

Superstore Sales Dataset Analysis



Our Project Team



Nada Elsayed



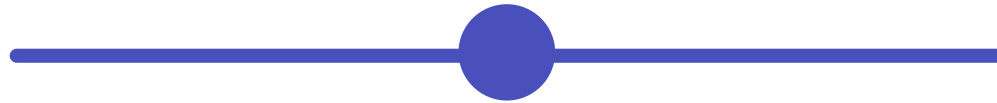
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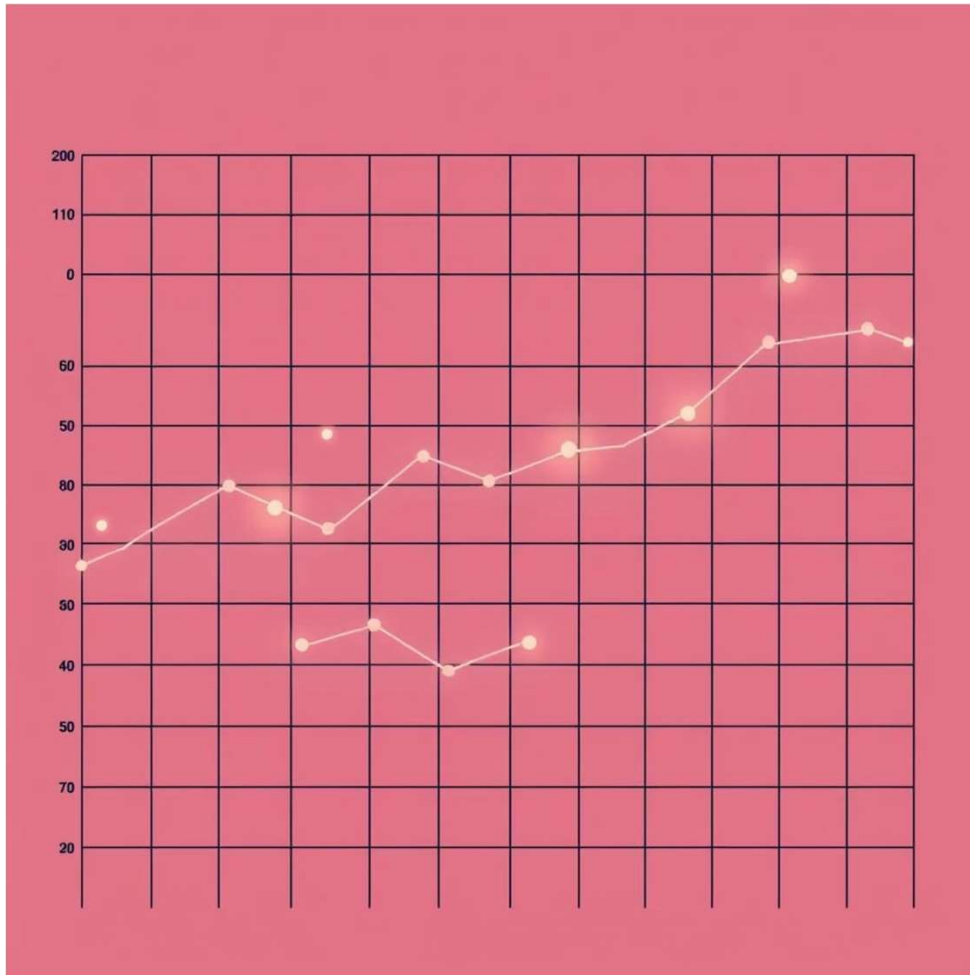
Rana Mohamed



Project Goal: Unlocking Sales Potential

- Our primary objective is to meticulously analyse sales performance and profitability within the Superstore dataset. By delving deep into the available data, we aim to uncover crucial insights that will empower stakeholders to make more informed and strategic decisions, ultimately driving business growth.

Dataset Overview



The Superstore Sales Dataset is a comprehensive collection of transactional data. It comprises 9,800 rows, each representing a unique sales record, and 18 distinct columns capturing various attributes of each transaction.

- **Shape:** 9,800 rows, 18 columns
- **Data Types:** Includes both numerical (e.g., Sales, Discount) and categorical (e.g., Region, Category, Product Name) data, offering a rich basis for analysis.
- **Completeness:** The dataset is remarkably clean, with no missing values or duplicate entries, ensuring data integrity for analysis.

Identifying Key Limitations

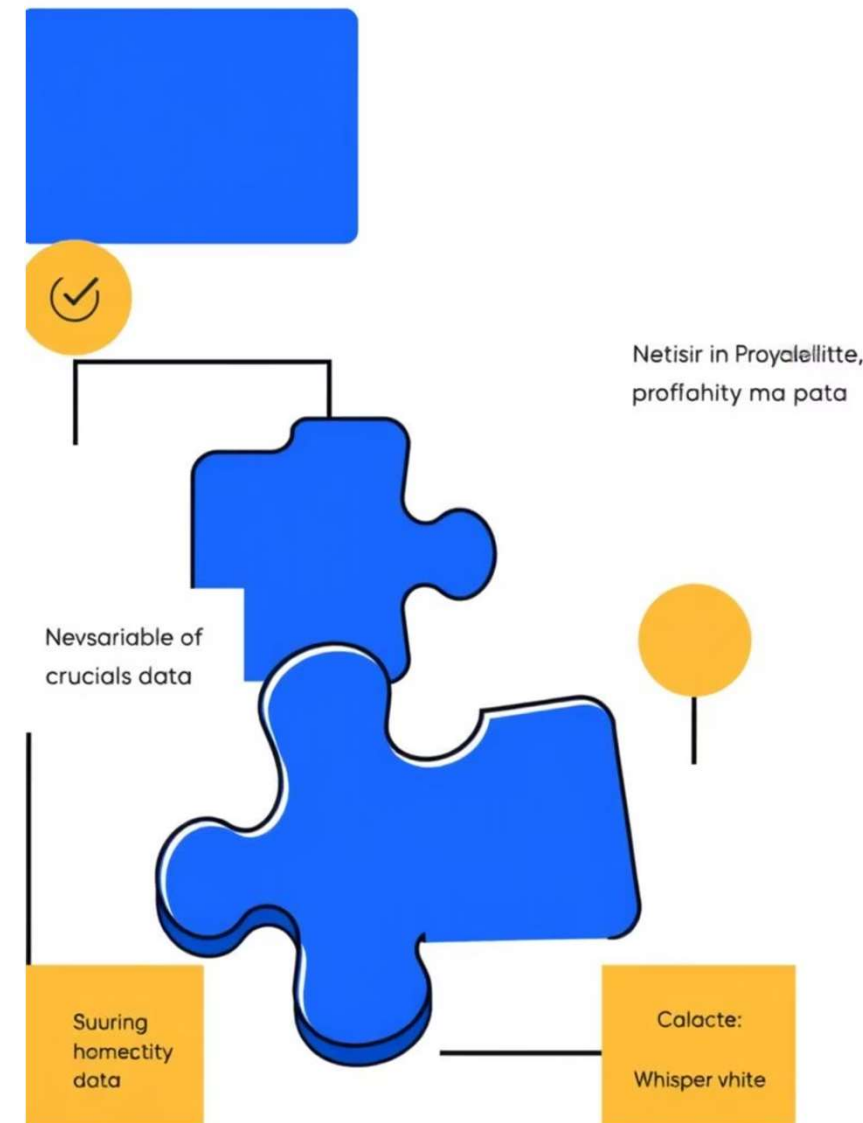
While the Superstore dataset is robust, a critical challenge emerged during our initial assessment. The absence of specific key columns significantly constrains our ability to conduct a truly comprehensive profitability analysis.

Missing Columns for Profitability

Crucially, the dataset lacks direct columns for **Quantity**, **Cost**, and **Profit**. This limitation restricts our analysis primarily to sales revenue.

Impact on Analysis Depth

Without these essential metrics, we cannot accurately calculate margins, evaluate product-level profitability, or understand the cost implications of sales strategies. This limits insights to surface-level sales performance.



Data Transformation

To overcome the current dataset limitations and unlock deeper insights, we recommend adding new columns



Add Quantity Column



Derive Cost & Profit



Deeper Decision-Making

Preliminary Data Exploration

Despite the identified data limitations, our initial exploration has already yielded valuable insights into the superstore's sales dynamics, focusing on patterns discernible from available sales figures.

1 Top-Selling Products & Categories

We have identified the highest-grossing products and product categories, providing an initial understanding of customer preferences and market demand.

2 Regional Sales Performance

Analysis by region reveals geographical strengths and areas for potential improvement, indicating where sales strategies might need to be adapted.

3 Sales Trends Over Time

Examination of sales trends across different periods (e.g., monthly, quarterly) helps us understand seasonality and growth trajectories, informing future planning.



Unlocking Insights: Superstore Sales Data Analysis

Data Cleaning and Feature Engineering

We enhanced the dataset by creating new, valuable columns, providing deeper analytical capabilities and richer business understanding.



Delivery Days

Calculated as **Ship Date - Order Date**, this metric is crucial for analysing shipping performance, identifying potential delays, and optimising logistics.



Order Month

Derived from **Order Date**, this column helps us pinpoint seasonal sales trends, forecast demand, and plan inventory more effectively throughout the year.



Order Year

Extracted from **Order Date**, this feature enables us to track year-on-year growth, compare performance, and identify long-term market shifts.

Feature Engineering: Unveiling Financial Metrics

Our feature engineering also focused on creating critical financial metrics to support granular cost and profitability analysis.



Cost per Unit

Determined by **Cost / Quantity**, this column provides a per-unit cost benchmark, essential for detailed cost analysis and margin calculations.



Selling Price per Unit

Calculated as **Sales / Quantity**, this helps us understand our pricing strategies and their impact on revenue at an individual product level.

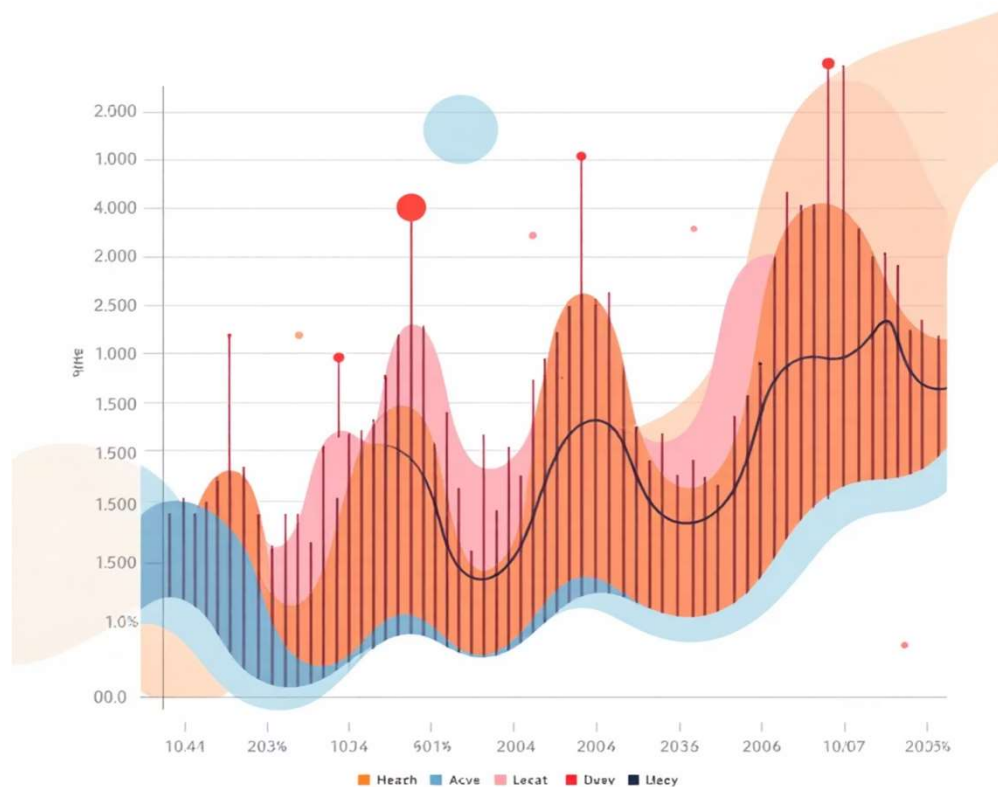


Total Profit

The ultimate measure, **Sales - Cost**, representing the core profitability of each transaction, product, and customer segment.

Addressing Outliers: A Realistic Approach

Our analysis identified approximately 1,145 outliers across Sales, Cost, and Profit data points.



It is common to encounter outliers in real-world business datasets. These often represent legitimate, albeit extreme, transactions such as large corporate orders or significant promotional sales.

While statistical models might suggest their removal, we recommend retaining these outliers. They provide a complete picture of business activity and represent natural variations within the market.

Excluding them could lead to an incomplete or biased understanding of our operational landscape.

Data Modeling: Star Schema Design

- To optimise data retrieval and analysis, we implemented a Star Schema design, clearly distinguishing between fact and dimension tables.



Data Model Components

Fact Table

Row ID, Order ID, Sales, Quantity, Cost, Profit Per Unit, Delivery Days, and pricing data.

Customer Dimension

Customer ID and Customer Name

Product Dimension

Product ID, Category, Sub-Category, and Product Name for inventory insights.

Date Dimension

Order Date, Order Month, Order Year, and Ship Date

Location Dimension

Country, City, State, Postal Code, and Region for spatial analysis.

Segment Dimension

segment

Shipment Dimension

ship mode

Supersales Dataset

Scopes

General Measures

Geographical Distribution

Category Analysis

Sales Performance

Shipments

General Measures

Core financial metrics that provide a snapshot of overall business health and profitability

Total Sales



Total Profit

Number of Orders



Geographical Distribution

Understand customer reach and profitability across different markets and regions



Number of Customers

Track regional customer acquisition and market penetration



Average Profit per Customer

Measure customer value and profitability by geography





Category and Product Analysis

Evaluate product performance, profitability, and cost structure across your portfolio

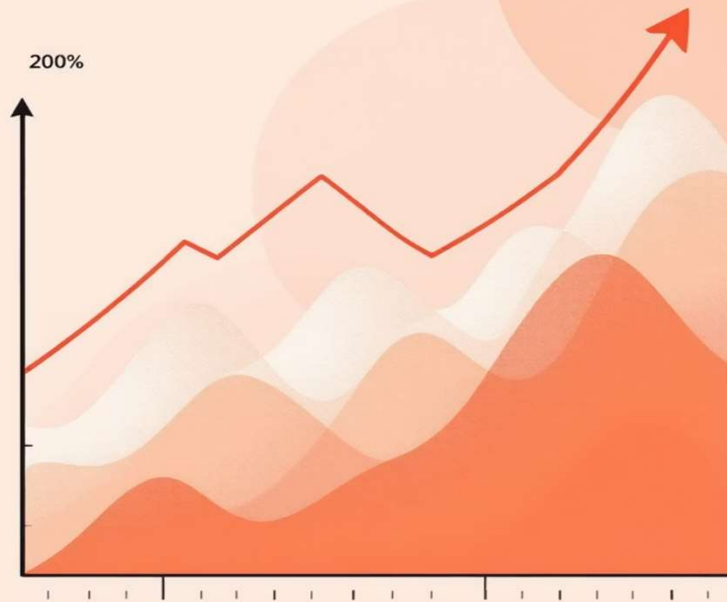
Total Quantity Sold

Average Profit Margin

Total Cost per
Category

Sales Analysis and Performance

Monitor growth trends and customer value to guide strategic decisions



Sales Growth

Track period-over-period expansion and market momentum

Average Order Value

Measure transaction size and revenue per order

Shipments Performance

Optimise delivery operations and understand shipping efficiency across all modes

Average Delivery Days



Orders per Ship Mode



Average Sales per Mode

Delivery Days per Month

Superstore Dataset Analysis

Welcome to the Superstore Analysis Project

This project provides interactive insights across regions, categories, sales performance, and shipments through four main dashboards



Home



Geographical
Distribution



Product Dashboard



Sales Performance



Shipments

Team Members

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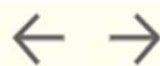
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Geographical Distribution Dashboard



Total Sales

2.74M

Total Profit

\$676K

Num of Orders

4916

Avg Profit Per Customer

852.18

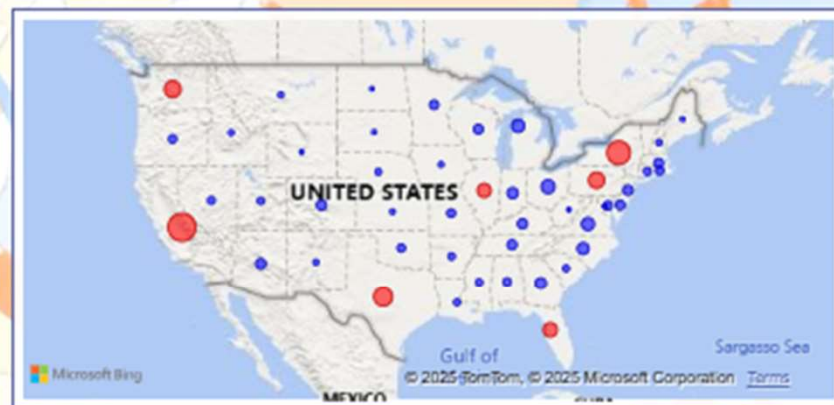
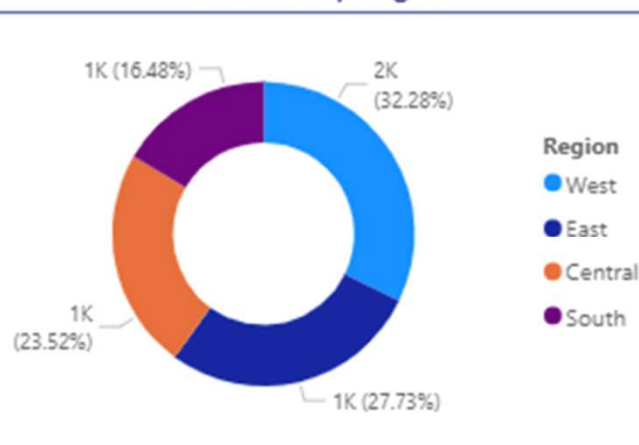
Num of Customers

793

Sum of Sales by Region



Orders by Region



2015

2016

2017

2018

2019

Central

East

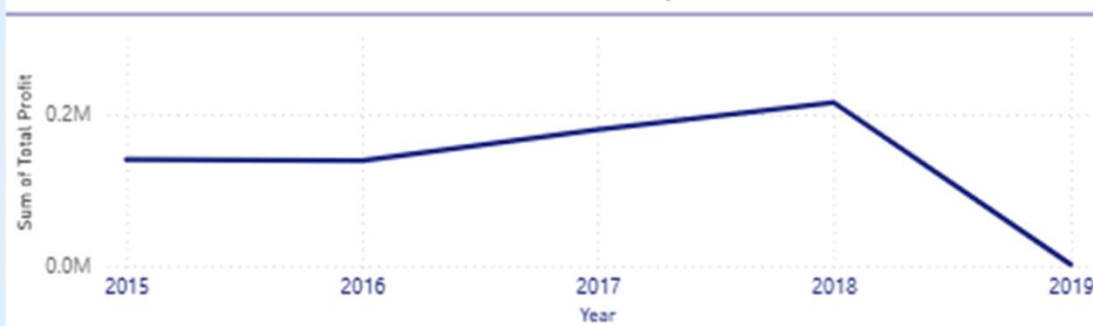
South

West

Sum of Total Profit by Region



Sum of Total Profit by Year



Total Sales by Category



2015

2016

2017

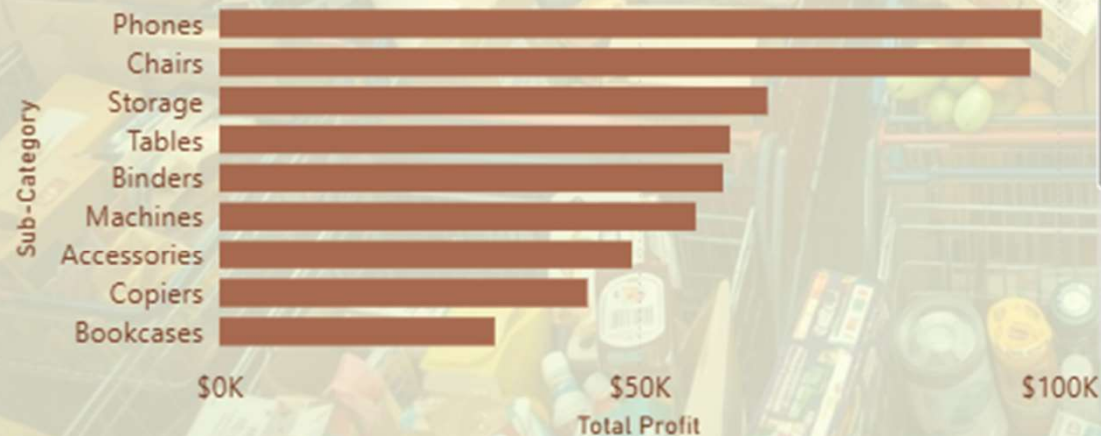
2018

2019

Total Sales by Year, Quarter and Month



Total Profit by Sub-Category



Product Name

"While you Were Out" Message Book, One Form per Page

#10- 4 1/8" x 9 1/2" Recycled Envelopes

#10- 4 1/8" x 9 1/2" Security-Tint Envelopes

#10 Gummed Flap White Envelopes, 100/Box

#10 Self-Seal White Envelopes

#10 White Business Envelopes, 4 1/8 x 9 1/2

#10-4 1/8" x 9 1/2" Premium Diagonal Seam Envelopes

#6 3/4 Gummed Flap White Envelopes

1.7 Cubic Foot Compact "Cube" Office Refrigerators

1/4 Fold Party Design Invitations & White Envelopes, 24 8-1/2" X 11" Cards, 25 Env./Pack

Total

Sales Performance

Total Rev.

\$881K

Rev. Growth **21.47%**

Total Profit

\$216K

Growth **19.95%**

Avg Order Value

\$531

2015

2016

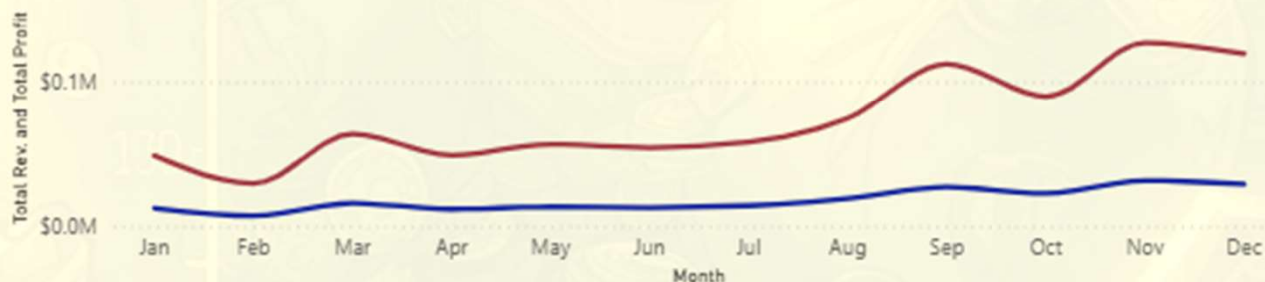
2017

2018

2019

Total Rev. and Total Profit by Month

● Total Rev. ● Total Profit



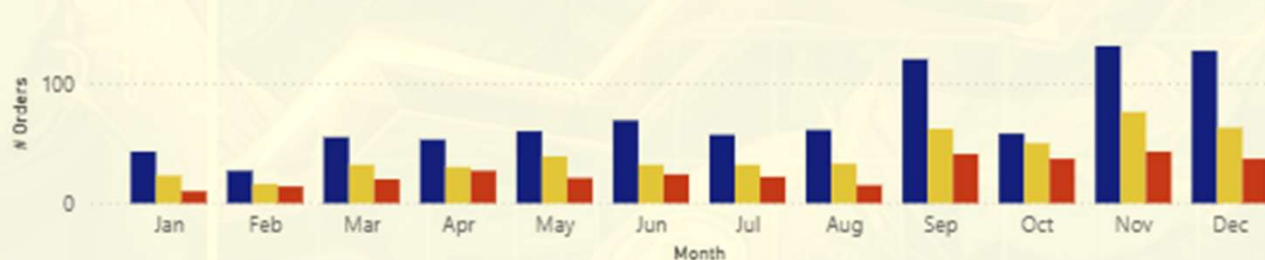
Orders and Total Profit by Month

■ # Orders ● Total Profit

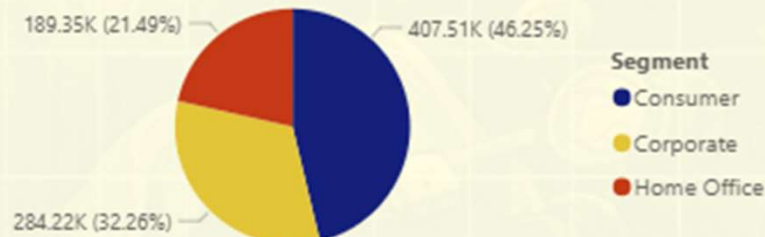


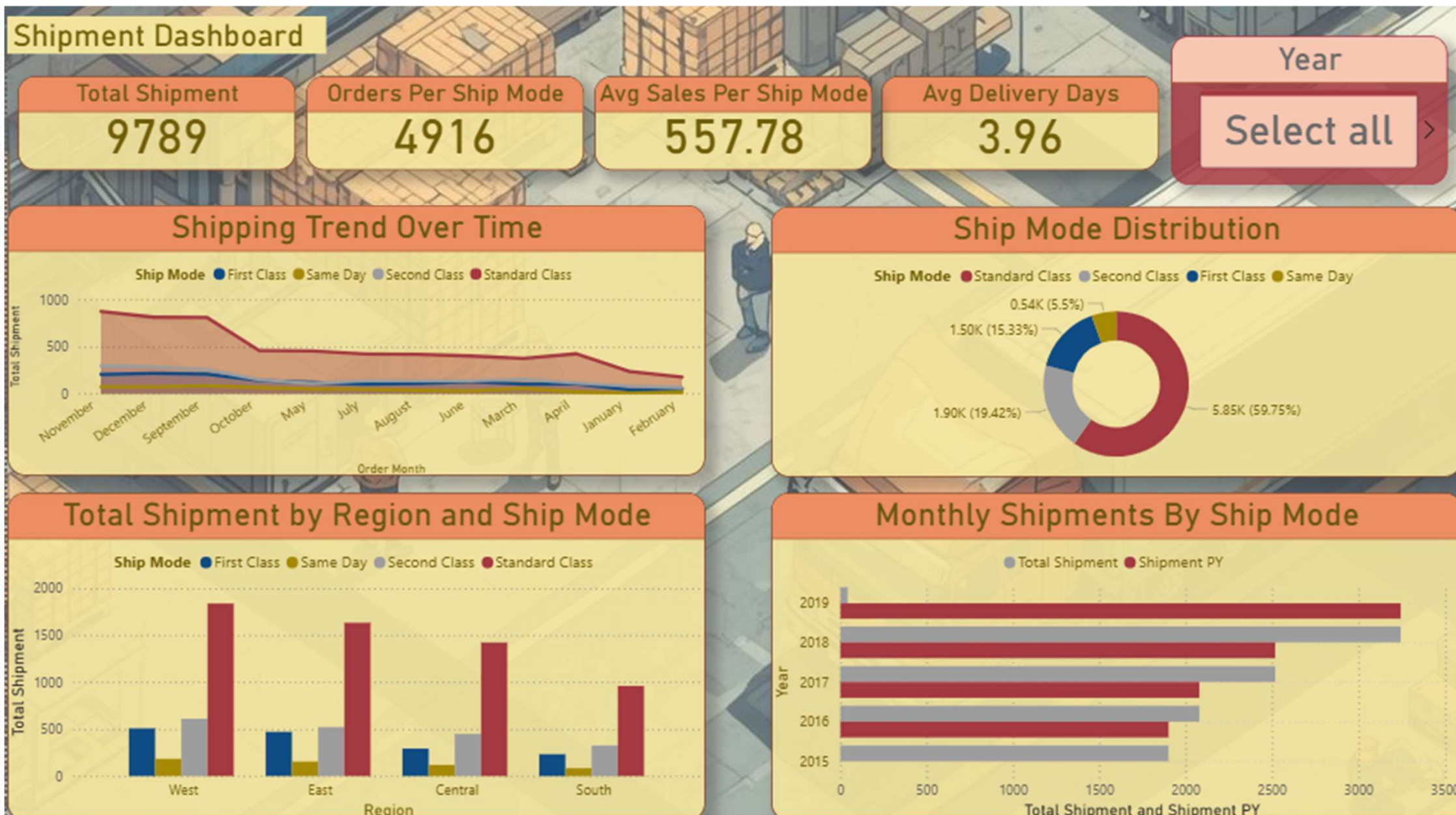
Orders by Month and Segment

Segment ● Consumer ● Corporate ● Home Office



Total Sales by Segment







Thank You

We appreciate your attention and welcome any questions you may have regarding this analysis.

