Phase 3: Development part-1

Product Sales Analysis

Team Members:

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Description:

The Product Sales Analysis project is designed to analyze and visualize sales data for various products. It helps businesses and organizations gain insights into their product sales performance, make data-driven decisions, and optimize their product offerings. This project focuses on understanding sales trends, product performance, and customer behavior through data analysis and visualization.

Required Libraries:

- Python (programming language)
- Jupyter Notebook (optional, but recommended for code presentation)
- Libraries:
    - Pandas: For data manipulation and analysis.
    - Matplotlib and Seaborn: For data visualization.
    - Scikit-Learn: For machine learning if advanced analysis is required.

Functionality:

1. **Data Loading:** The project loads sales data from a CSV file or database.
2. **Data Cleaning:** The data is cleaned by handling missing values and correcting data types.

3. **Data Analysis:** It analyzes the data to find insights like product sales, revenue, and
4. **customer trends.**
5. **Data Visualization:** The project visualizes the insights using various charts and graphs.
6. **Customer Segmentation**: You can segment customers based on their buying behavior.
7. **Forecasting:** Advanced functionality can be added to predict future sales or trends using machine learning model

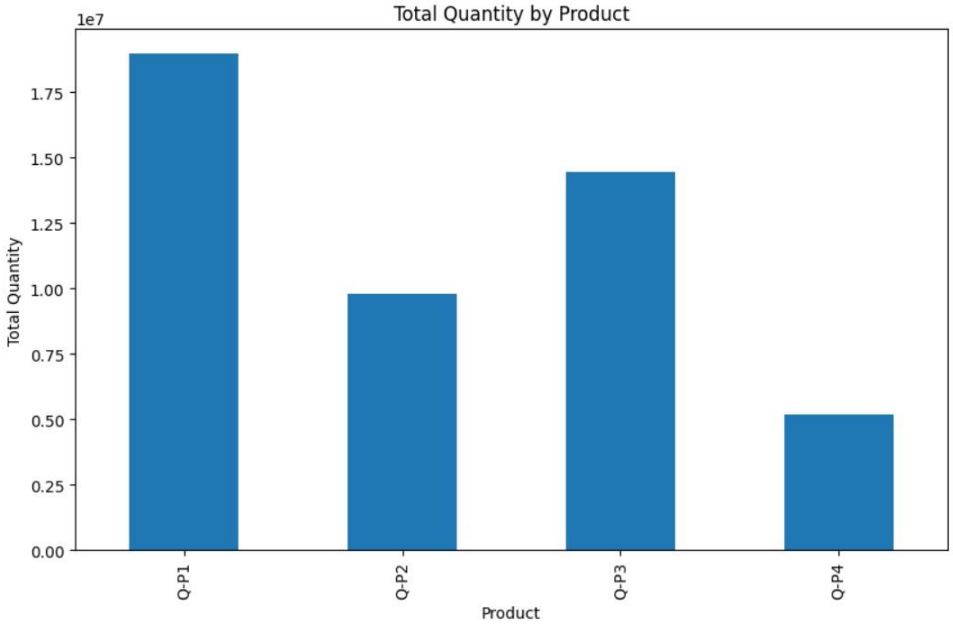
Code:

```
import pandas as pd
import matplotlib.pyplot as plt

# Load the cleaned dataset
df = pd.read_csv(r'C:\Users\deepa\Downloads\archive (2)\statsfinal.csv')

# Example 1: Line Plot
plt.figure(figsize=(10, 6))
plt.plot(df['Date'], df['Q-P1'], label='Quantity P1')
plt.plot(df['Date'], df['Q-P2'], label='Quantity P2')
plt.plot(df['Date'], df['Q-P3'], label='Quantity P3')
plt.plot(df['Date'], df['Q-P4'], label='Quantity P4')
plt.xlabel('Date')
plt.ylabel('Quantity')
plt.title('Quantity vs. Date')
plt.legend()
plt.show()

# Example 2: Bar Plot
total_quantity = df[['Q-P1', 'Q-P2', 'Q-P3', 'Q-P4']].sum()
total_quantity.plot(kind='bar', figsize=(10, 6))
plt.xlabel('Product')
plt.ylabel('Total Quantity')
plt.title('Total Quantity by Product')
plt.show()
```



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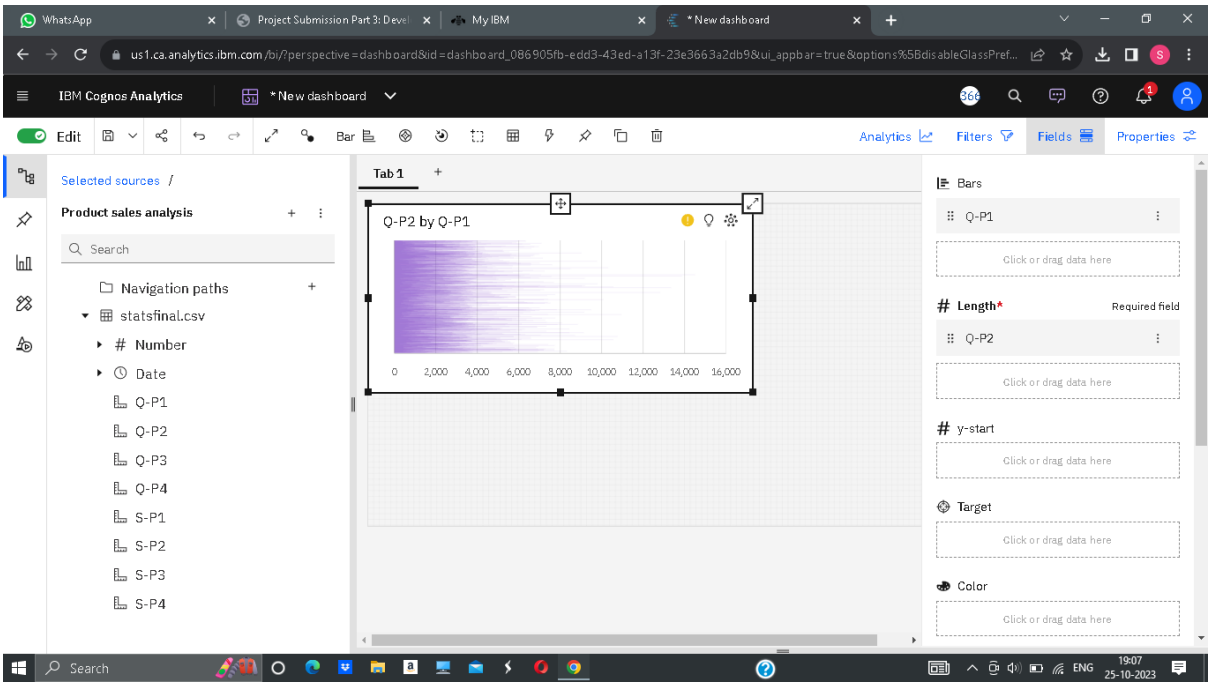
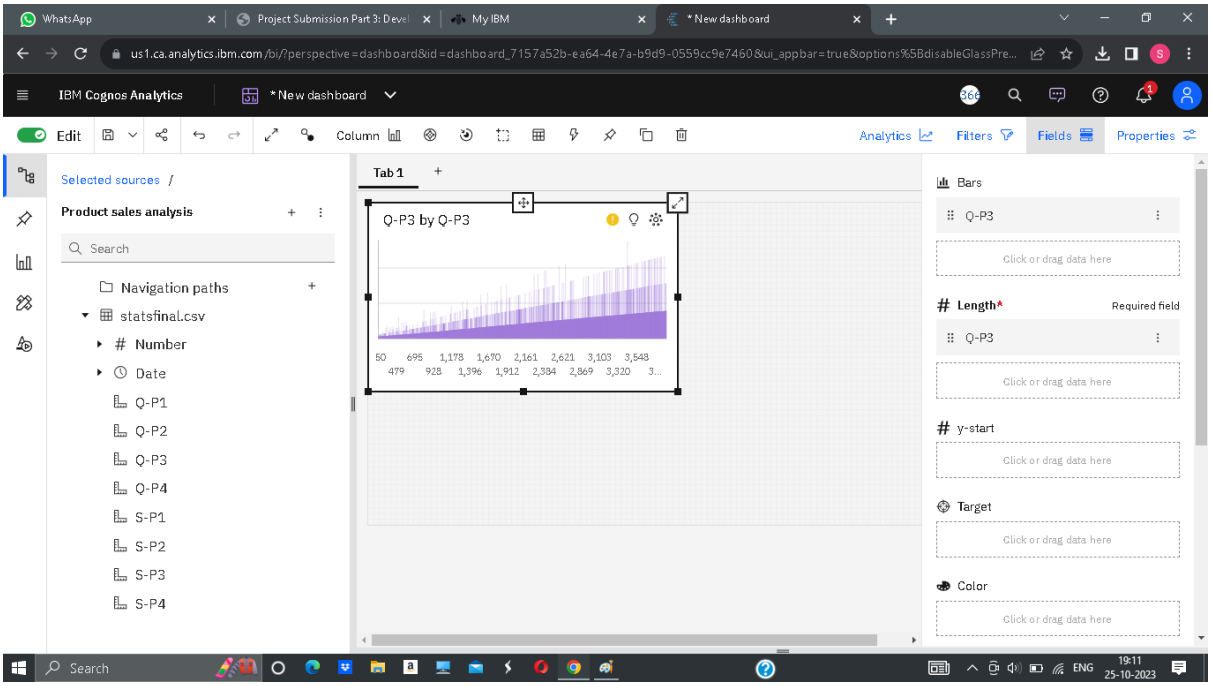
Visualization using IBM Cognos:

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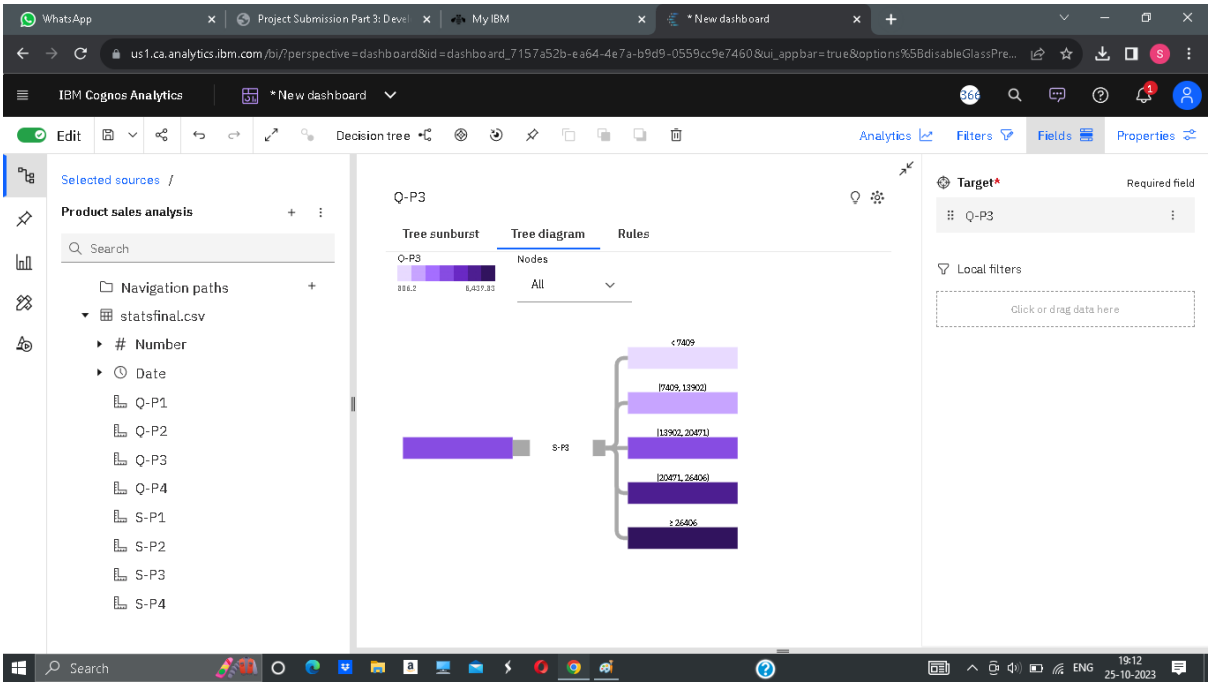
IBM Cognos Analytics
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Tree sunburst
Tree diagram
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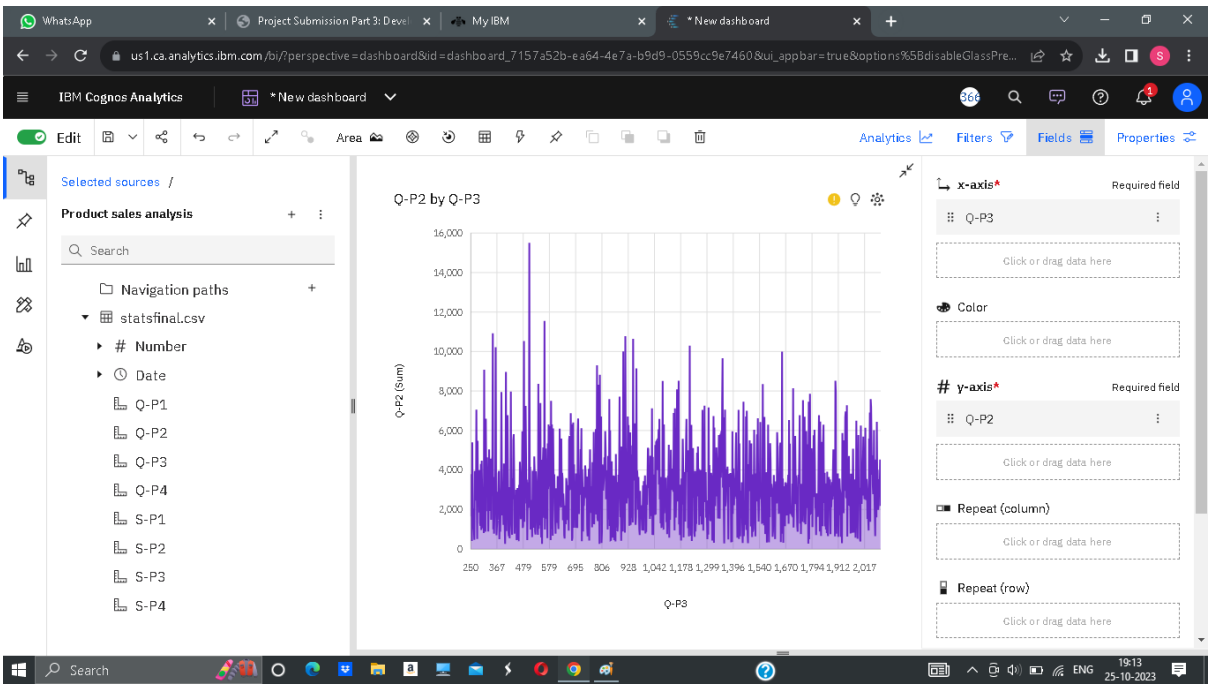

Conclusion:

The Product Sales Analysis project provides valuable insights into product sales data, allowing businesses to make informed decisions based on data-driven strategies. It helps in understanding customer preferences, optimizing inventory, and increasing overall profitability. By leveraging data visualization and analysis, organizations can react to market trends more effectively and create strategies to boost their sales and revenue.