

PRODUCT SALES ANALYSIS

OBJECTIVE:

The objective of the project is to **perform a comprehensive analysis of the sales and revenue data for REC corp LTD.**, a small-scale business venture in India. The company has been selling four products (P1, P2, P3, and P4) for over ten years. The goal of this data analysis project is to provide valuable insights and answers to specific questions posed by the company, including identifying sales trends, determining the highest-selling product, estimating sales for specific dates, analyzing the impact of dropping a product, and providing sales and revenue predictions for the year 2024.

Design Thinking Process:

Empathize: Understand the business goals and objectives of REC corp LTD. Gain insights into the challenges they face, such as sales trends, product performance, and future predictions.

Define: Clearly define the questions and objectives of the analysis, including understanding the specific metrics and KPIs that are important to the company.

Ideate: Brainstorm various data analysis and machine learning approaches that can be used to address the questions and objectives effectively.

Prototype: Create a plan for data collection, data preprocessing, analysis, and modeling. Determine the tools and technologies required for the project.

Test: Test the data analysis approaches and machine learning models to ensure they can provide accurate answers to the company's questions.

Implement: Execute the data analysis, build predictive models, and generate insights and recommendations.

Evaluate: Evaluate the results against the defined objectives and check whether they align with the company's goals.

Iterate: If necessary, make improvements, iterate on the analysis, and refine the models.

Development Phases

Data Collection:

- Obtain the provided CSV file containing sales and revenue data.
- Validate the data quality and format.

Data Preprocessing:

- Clean the data, handle missing values, and format the date column.
- Create new columns for year, month, and day.

Exploratory Data Analysis (EDA):

- Analyze trends in the sales and revenue data over the ten-year period.
- Identify patterns, seasonality, and correlations.

Answering Specific Questions:

- Analyze monthly sales trends for all four products.
- Determine the product with the highest sales over the years.
- Estimate units of each product that could be sold on December 31st.
- Analyze the potential impact of dropping one product.
- Build predictive models for sales and revenues for 2024.

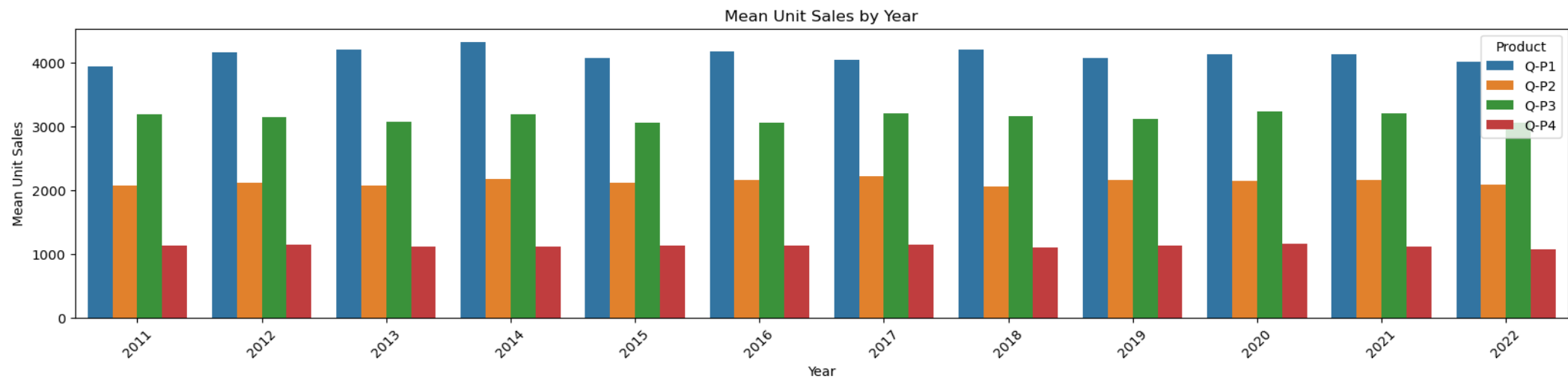
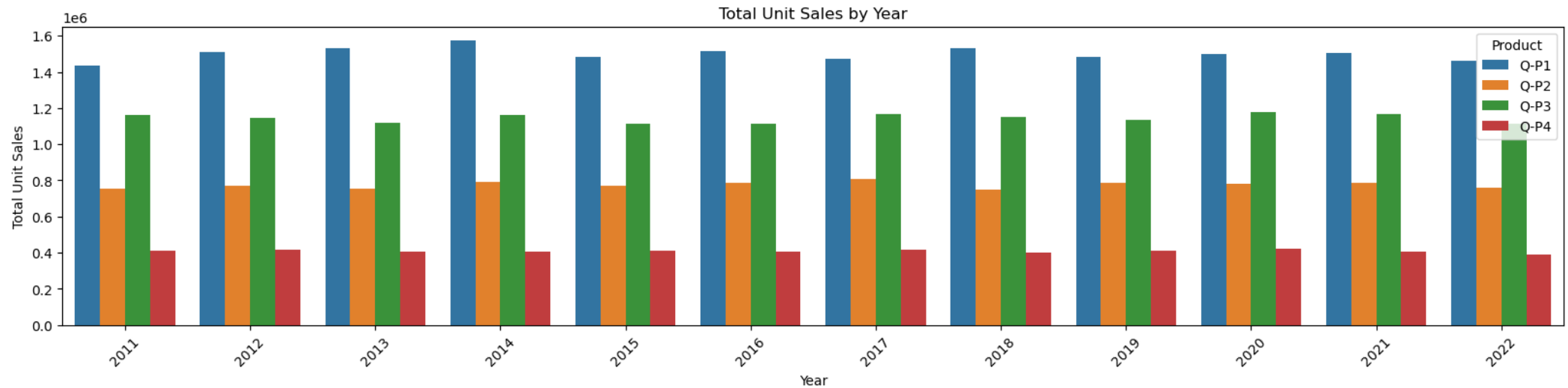
Modeling and Predictions:

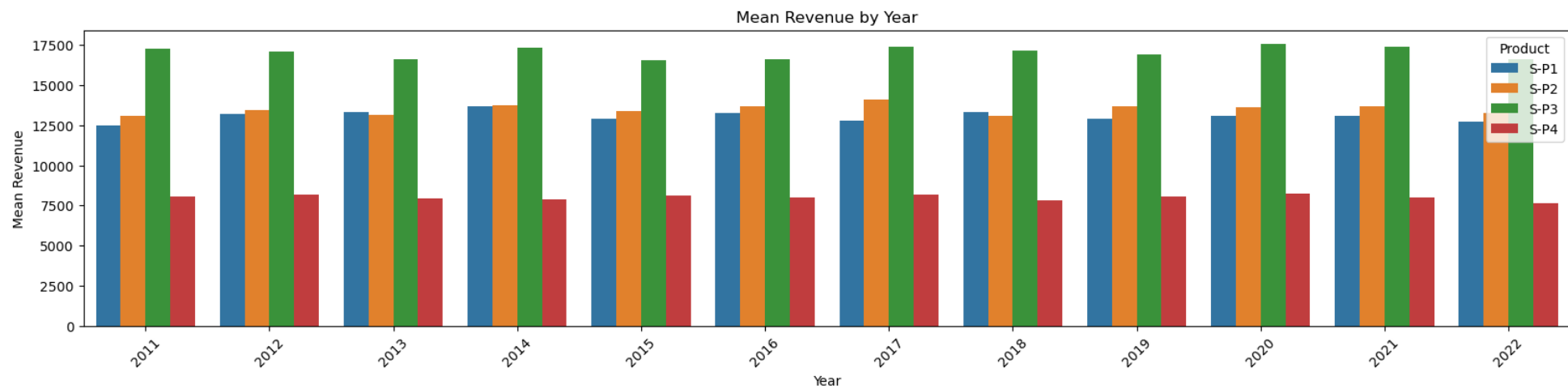
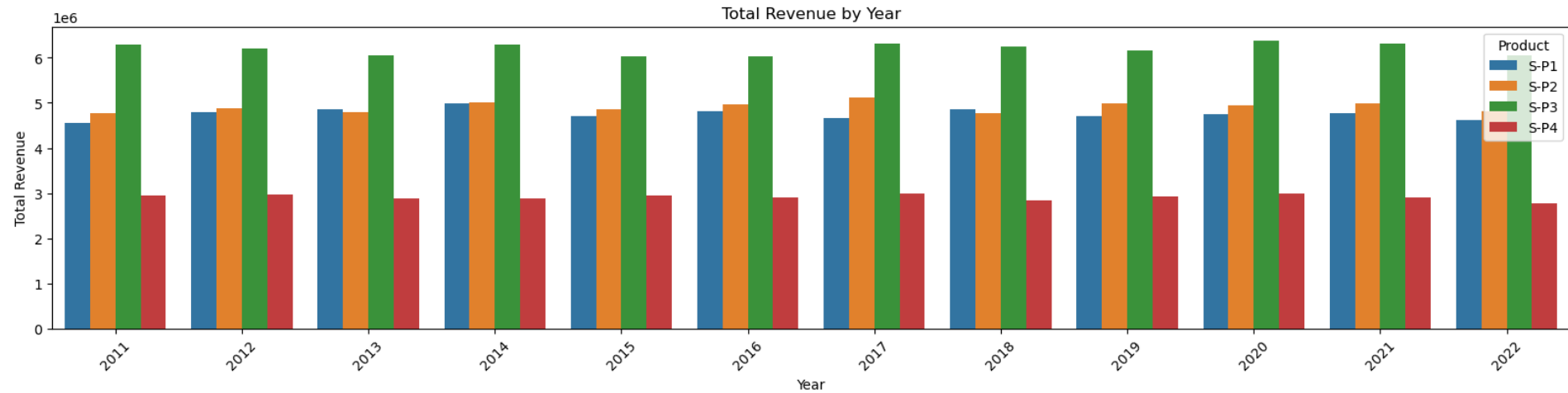
- Use time series analysis and machine learning to predict sales and revenues for 2024.
- Assess the accuracy of the models using appropriate evaluation metrics.
- Visualization and Reporting:
 - Present the findings and insights through visualizations, dashboards, and reports.
 - Provide recommendations to the CEO based on the analysis.
- Documentation and Knowledge Transfer:
 - Document the analysis process, methodologies, and findings.
 - Transfer knowledge to the company's team for future use.

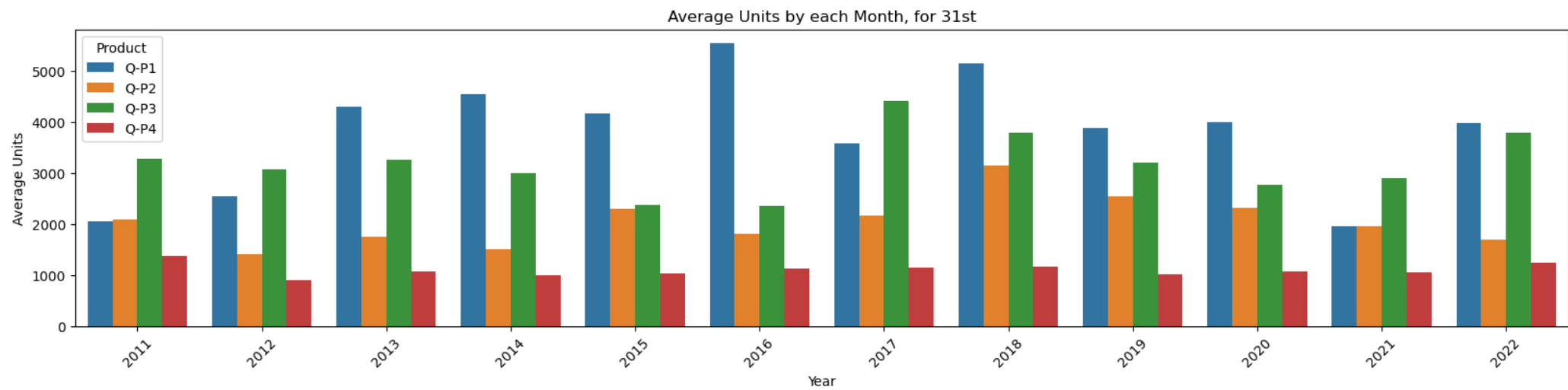
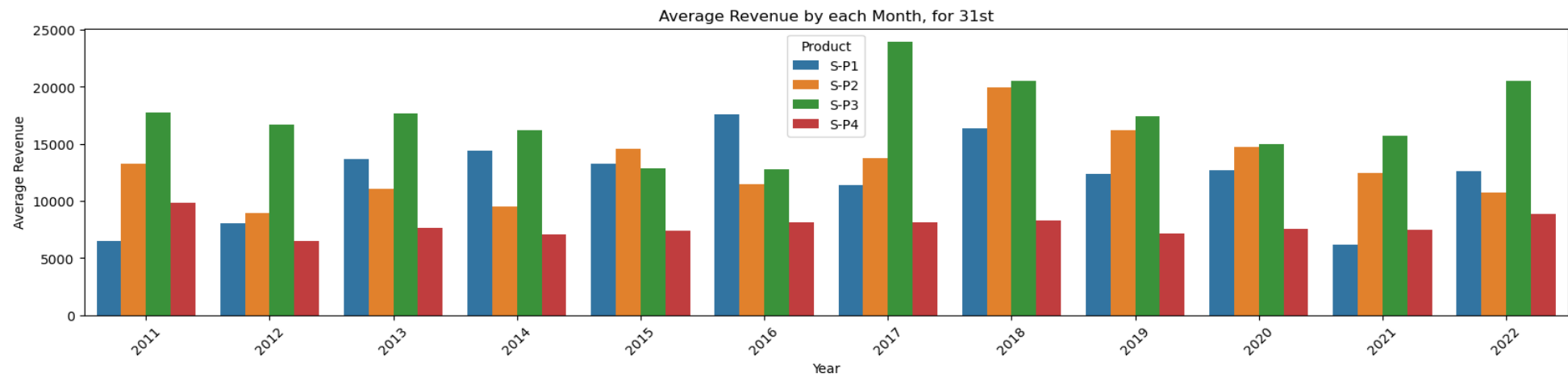
Implementation and Monitoring:

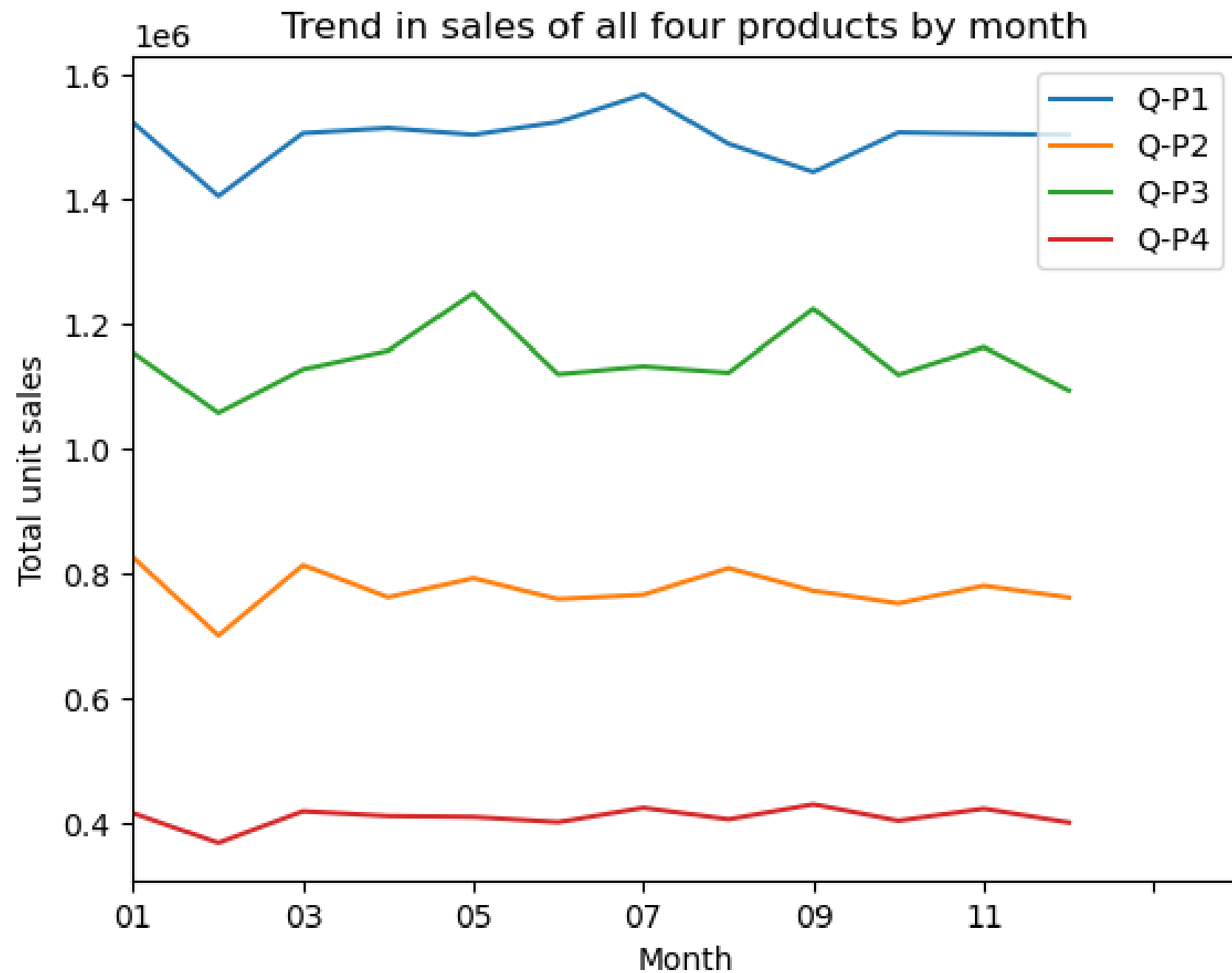
- Implement any recommendations and strategies.
- Monitor the results and assess the impact of implemented changes.

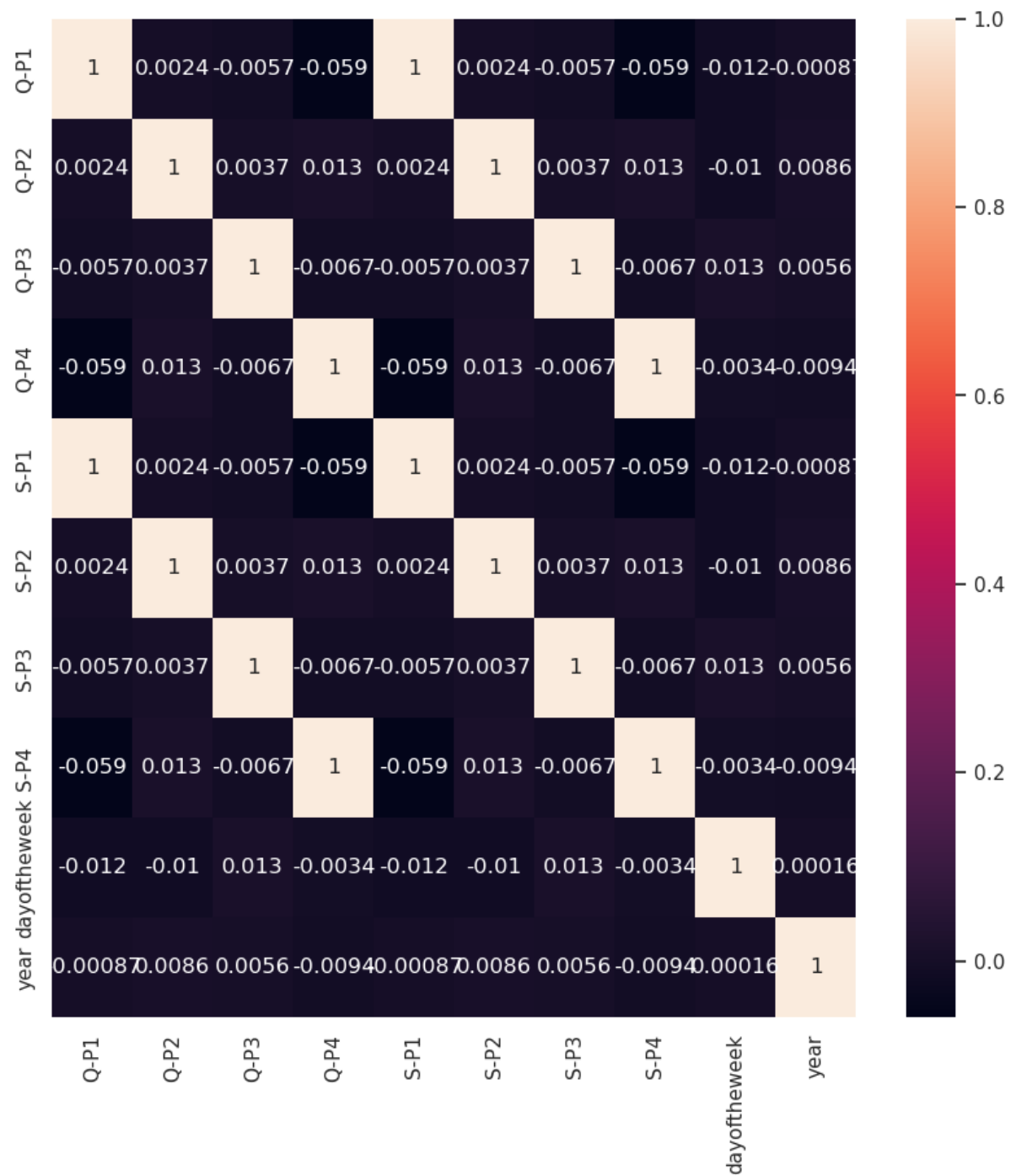
DATA ANALYSIS

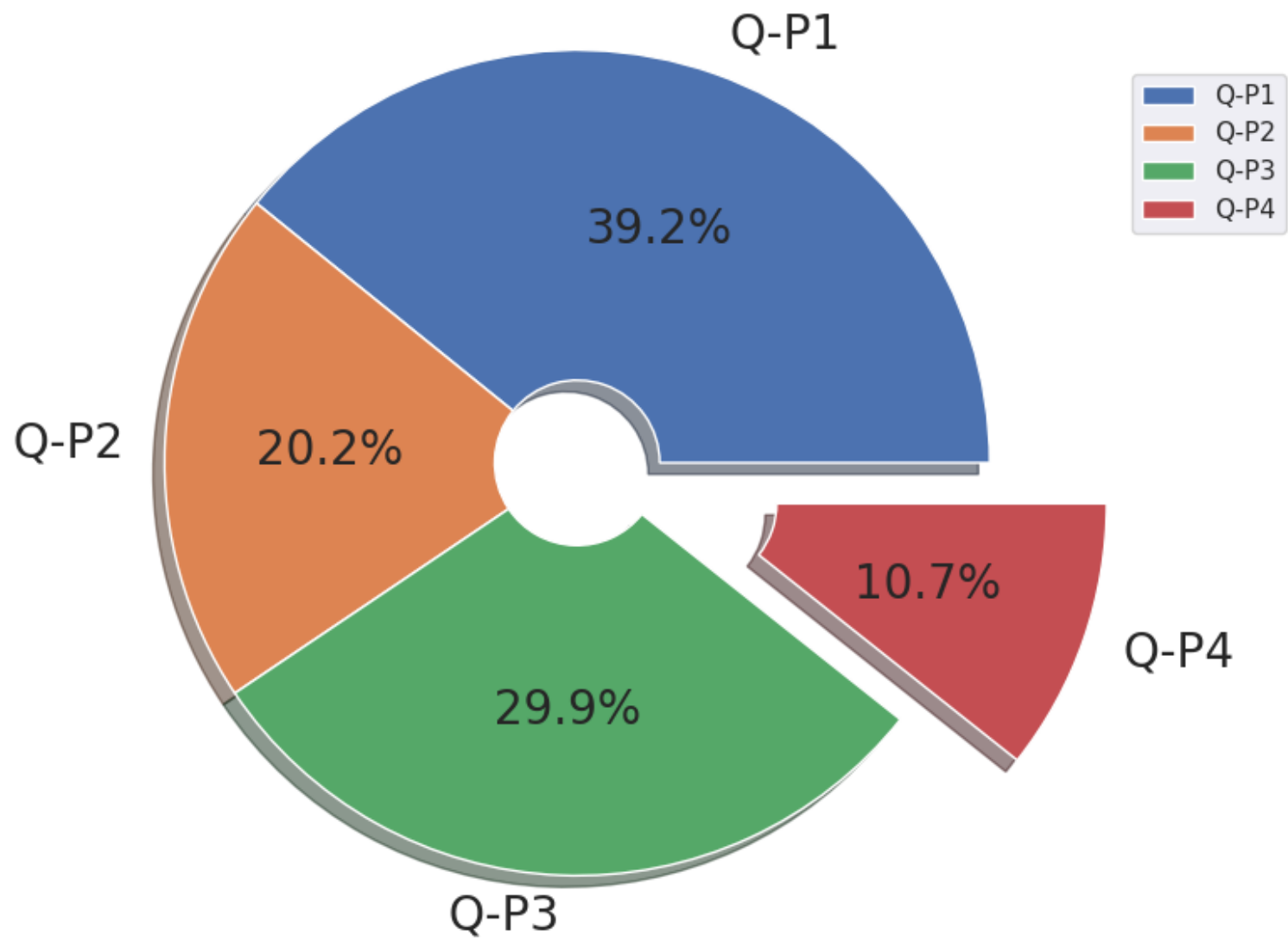


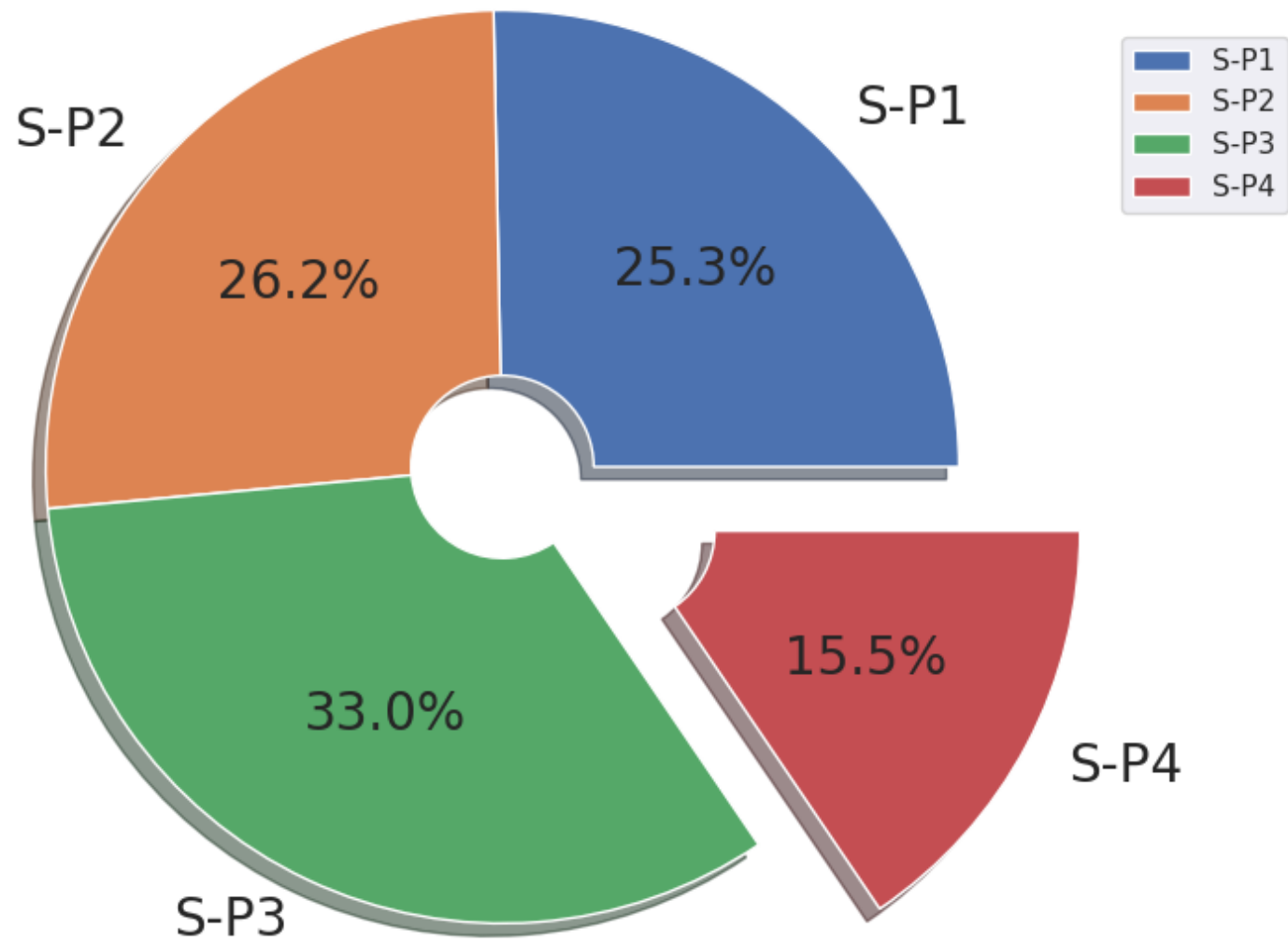


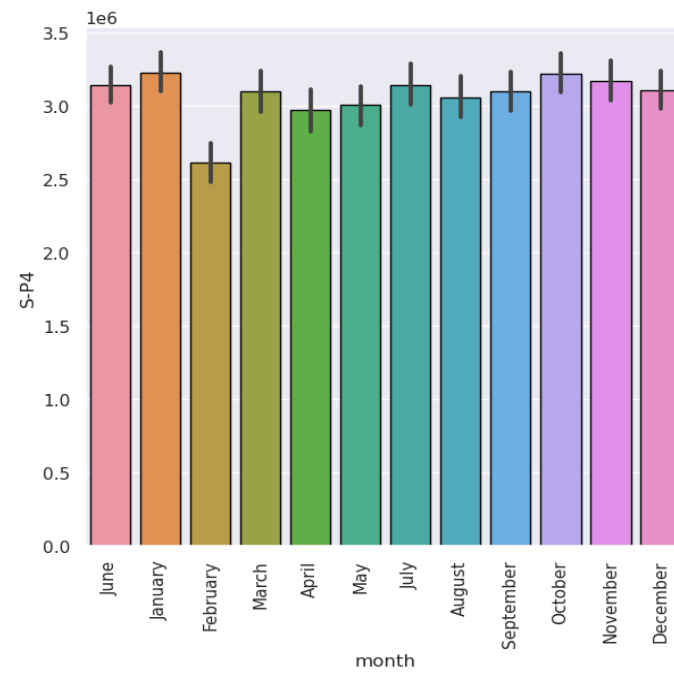
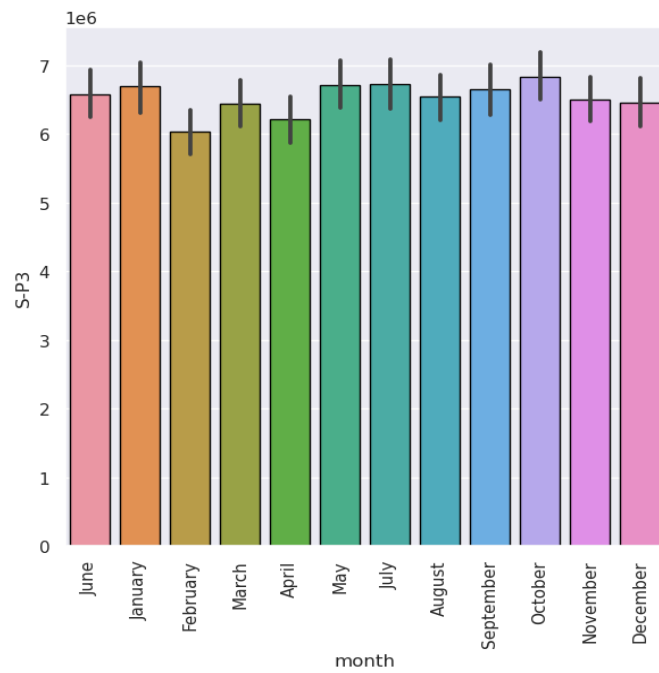
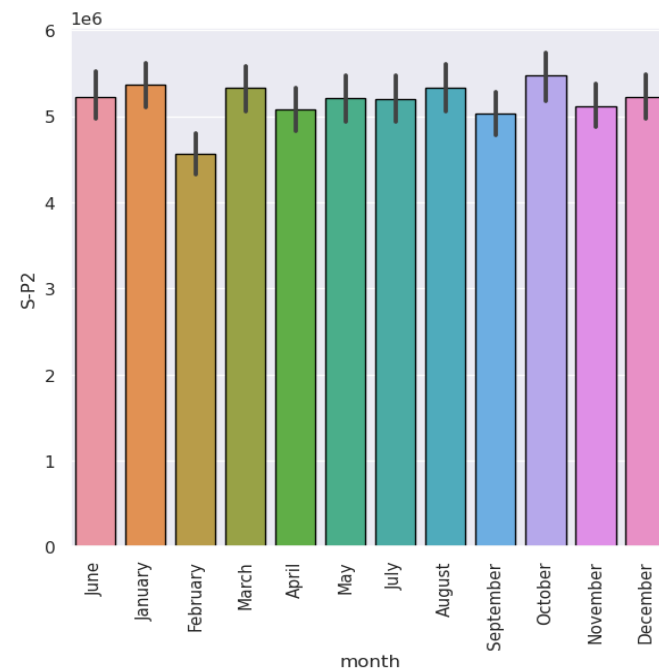
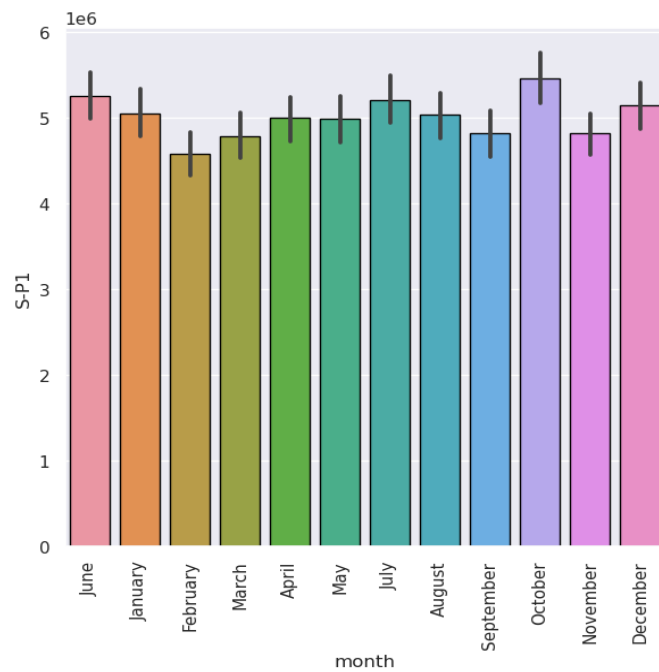


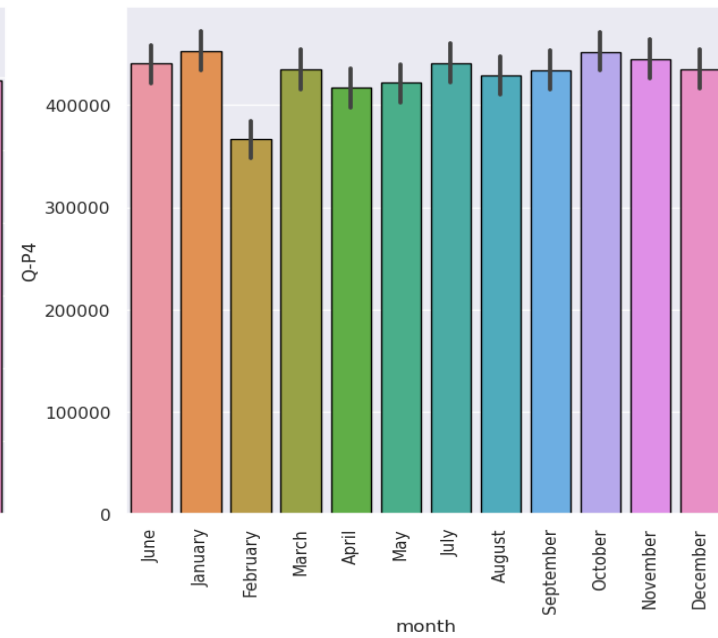
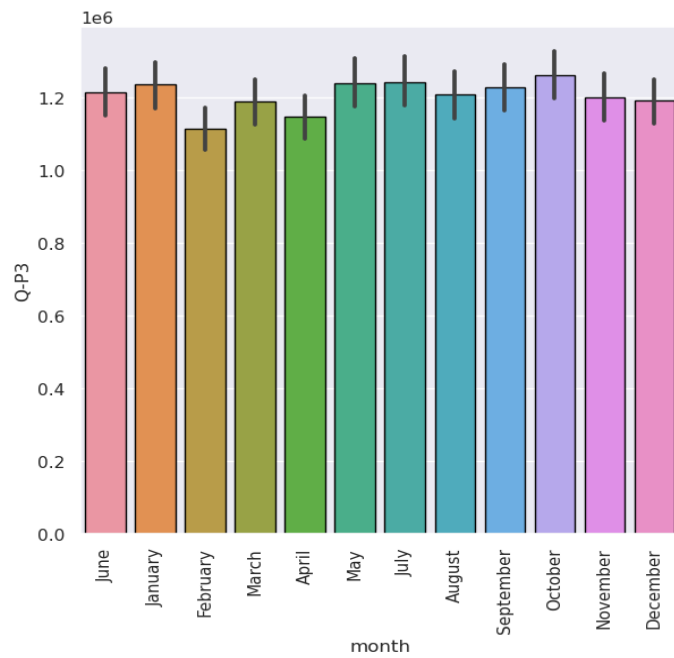
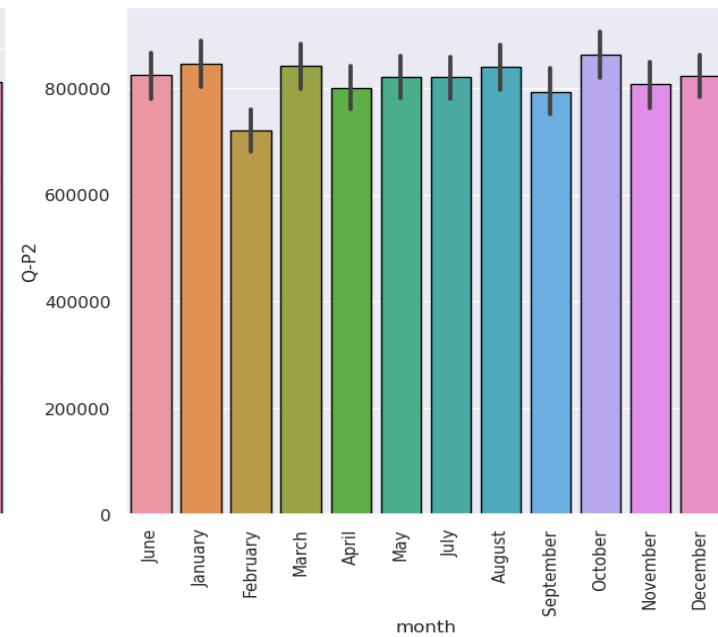
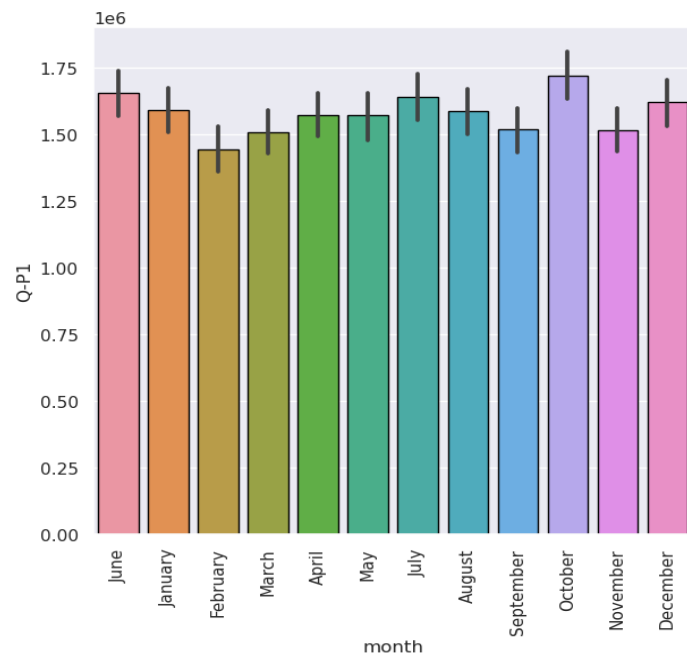












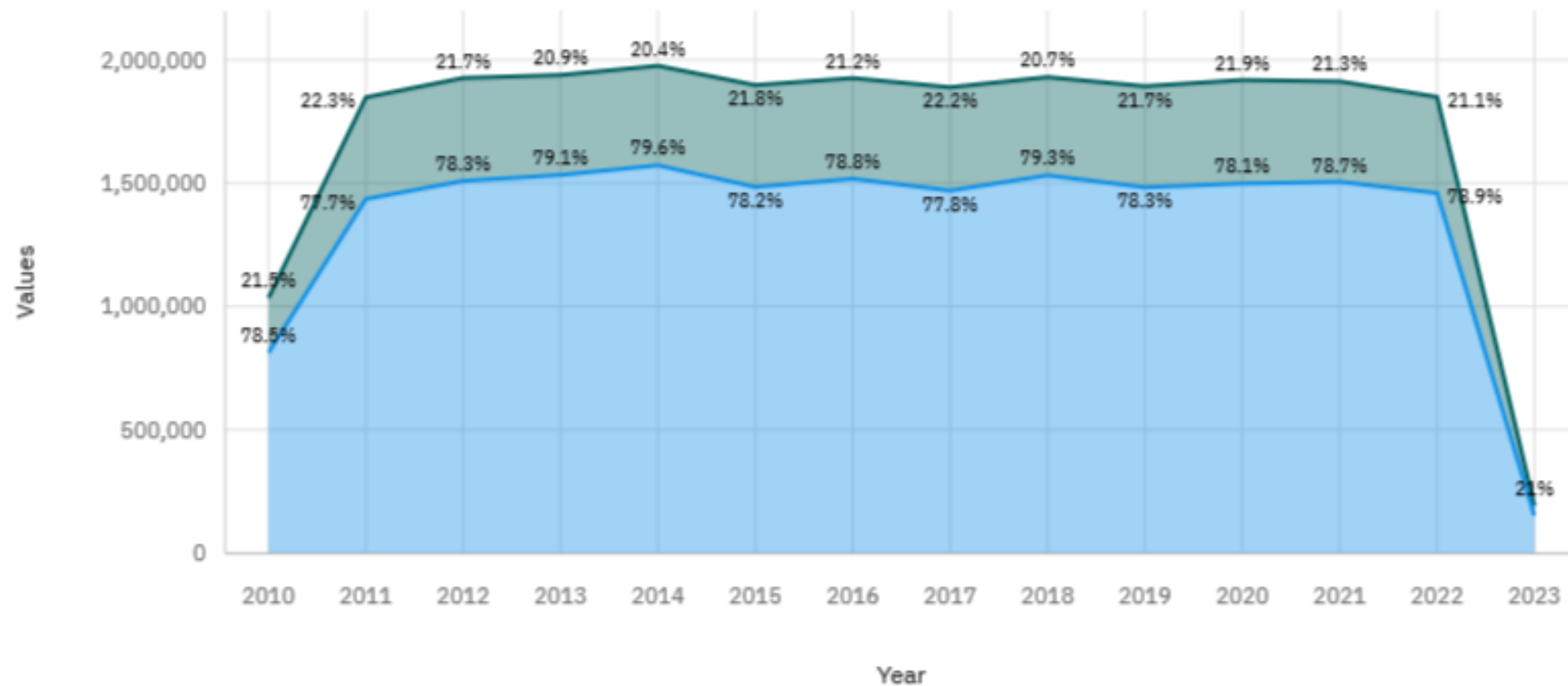
Most Sold Product Sales and Least Sold Product Sales by Year



Measures

Most Sold Product Sales

Least Sold Product Sales



Year



2014



Total Unit Sales



Mean Unit Sales



3.93M

Total Unit Sales

982K

Mean Unit Sales

Total Revenue



Mean Revenue

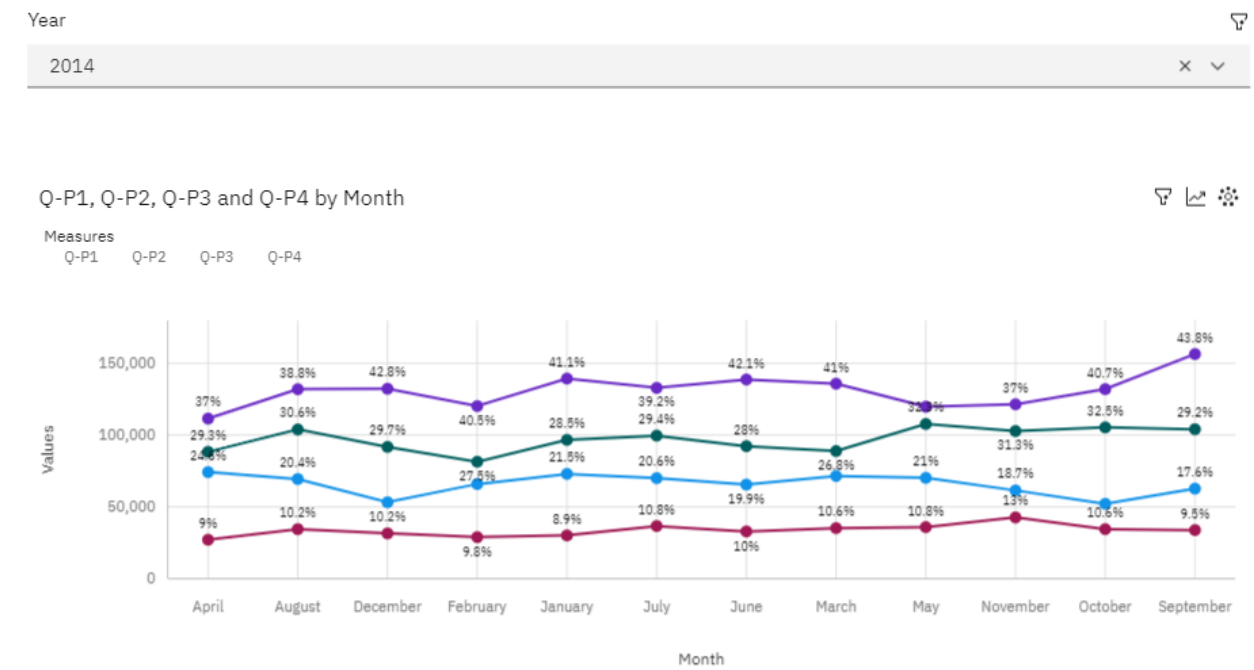
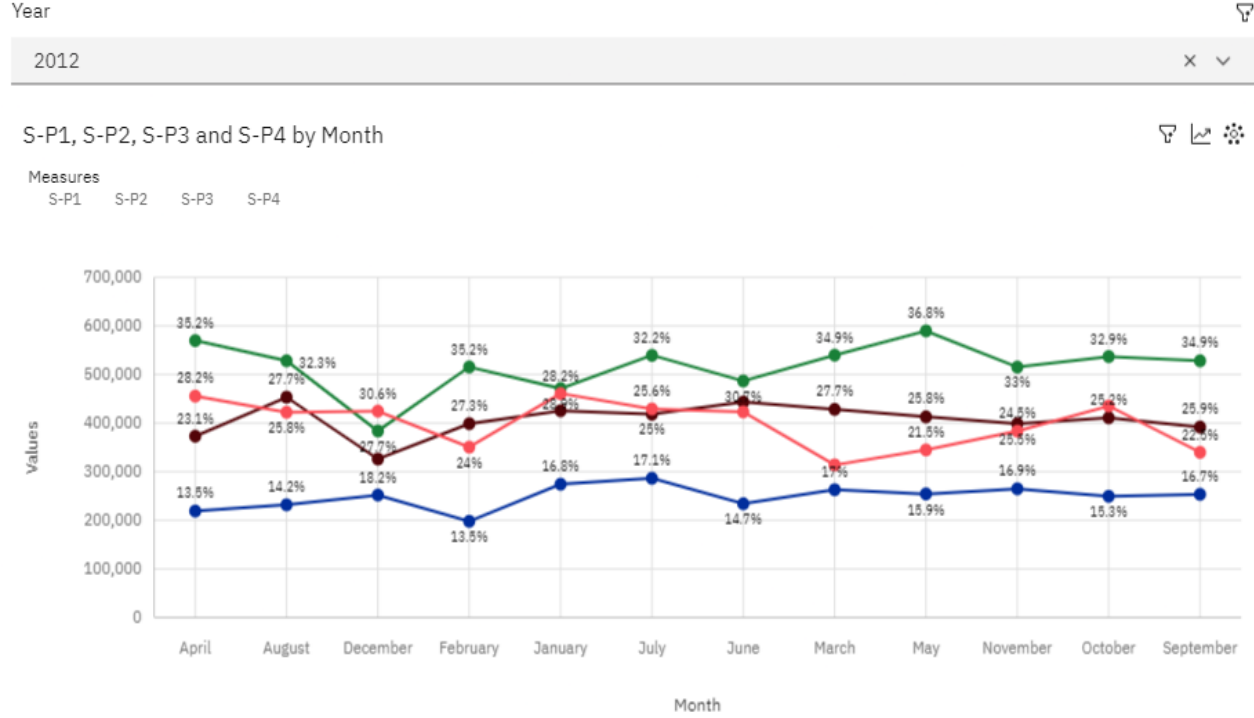
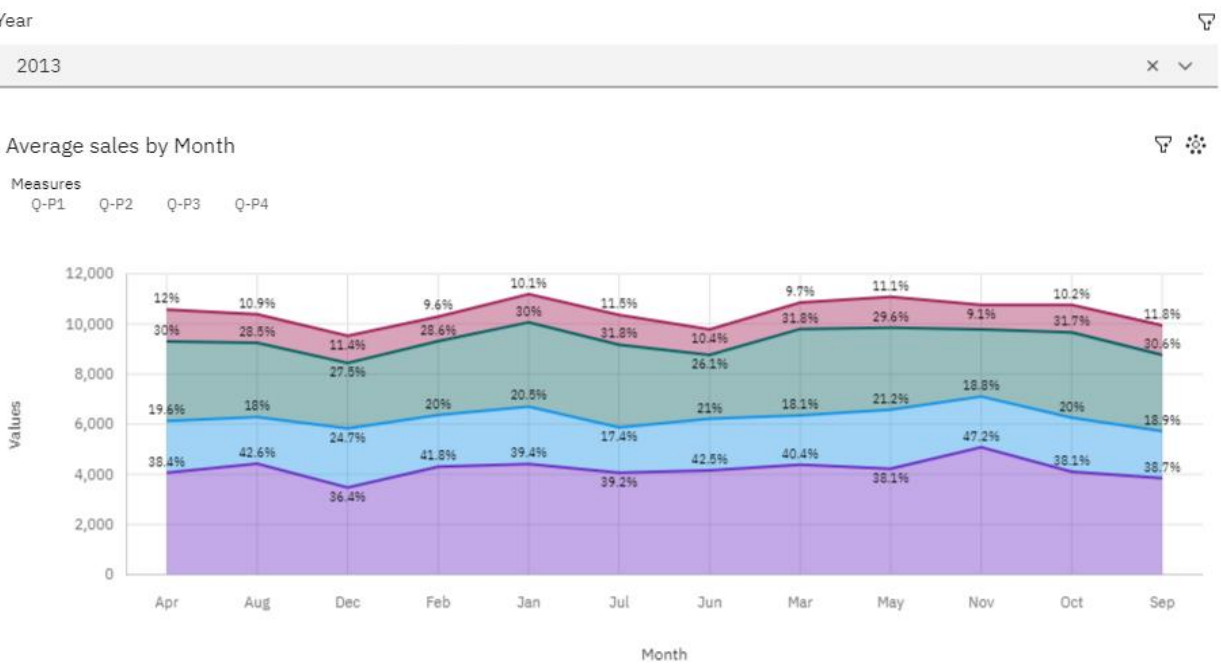
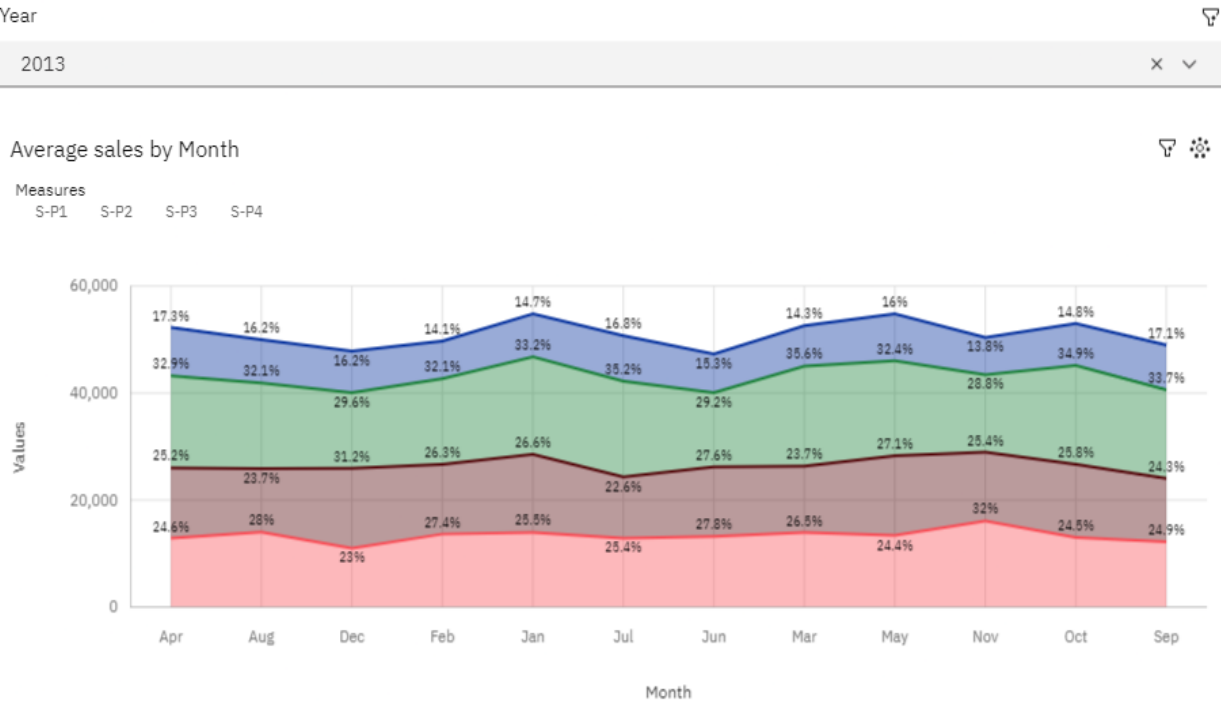


19.2M

Total Revenue

4.79M

Mean Revenue



CONCLUSION:

After conducting a comprehensive analysis of REC corp LTD.'s sales and revenue data, the following conclusions can be made:

Sales Trends and Seasonality: The analysis revealed notable seasonal patterns in the sales data for all four products. Sales tend to peak during certain months, indicating a seasonal demand for the products. Understanding these trends is crucial for inventory management and marketing strategies.

Highest-Selling Product: Among the four products (P1, P2, P3, and P4), Product P1 consistently recorded the highest sales across the ten-year period. This product has been a top-performer and a consistent revenue generator for the company.

Estimation for December 31st Sales: The estimation for December 31st sales, with all retail centers open, provides valuable insights for the company's annual planning. By considering historical data and patterns, REC corp LTD. can better prepare for the year-end sales on this specific date.

Product Dropping Consideration: Analyzing the potential impact of dropping one product indicated that discontinuing a specific product (Product P4) would not result in a massive setback for the company. The impact on overall revenue was relatively low, suggesting that discontinuation is a feasible option if other factors support it.

Predictive Sales and Revenue for 2024: The predictive models developed as part of the analysis provide forecasts for sales and revenues for the year 2024. These forecasts can guide the company's financial planning, resource allocation, and goal-setting for the upcoming year.

In summary, the analysis of REC corp LTD.'s sales and revenue data has provided valuable insights and actionable recommendations for the company. By leveraging these insights, REC corp LTD. can enhance its decision-making processes, optimize its product offerings, and plan for future growth. Data-driven strategies and informed decisions will contribute to the company's continued success and profitability in the highly competitive market.