Data warehouse and Data analysis of Global Electronics Retailer

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Introduction

The dataset is of Global Electronics Retailer. Sales data for a fictitious global electronics retailer, including tables containing information about transactions, products, customers, stores, and currency exchange rates. It is collected from the website https://mavenanalytics.io/ website.

Background

This project analyzes sales data from a fictitious Global Electronics Retailer. The dataset includes crucial business components such as customers, products, stores, sales transactions, and currency exchange rates. This analysis aims to uncover insights into customer purchasing patterns, product performance, and store operations across multiple locations, leveraging Tableau for data visualization.

Business Need

To maintain a competitive edge in the global retail market, the business needs to optimize its sales strategy, improve customer satisfaction, and increase operational efficiency. This requires a comprehensive understanding of transaction data, store performance, and customer demographics. The goal is to use this data to drive decision-making and strategic initiatives like targeted marketing campaigns, inventory management, and localized pricing strategies based on store performance.

Need for a Data Warehouse

-Data Warehouse: is essential for consolidating this dispersed data into a central repository. The current setup of separate tables for customers, stores, sales, and exchange rates complicates the analysis process. A data warehouse will enable:

- Integration of Data: Centralized storage of transactional, customer, product, and store data allows for streamlined analytics.
- Consistency and Accuracy: A unified data structure will eliminate inconsistencies, improving data quality.
- Performance Optimization: A warehouse will support advanced analytics and improve data retrieval speed, particularly for large datasets.

Proposed Data Warehouse

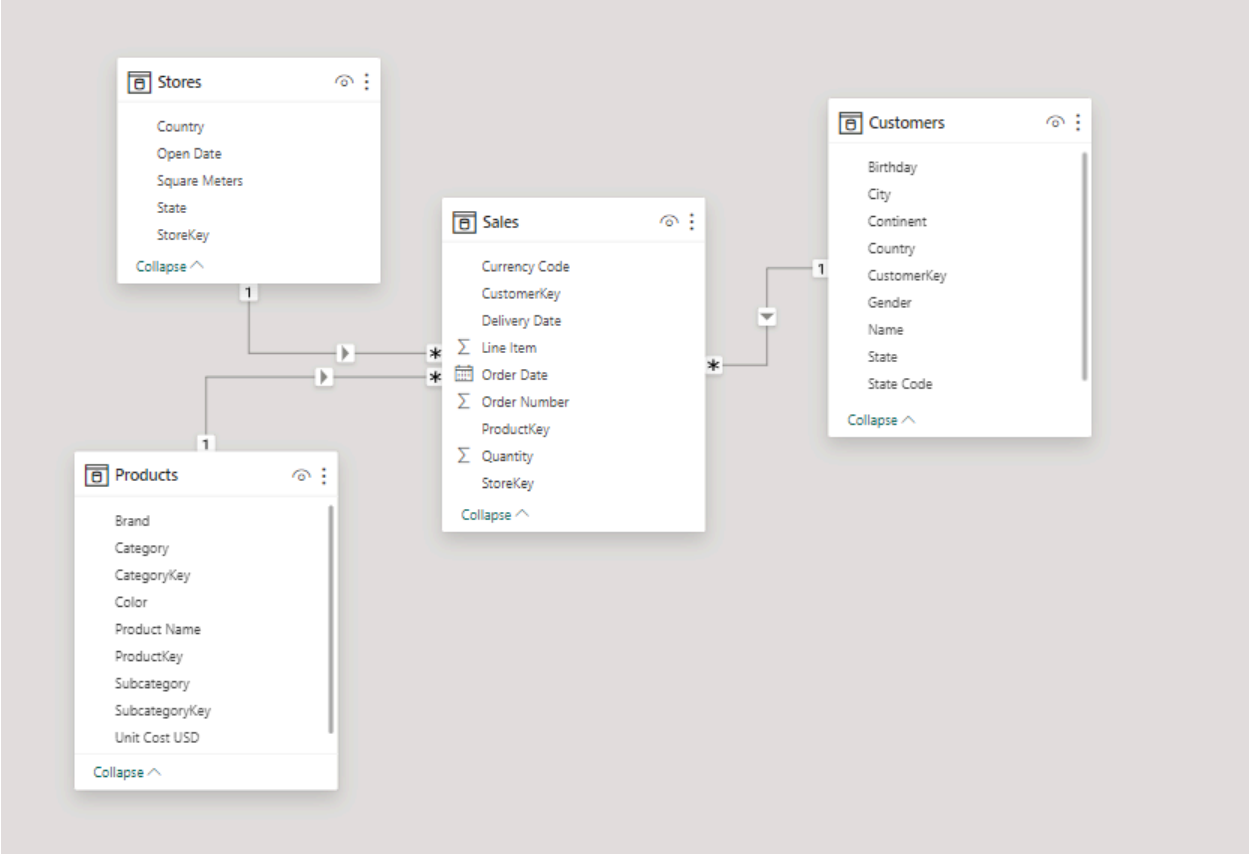
The proposed data warehouse will include fact and dimension tables for efficient querying and analysis.

Fact Table

- Sales_Fact: This will store transactional data, including foreign keys to dimensions such as Customer, Product, Store, and Currency.

- Dimension Tables:
  - Customer_Dimension: Stores customer details (demographics, contact info).
  - Product_Dimension: Contains product details (category, specifications).
  - Store_Dimension: Information about store locations, store types, etc.

Scheme Star



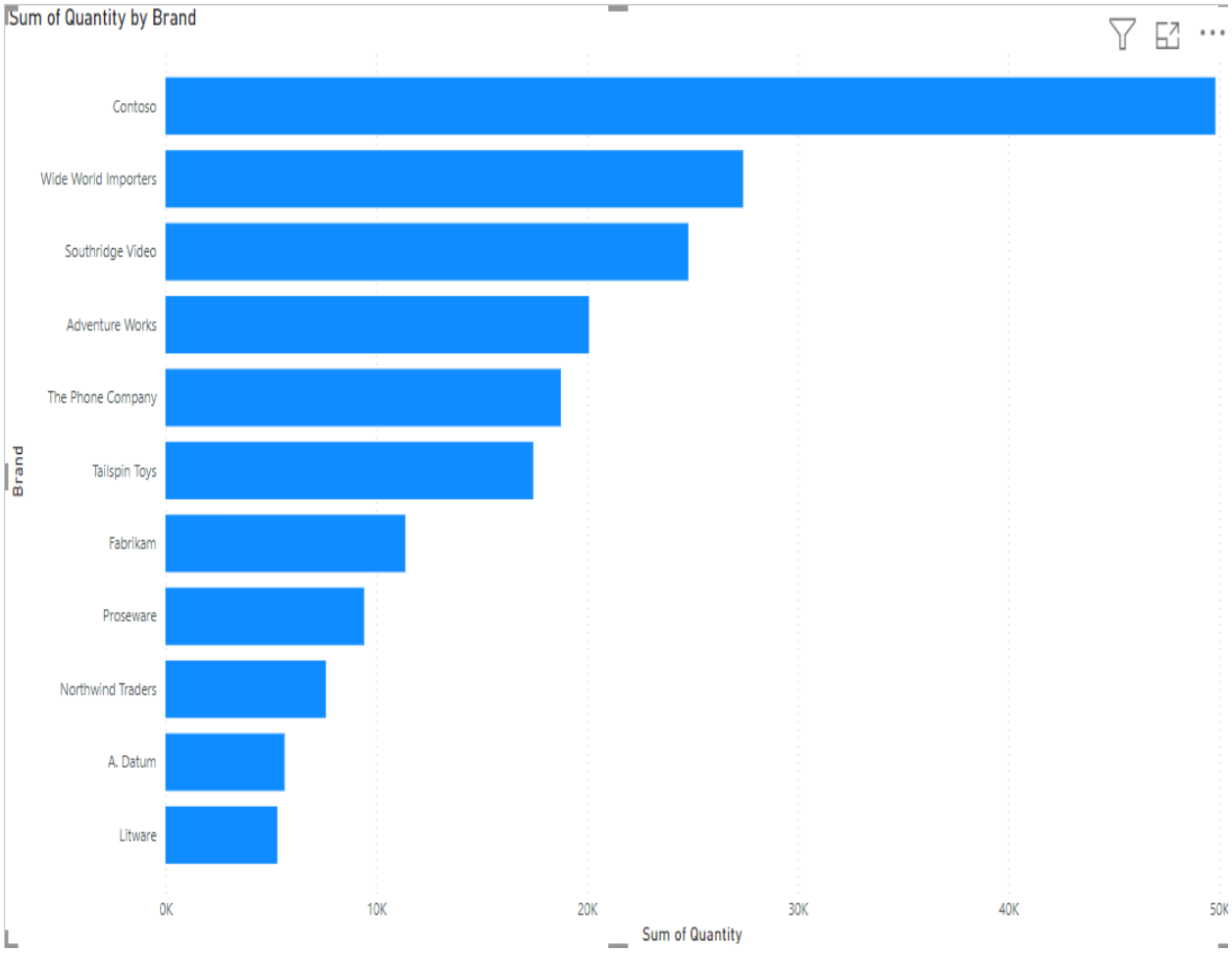
Dashboard

The dashboard provides a comprehensive overview of product quantity data by brand, category, and country. It includes a summary of total quantity by year, brand, and country and a detailed breakdown of quantity by category and country for each brand. The dashboard uses a combination of bar charts, pie charts, and line charts to visualize the data effectively.

This shows the sum of quantity according to the brand and category of the global electronics retailer. This also shows the sum of quantity by year and country-specific. This has a line graph of the total sum of quantity by category and country. This has a pie chart of the sum of quantity by brands for further analysis.

For further analysis:

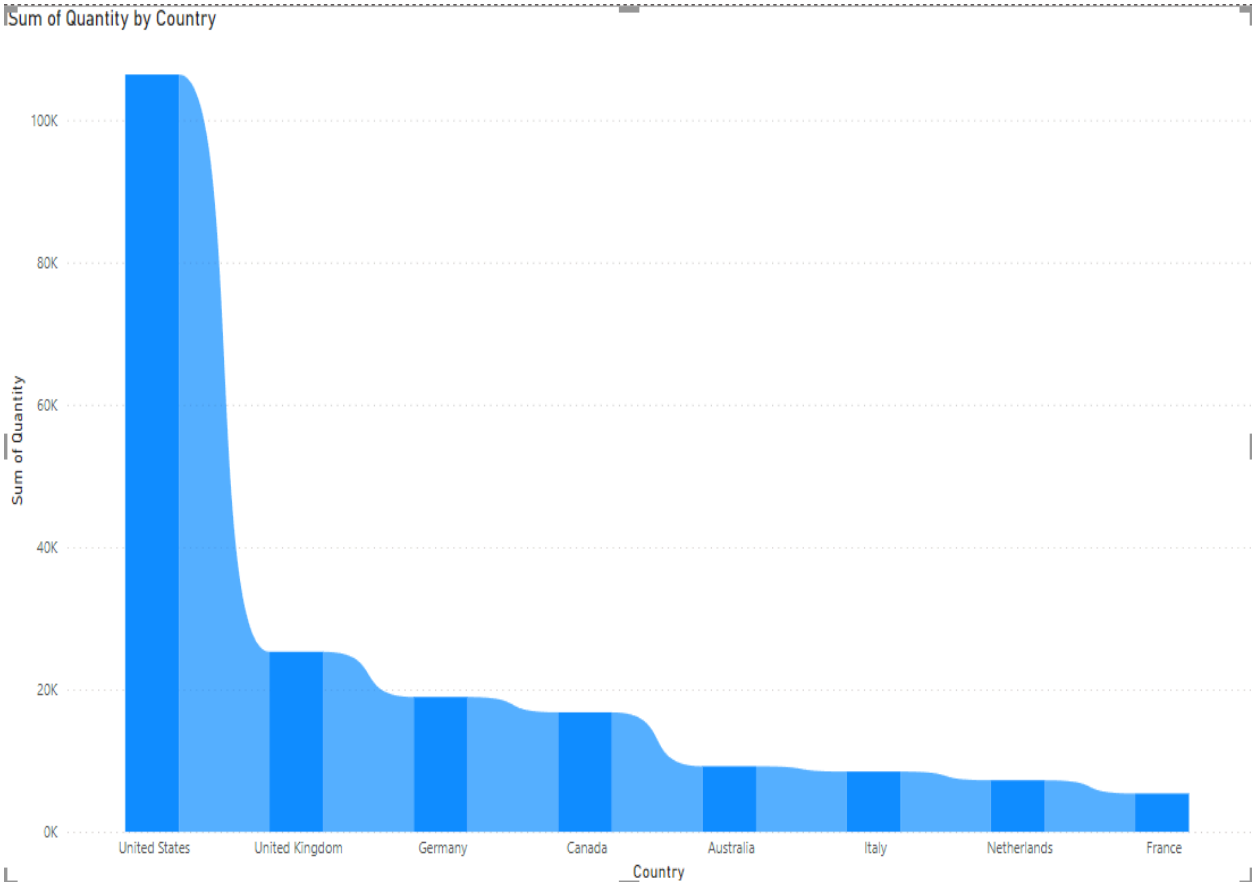
1. **Sum of quantity by brand:**



The graph shows the sum of quantity for each brand, ranked from highest to lowest. The x-axis represents the sum of quantity, while the y-axis represents the brand names. The bar chart indicates that Contoso has the highest sum of quantity, followed by Wide World Importers and Southridge Video. The remaining brands have lower quantities, with Litware having the lowest.

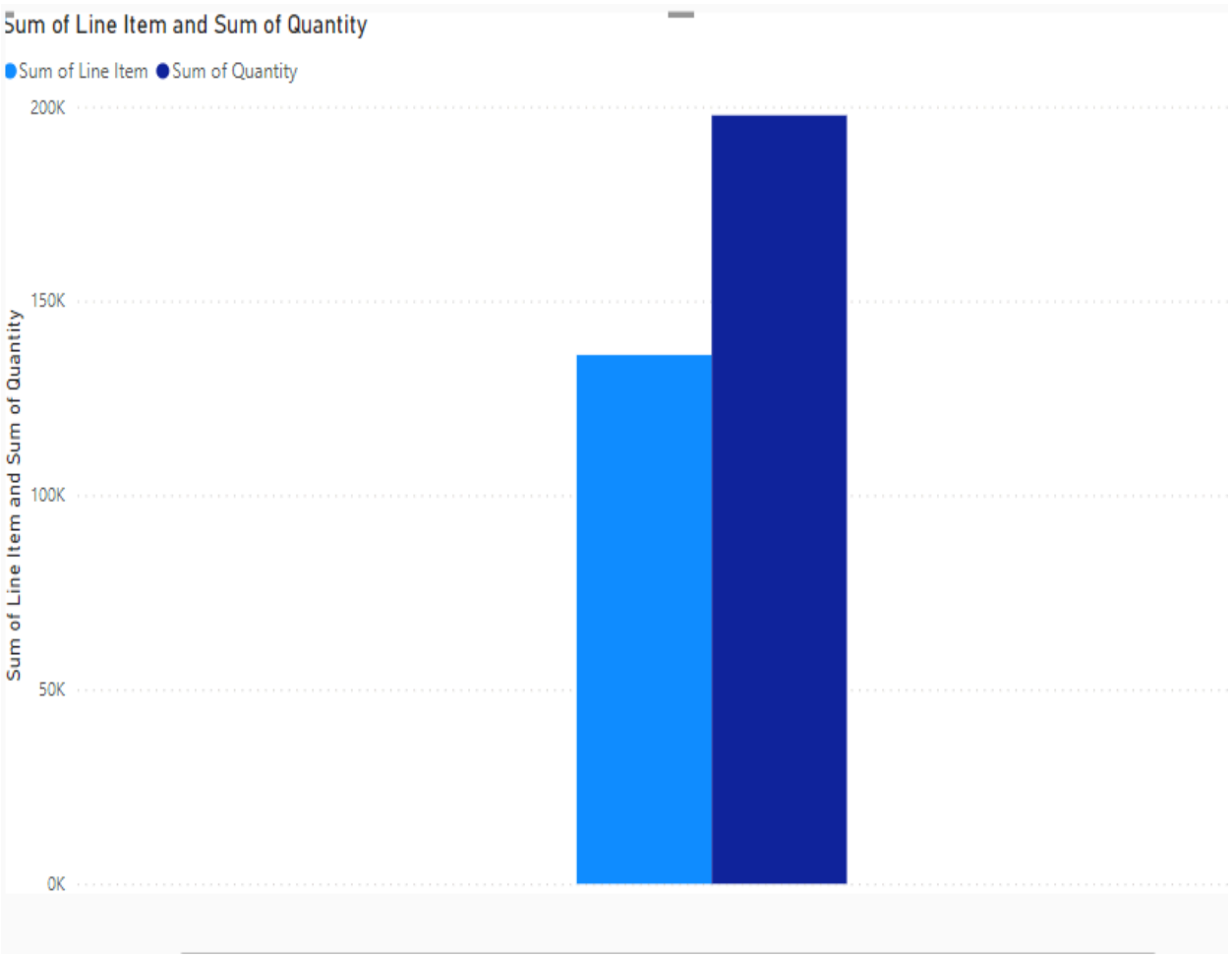
This bar graph explains the sum of quantity by brand, where we can see the Contoso brand has the highest quantity sales, and Litware has the lowest quantity sales.

2. **The sum of Quantity by Country:**



The graph shows the sum of quantity for each country. The x-axis represents the countries, while the y-axis represents the sum of quantities. The United States has the highest sum of quantity, followed by the United Kingdom and Germany. The quantity gradually decreases for the remaining countries, with France having the lowest sum of quantity. This is the country-specific quantity sale. The United States has the highest sales quantity, and France has the lowest. We must introduce schemes and offers for the country with the lowest sales volume.

3. **The sum of the line item and the sum of the quantity**

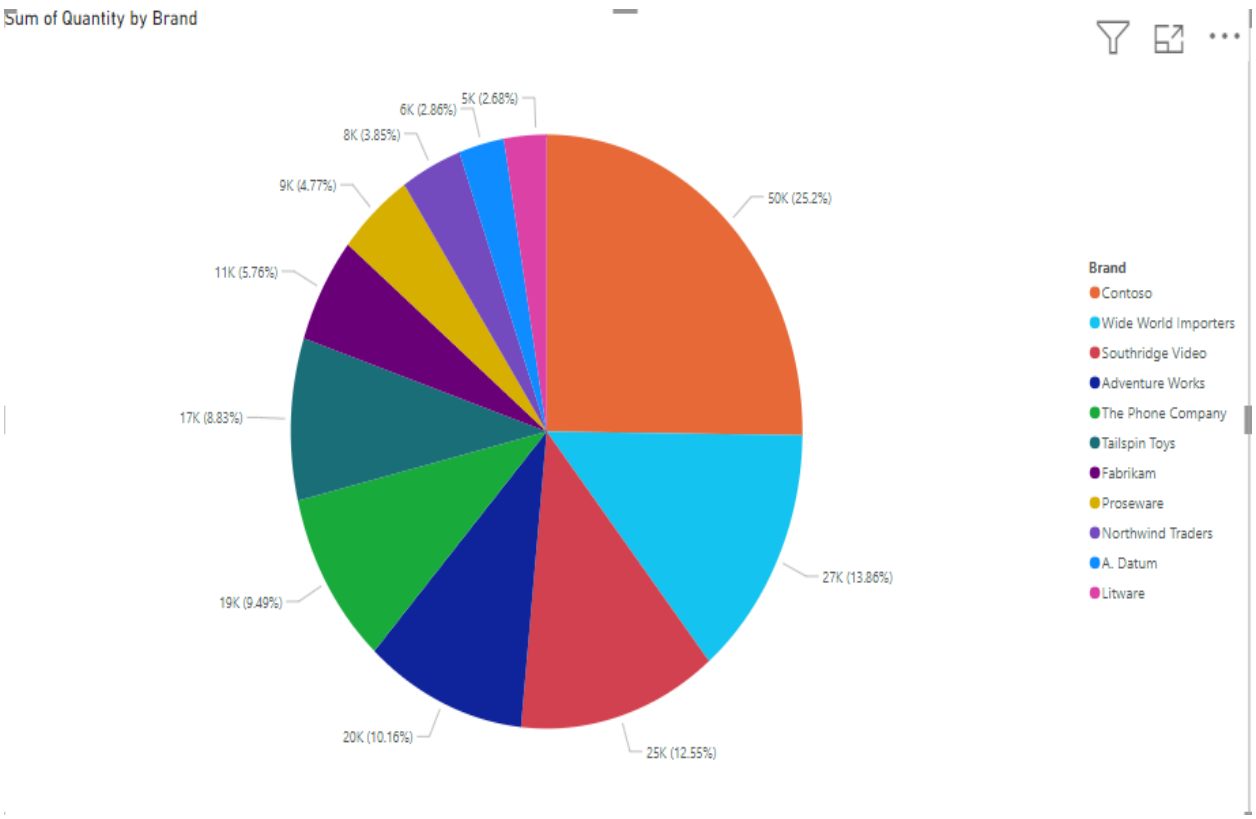


The graph compares the "Sum of Line Item" and "Sum of Quantity."

- **The Sum of the Line Item** appears to be significantly higher than the "Sum of Quantity."
- The "Sum of Quantity" is approximately 60% of the "Sum of Line Item".

This suggests that there may be a discrepancy between the number of items ordered (quantity) and the total value of those items (line item). This could be due to different item prices, discounts, or taxes.

4. **The sum of Quantity by Brand**



The graph shows the sum of quantity for each brand as a percentage of the total sum of quantity. The largest slice of the pie chart represents Contoso, followed by Wide World Importers and Southridge Video. The remaining brands have smaller slices of the pie chart, indicating that they contribute a smaller percentage to the total sum of quantity.

Conclusion:

In conclusion, integrating a Data Warehouse for the global electronics retailer is essential for streamlining and optimizing data management. By centralizing the currently fragmented data sources (customers, products, stores, sales, and exchange rates), the business will be able to:

- Gain deeper insights into sales performance, customer behavior, and store operations across various regions.
- Handle the complexity of global transactions and currency exchange rates more efficiently.