Coffee Shop Sales Analysis

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Overview of Sections

Project Introduction

This project focuses on analyzing coffee shop sales data to enhance decision-making through predictive modeling and data-driven insights.

ANALYSIS OF COFFEE SHOP SALES DATA ACROSS MULTIPLE LOCATIONS

Our objective is to identify sales trends, enhance operational efficiency, and develop effective marketing strategies by generating actionable insights through data cleaning, exploratory analysis, customer segmentation, and time series forecasting

Data Quality

149,115

Total records after cleaning process

The coffee shop sales dataset contains transaction-level data, where data quality is ensured for accurate analysis. Key engineered features include **datetime**, **total price**, **profit metrics**, and **customer ID** to support reliable modeling and insights.

Sales Trends

Understanding sales trends is crucial for identifying patterns and making informed decisions that drive **business growth** and enhance customer satisfaction.

$698,812.3

Total sales in last six month

Sales Trends

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Morning 8-10

Peak hours

Sales Trends

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May and June

Highest sales months

Sales Trends

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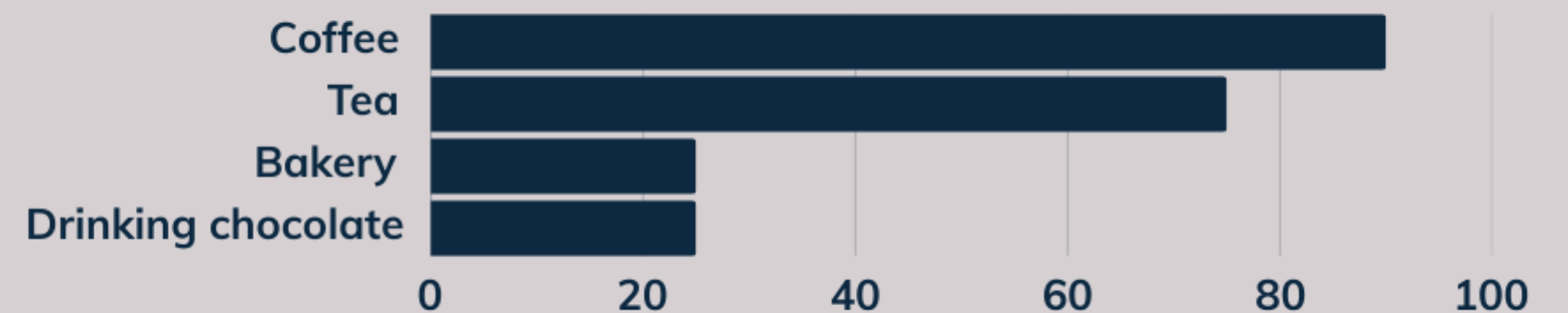

January and February

Lowest sales months

Product Performance

Understanding product performance is crucial for identifying top-selling items, optimizing inventory, and making informed decisions that drive **business growth** and enhance customer satisfaction.

Top selling categories

Product Performance

Understanding product performance is crucial for identifying top-selling items, optimizing inventory, and making informed decisions that drive **business growth** and enhance customer satisfaction.

Sustainable Grown Organic Lg

Most profitable product

Product Performance

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Dark chocolate

Low profit item

Customer Segmentation (RFM Analysis)

Overview of RFM analysis

RFM analysis revealed that the majority of customers fall into the "Needs Attention" (24,911) and "At Risk" (15,867) segments, highlighting significant opportunities for re-engagement strategies. Targeting these groups can help boost retention and improve overall customer lifetime value.

Loyal
3111

Others
22422

At Risk
15867

Lost
7978

Needs Attention
24911
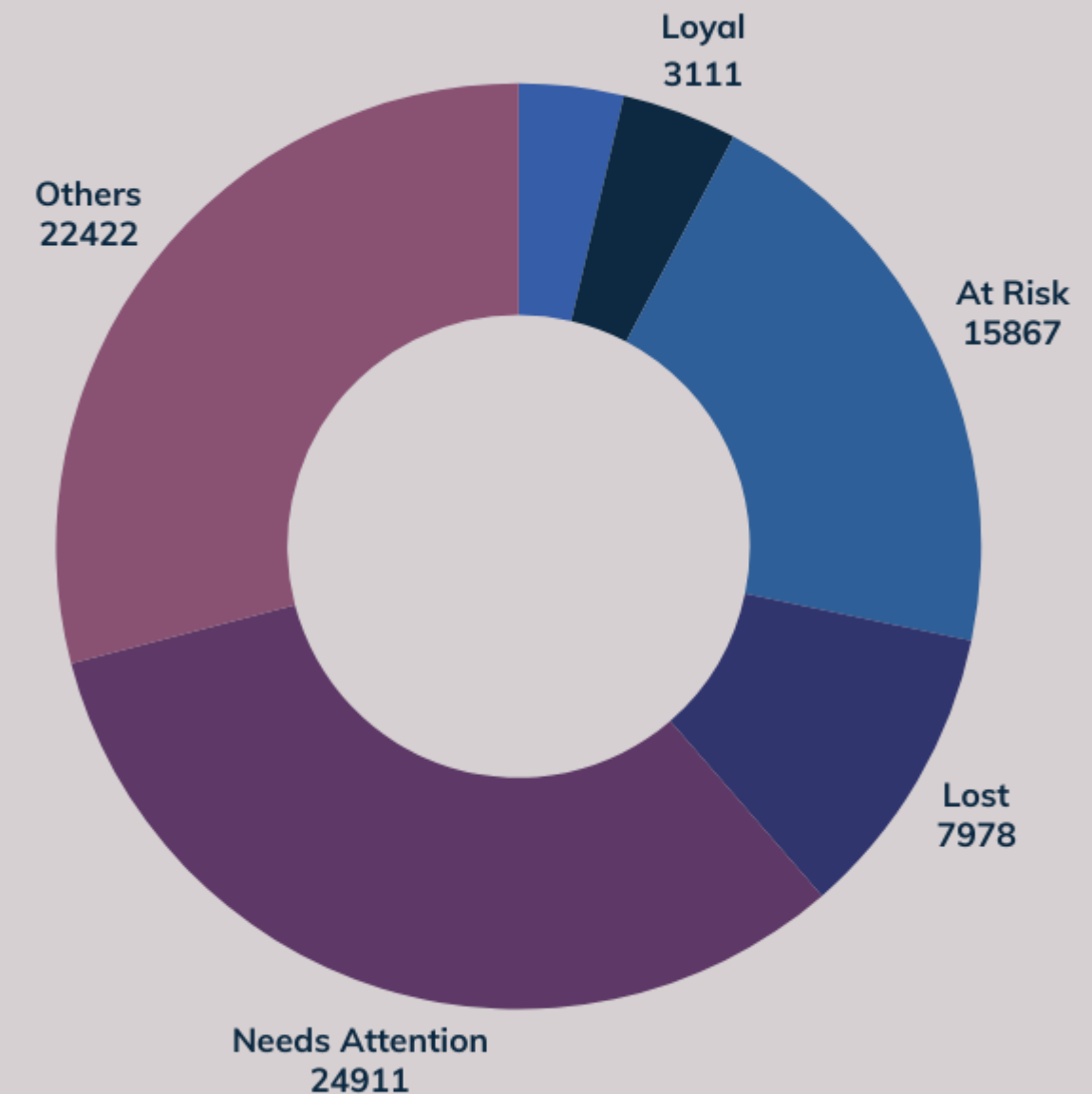
Forecasting Techniques

Overview of time series models

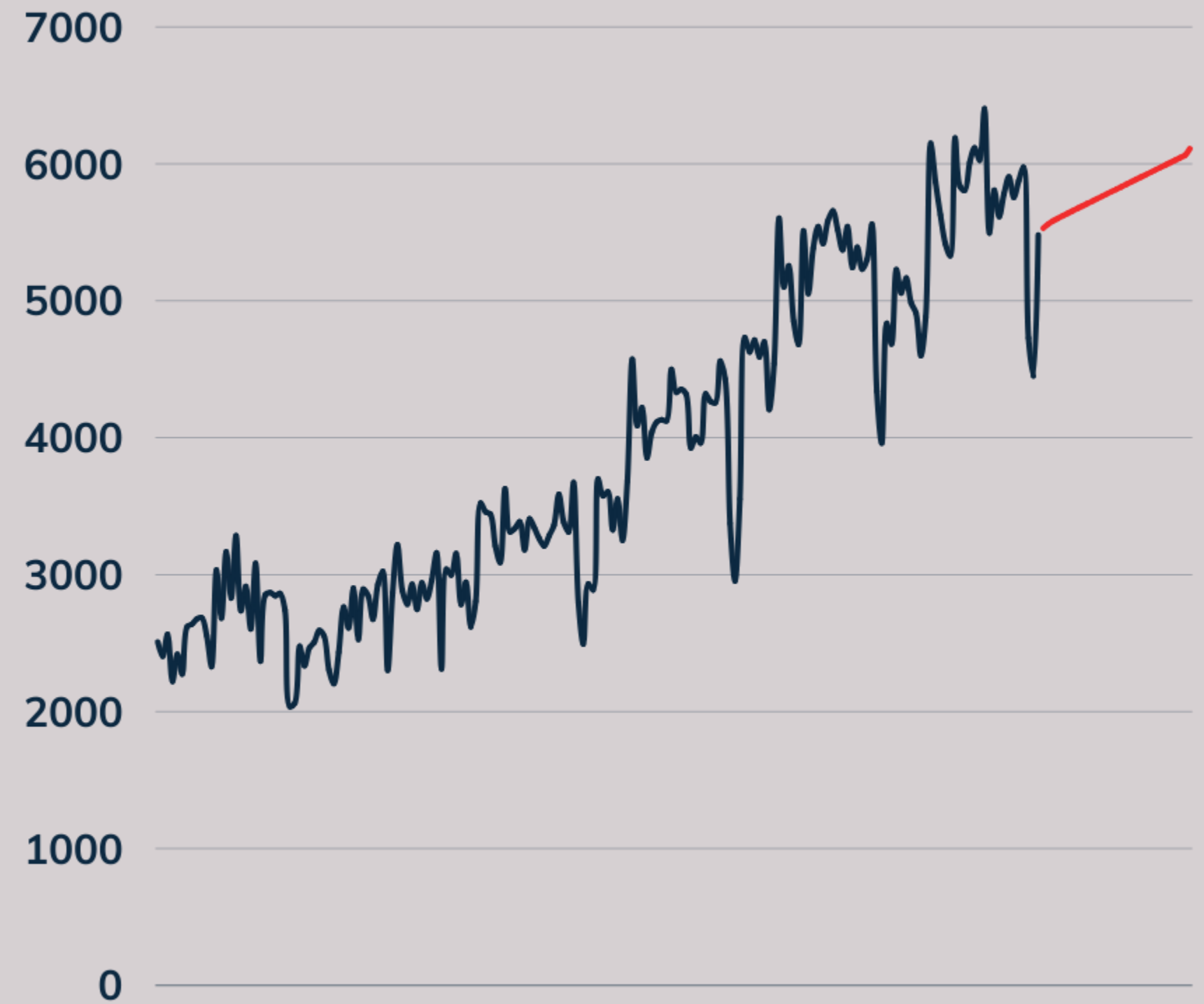**ARIMA Forecast Plot for (manual select)**
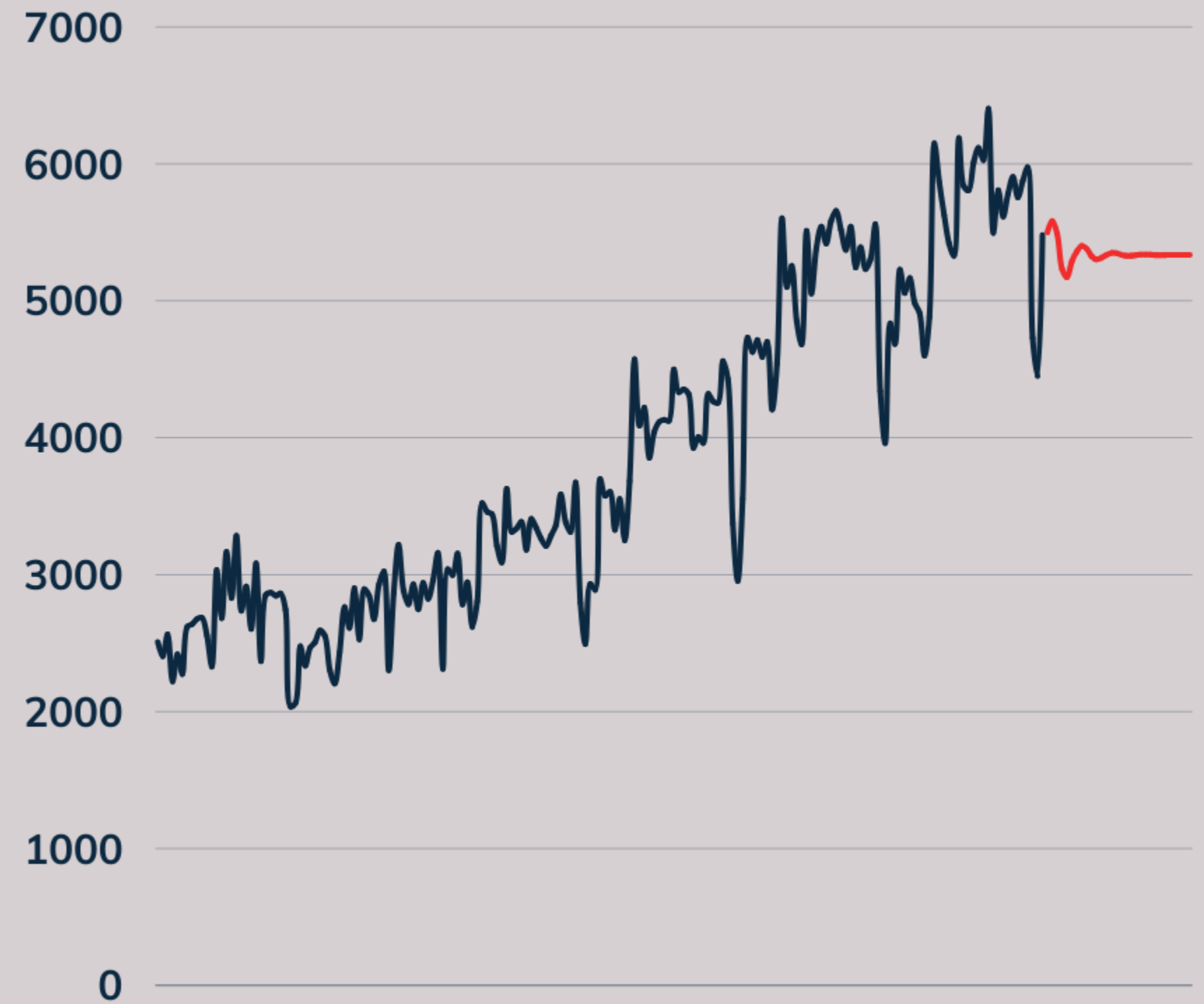
Forecasting Techniques

Overview of time series models

ARIMA Forecast Plot for (auto select)

Best ARIMA parameters: (1, 2, 2)
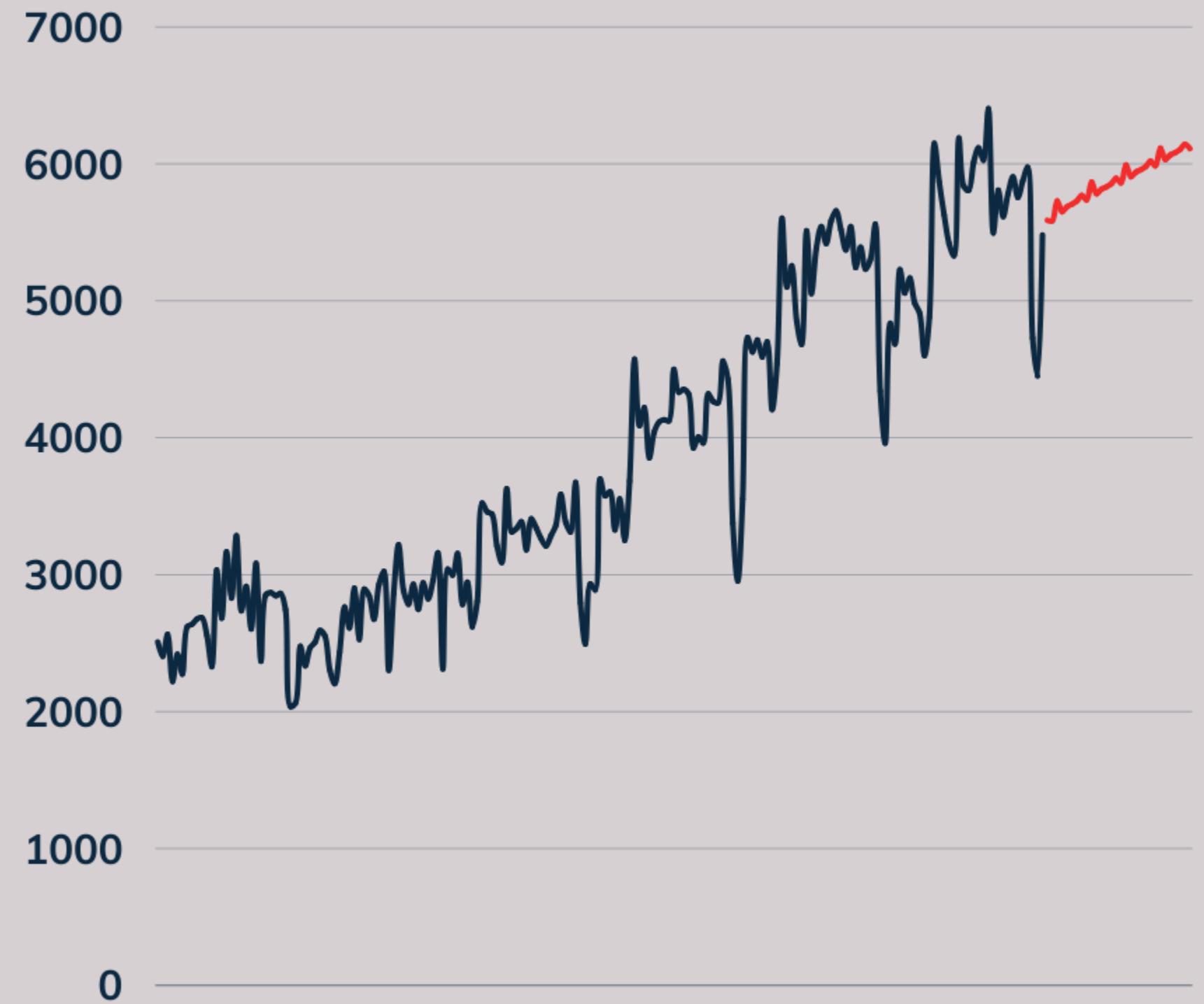AIC: 2631.651397011826

Forecasting Techniques

Overview of time series models

SARIMA (Seasonal ARIMA) Forecasting

Best ARIMA parameters: (1, 1, 1), (0, 1, 1)
AIC: 2429.046115603226

Operational Improvements

- **Strategic staffing during peak hours**
- **Inventory optimization for high-margin products**
- **Product placement enhancements**

This improvement has led to reduced operational costs and enhanced customer satisfaction throughout the coffee shop's processes.

Marketing Strategies

Targeted retention campaigns

Loyalty program development

Seasonal promotion planning

Pricing Optimization

Time-based pricing strategies

Product bundling opportunities

Conclusion

Key Takeaways

Coffee dominates revenue

Customer segments reveal targeted marketing opportunities

Forecasting models provide reliable projections

Conclusion

Business Impact

Improved resource allocation

Data-driven marketing

Enhanced pricing strategies

Thank you