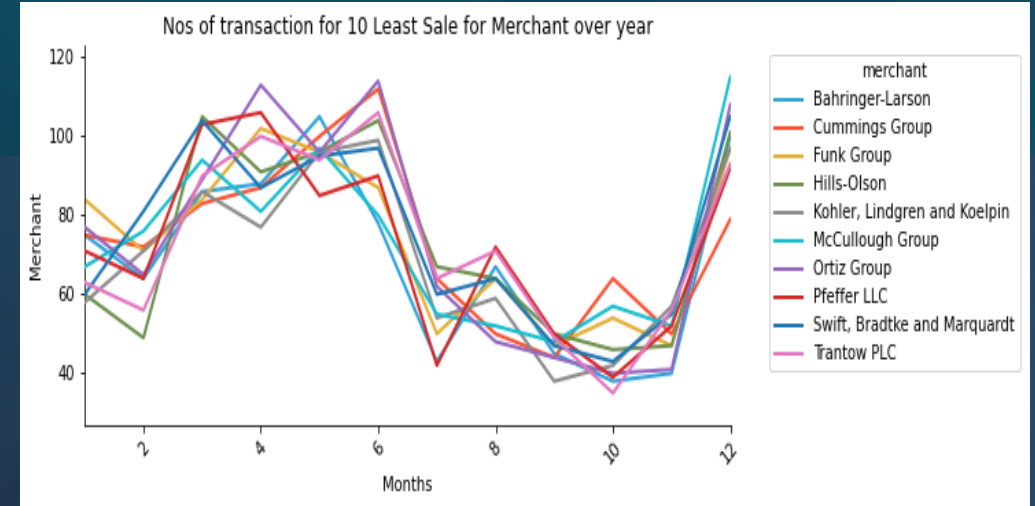
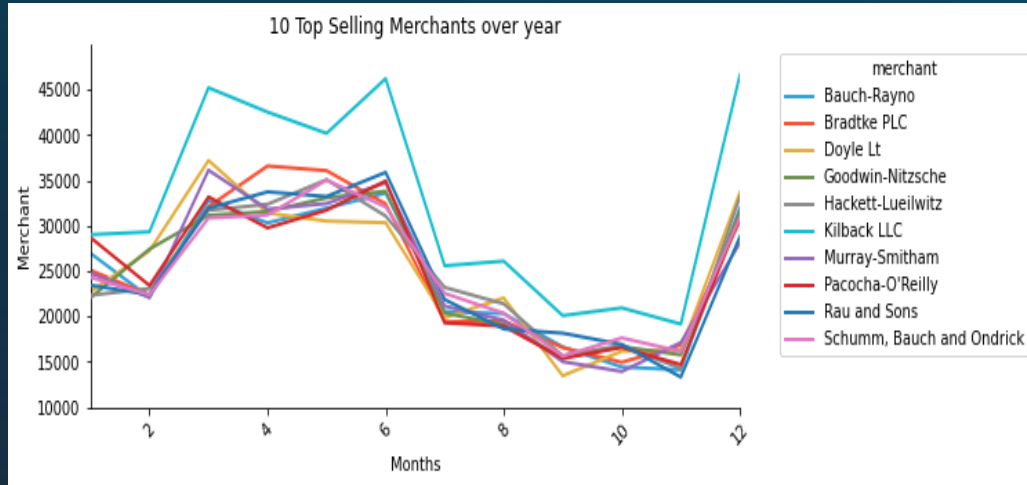
## Top and Least Ten Selling Merchants for quarter.



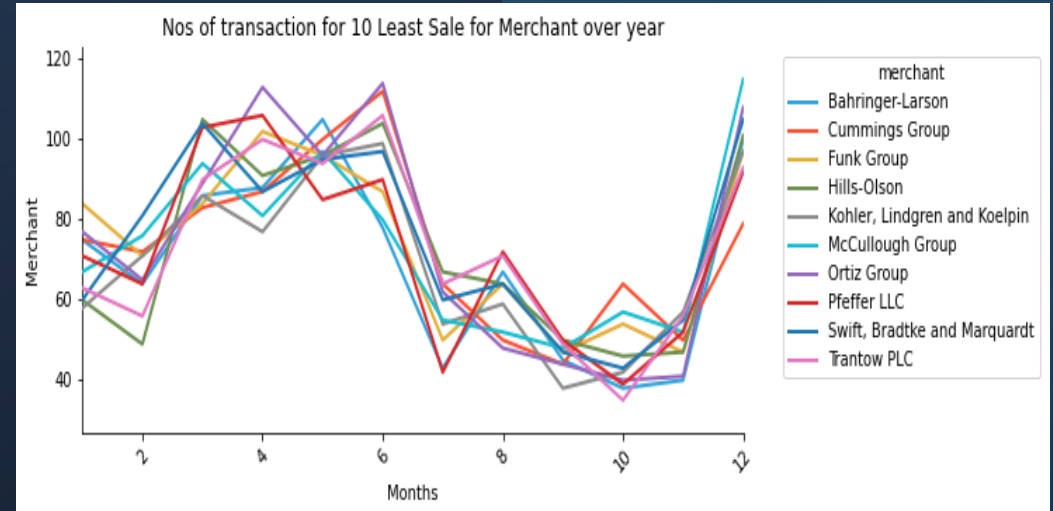
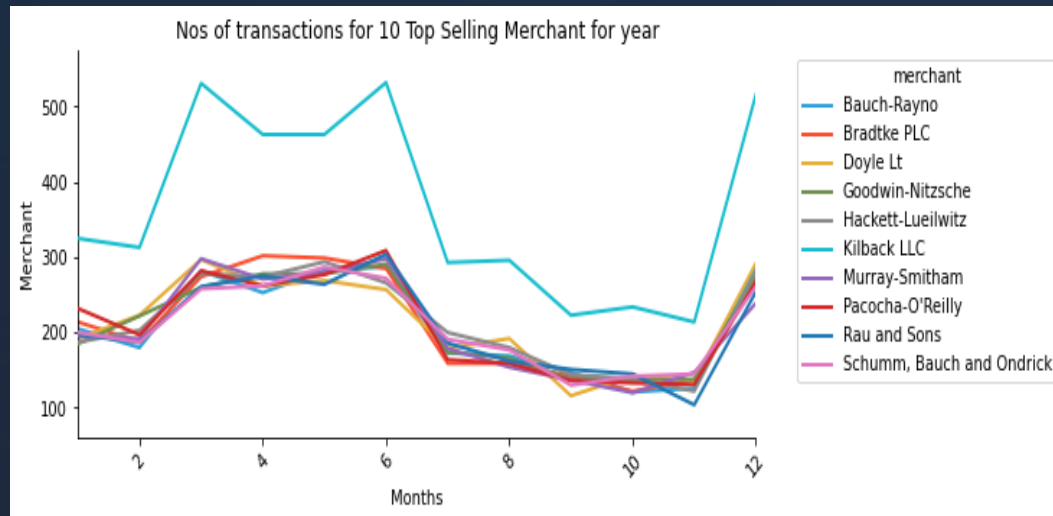
- Areas of Improvement: Strategies for lower-performing merchants.
- Strategic Partnerships: Form partnerships with top-performing merchants and provide support to lower-performing ones

# Merchant Sales Performance Overview (contd.)

## Top and Least Ten Selling Merchants for year



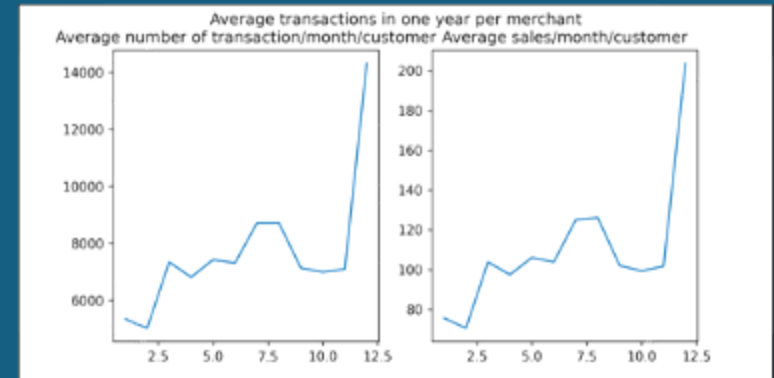
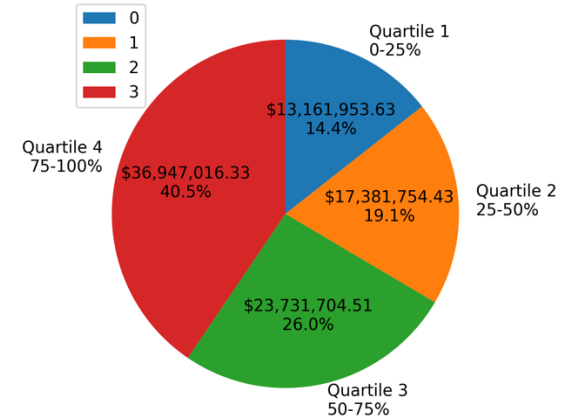
## Top and Least Ten Transactions for Merchants for year.



# Total sales for all merchants in a year

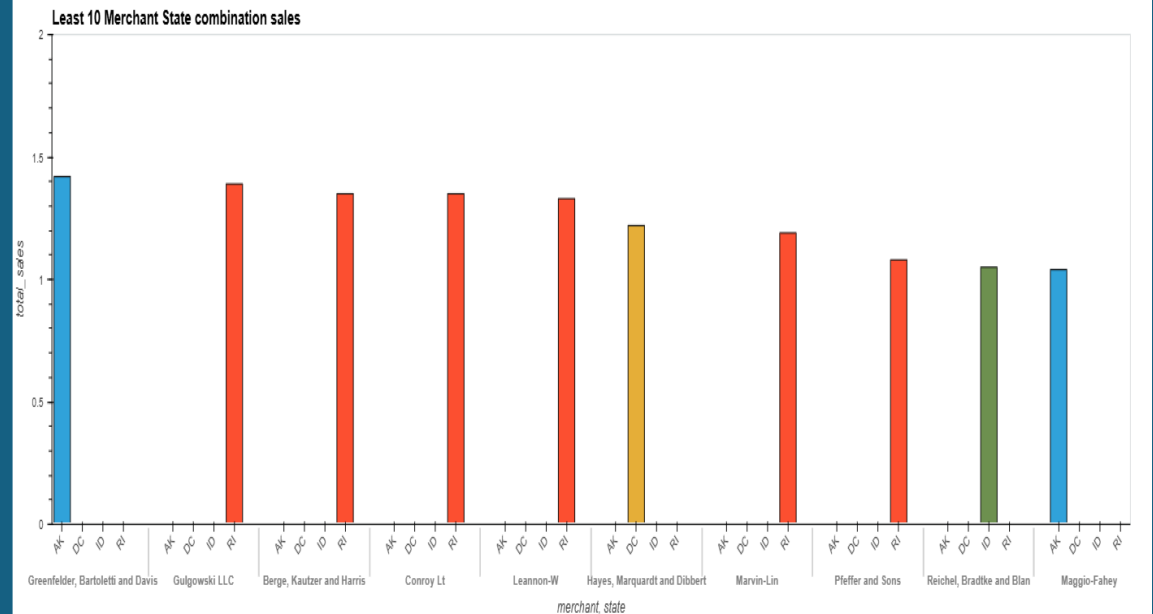
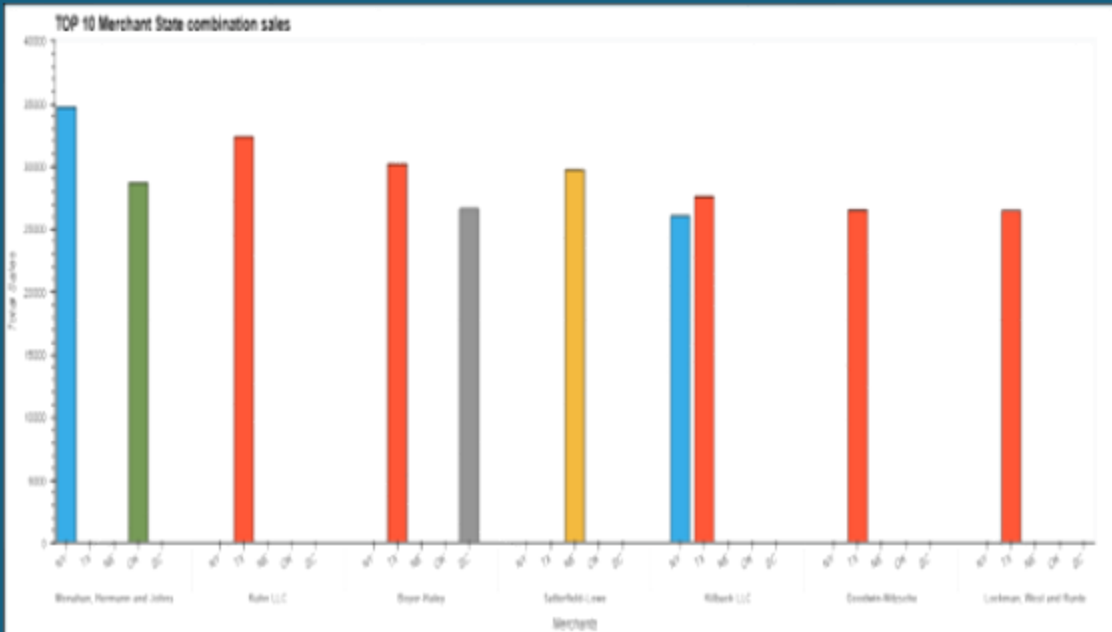
- Average number of transactions per month for merchant
- Average sales per month for merchant
- 4 Quartiles distribution of merchant sales

Merchant sales quartiles - Total Sales for entire duration : \$91,222,428.90





# Top & Bottom Ten sales for merchant state wise

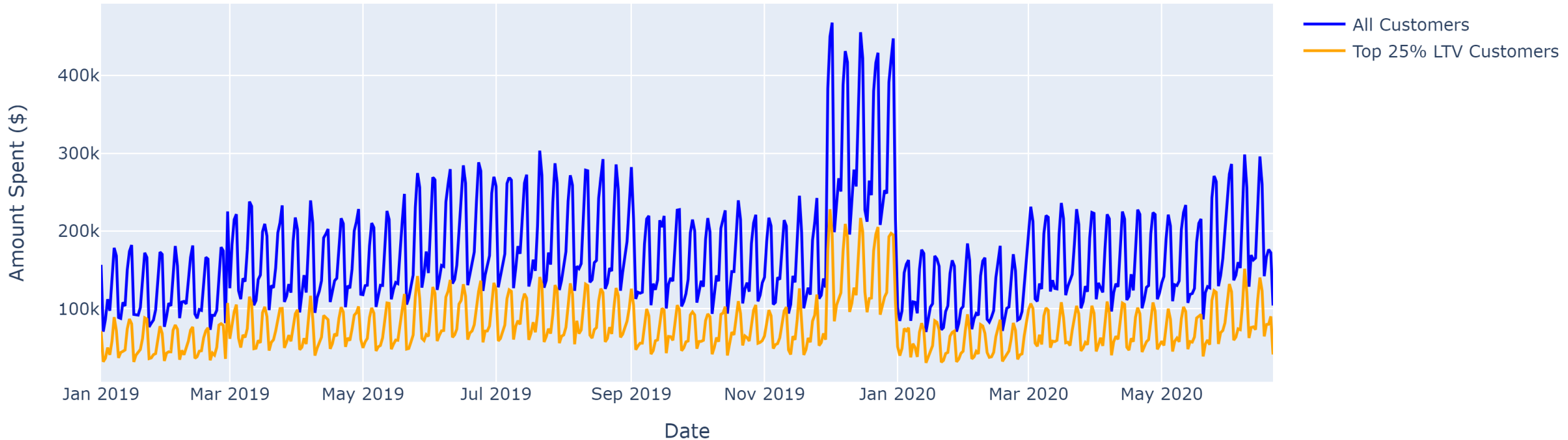


# Lifetime Value (LTV) Forecasting



# Top 25% LTV vs All Customers

All Customers vs. Top 25% LTV Customers Total Spending per Day

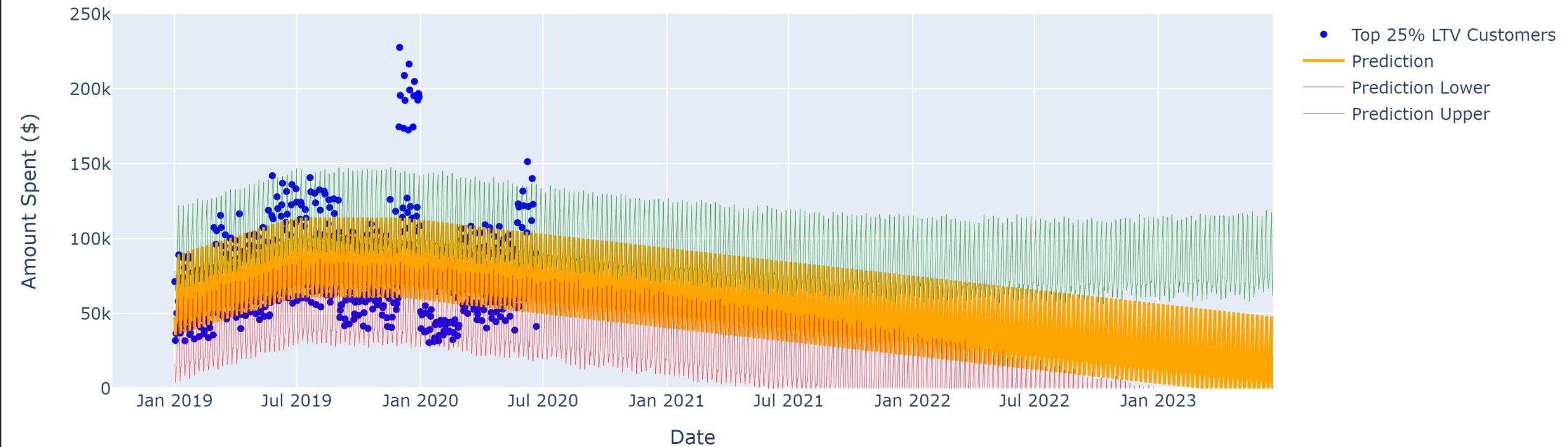




# Prophet Forecast

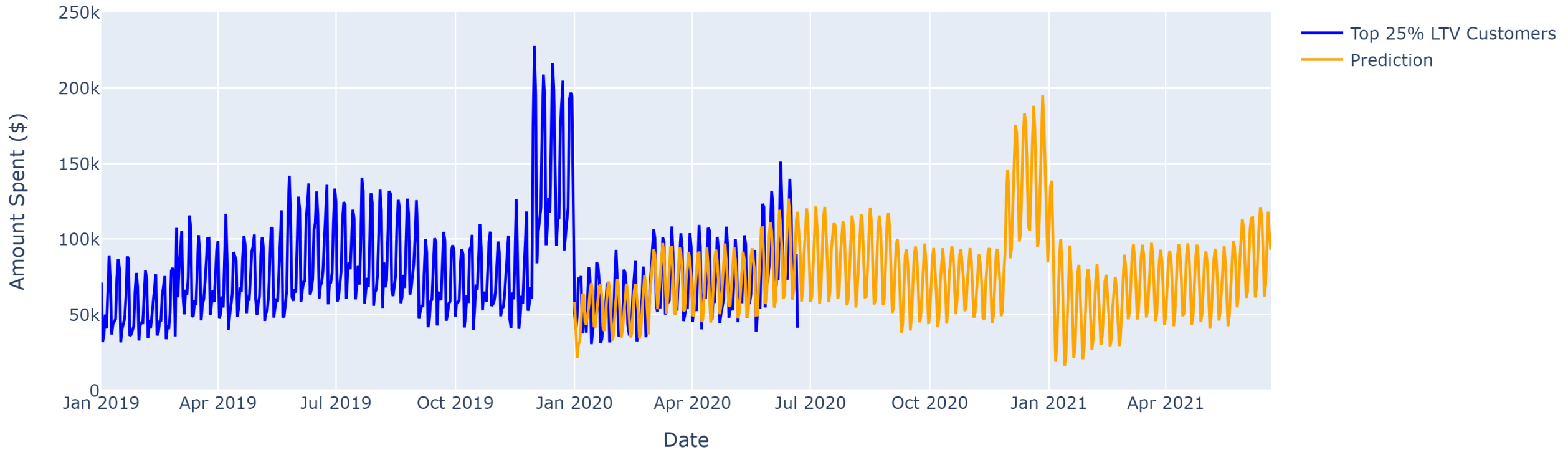


Prophet Forecast of Top 25% LTV Customers



# ARIMA Forecast

ARIMA Forecast of Top 25% LTV Customers



# Future Improvements







Advanced  
Segmentation using  
ML & AI



Real-Time Data  
Integration



Customer Dashboards



Generalized App

Thank You!

*Website & Social Media Coming  
Soon...*

