Project Outline

Forecast and Strategic Conclusion:
My analysis forecasts Faina Café's sales for the next five months. I selected the Exponential Smoothing (ETS) model for its superior accuracy, and it projects approximately USD 29438.98 in monthly sales. The primary implication is a shift from reactive decision-making to proactive strategy. We can now confidently align inventory procurement with expected demand, secure financing based on projected revenue, and set realistic targets for marketing campaigns. In a competitive landscape where larger chains have inherent advantages, this precise forecasting becomes a key tool for enhancing operational efficiency and protecting profit margins.

Methodology: How I Determined the Forecast:
To ensure the most reliable forecast, I tested and compared multiple industry-standard forecasting models. This included simple benchmarks, from naïve to more advanced models like ARIMA. I selected the ETS model as the final recommendation based on objective performance metrics. It achieved the lowest error scores (Mape =7.13, and RMSE =2472.4) on our historical data, meaning its past predictions were the most accurate. Furthermore, the ETS model automatically identifies and adapts to underlying patterns in our sales data, such as trends and seasonal cycles, providing a sophisticated and robust foundation for future projections.

Data Source and Key Exploratory Insights:
I built the forecast using Faina Café's own historical monthly sales data. While this internal data is clean and reliable for analysis, its limited timeframe initially posed a problem. My initial exploration revealed valuable insights: the time series plot showed the sales trajectory and volatility, while statistical tests indicated whether a consistent trend or recurring seasonal pattern was present. These insights further reassured my assumptions.

Limitations and Recommendations for Enhanced Analysis:
This initial analysis is powerful but can be strengthened. The main limitation is the use of sales data alone. To improve accuracy and strategic value in a future iteration, I recommend incorporating external data such as local promotions, holiday schedules, and competitor activity to better understand the drivers of sales changes. Expanding our historical data collection will also significantly improve the model's ability to detect and forecast seasonal patterns. Additionally, adopting more advanced tools, such as machine learning techniques designed to handle multiple external factors, would provide deeper insight. Finally, I advise re-training the forecast model quarterly with new sales data to maintain its accuracy and relevance. Implementing these steps will progressively refine our forecasting capability, turning data into a sustained competitive advantage for Faina Café.