

Sales Trend & Prediction Analysis

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This project analyzes sales trends and predicts future performance using simple regression and interactive dashboards with Plotly. The report provides data cleaning steps, visual insights, key performance indicators (KPIs), and future forecasts.

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Project Objective

- Analyze retail sales data to extract trends and make predictions.
- Visualize findings and KPIs using static and interactive charts.
- Provide recommendations based on insights.

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Dataset Overview

- Records: 500+ rows

- Fields:

- * Date

- * Product

- * Units Sold

- * Unit Price

- * Revenue

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Data Cleaning

- Missing values filled using median.
- Dates converted to datetime format.
- Duplicates removed.
- Outliers handled using IQR method.
- Revenue calculated as: Units Sold * Unit Price

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Exploratory Data Analysis

- Monthly Revenue Trend
- Top Products by Revenue & Sales
- Revenue by Category
- Units Sold vs Revenue Distribution

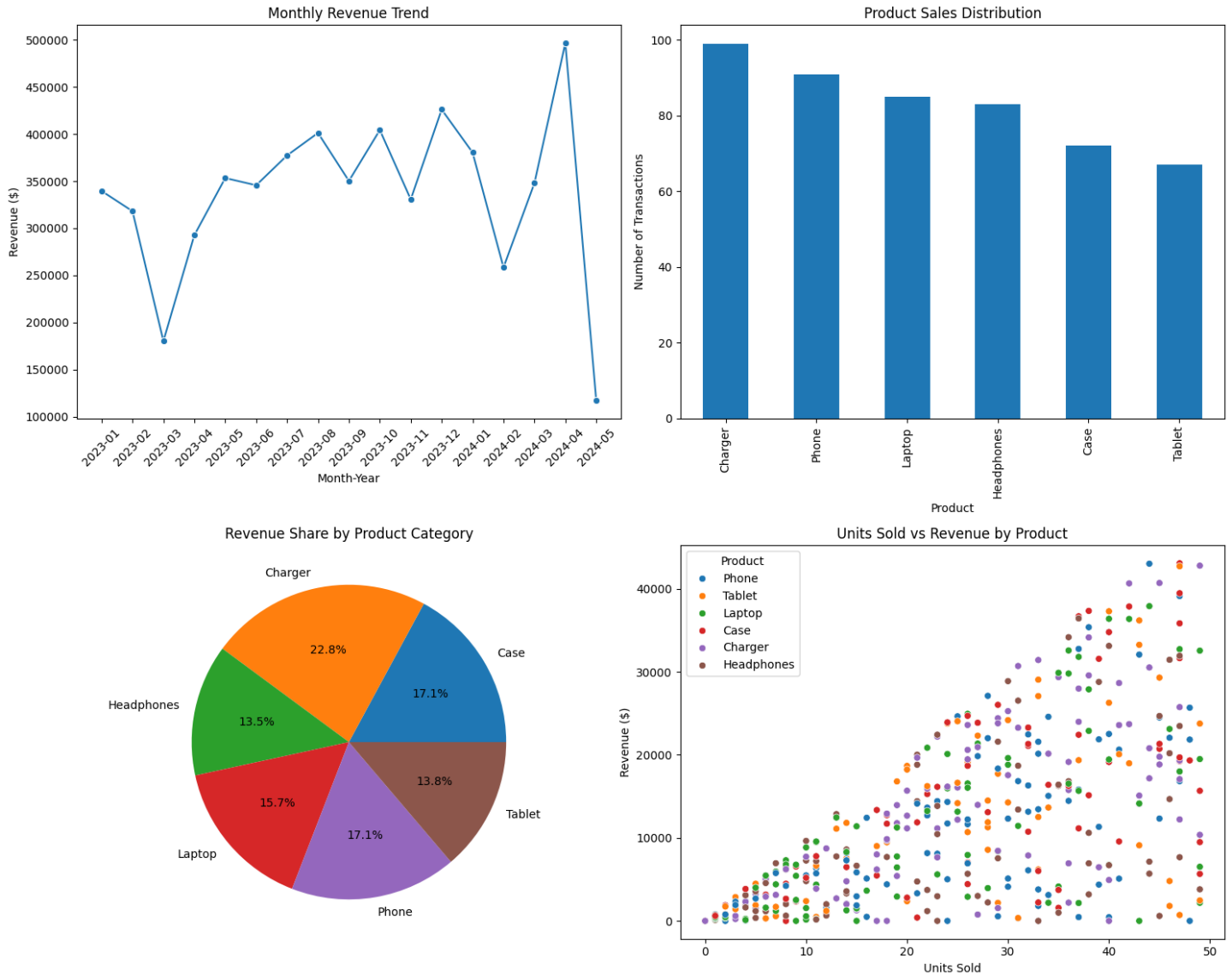
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Visualizations

Below are charts generated using matplotlib and seaborn.

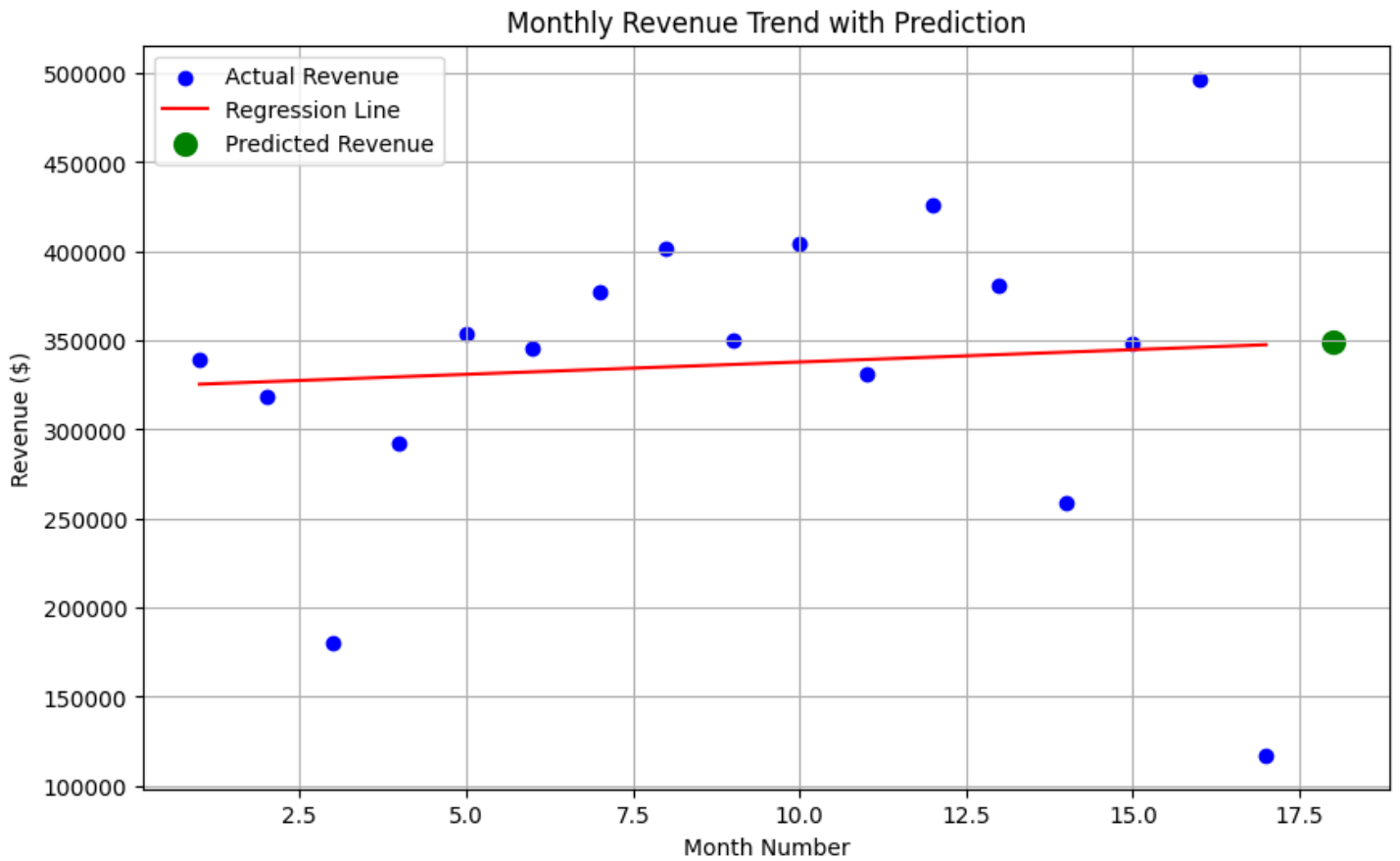
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Monthly Revenue Regression & Prediction



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EDA Visuals: Monthly Trend, Product Share & Scatter



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Sales Prediction (Next Month)

A simple linear regression model was applied on monthly aggregated revenue.

Predicted Revenue for Next Month: \$348,940.17

Average Monthly Revenue: \$336,485.39

Trend: Overall Increasing

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Bonus: Interactive Dashboard (Plotly)

Interactive charts were created using Plotly including:

- Monthly Revenue Line Chart (Hover-enabled)
- Pie Chart of Revenue Share by Product
- Sales Comparison Bar Chart

These charts allow dynamic filtering and better exploration.

Tool Used: Plotly (Python)

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Key Insights

1. Top Performing Product by Revenue: Charger
2. Top Selling Product by Units: Charger
3. Average Monthly Revenue: \$336,485.39
4. Revenue Trend: Increasing
5. Predicted Revenue (Next Month): \$348,940.17

Recommendations:

- Focus on Charger as a high-performing product.
- Boost marketing for top revenue products.
- Monitor revenue trend and prepare inventory accordingly.

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Conclusion

The analysis provides clear visibility into product performance and overall sales. The use of regression for prediction and Plotly for interactive dashboards enhances strategic planning and real-time insights.

This professional report enables retail businesses to make data-driven decisions.

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