

Decomposition Plan for Product Analysis:

I will use this plan as an outline to analyze the AtliQ Hardware databases, extract valuable insights, and create realistic recommendations to improve product sales performance. Additionally, creating interactive dashboards will empower the company to explore the data on their own and make informed decisions.

1. Data Access and Initial Exploration:

- Connect to each SQLite database using Python's sqlite3 module.
- Utilize Pandas' read_sql_query function to extract data from each table.
- Explore the structure and contents of each table to understand the available data fields and their relationships.

2. Data Cleaning and Preparation:

- Handle missing values, duplicates, and inconsistencies in the data.
- Convert data types as needed for analysis (e.g., dates, numeric values).

3. Top Selling Products Analysis:

- Identify the top-selling products based on sales volume and revenue.
- Utilize pandas' groupby and sorting functionalities to analyze sales data.
- Visualize top-selling products using bar charts with Plotly.
- Compare if the the top selling products were also the leaders in revenue.

4. Sales Improvement Strategies:

- Investigate factors contributing to successful product sales.
- Hypothesis: Products with higher profit margins may have more potential for increased sales.
- Analyze the relationship between product sales and factors such as gross price and manufacturing cost, and pre-discount deductions.
- Identify products with high profit margins but low sales volume for potential marketing or pricing strategies.

6. Dashboard Creation:

- Combine insights from previous analyses into interactive dashboards.
- Use Python libraries such as Plotly or Dash to create dynamic visualizations.
- Include filters and dropdown menus for users to explore different aspects of the data.
- Design the dashboard layout for easy comprehension and navigation.
- Alternatively, consider using Tableau for dashboard creation if preferred by the company.

7. Presentation and Documentation:

- Prepare a detailed report summarizing the findings and insights from the analysis.
- Present key visualizations and dashboards to stakeholders during meetings or presentations.

- Provide documentation on how to interact with the dashboard and access the underlying data.
- Address any questions or feedback from stakeholders to refine the analysis further.