

Retail Sales Dashboard & Profitability Analysis

Project Overview

This project focuses on analyzing retail sales data from a fictional company to uncover critical business insights related to profitability, sales trends, and the impact of discounts. Using Microsoft Power BI, the data was transformed through cleaning, modeling, and advanced DAX calculations to build an interactive dashboard. The dashboard enables dynamic filtering by region, product category, and sales representative, allowing stakeholders to evaluate sales performance, profit margins, and seasonal effects. Key findings include identifying the most profitable regions, best-selling product categories, and sales representatives with superior profit ratios, as well as seasonal peaks driven by promotional discounts. This tool equips decision-makers with real-time analytics to optimize business strategies and improve profit margins.

Introduction

In today’s competitive retail landscape, businesses require timely and comprehensive insights into their sales data to make informed decisions. The Retail Sales Dashboard & Profitability Analysis project aims to provide an end-to-end solution for analyzing sales transactions, assessing profitability, and visualizing key performance indicators (KPIs). The project utilizes a detailed dataset capturing sales transactions across multiple regions, product categories, and sales representatives. By applying data cleaning procedures, calculating financial metrics using DAX, and designing an interactive dashboard in Power BI, this project enables detailed exploration of sales trends and profitability. The dashboard supports filtering by multiple dimensions and highlights performance metrics such as total sales, profit margins, discounts, and units sold. Through this analytical tool, business managers and executives can identify high-value customers, regions, and products, optimize discount strategies, and align sales efforts with seasonal demand patterns. The outcome not only aids in retrospective analysis but also lays the groundwork for predictive analytics and strategic planning.

Dataset Used

Order ID	Order Date	Product Category	Sub-Category	Region	Sales Representative	Units Sold	Unit Price	Cost Price	Discount %
1001	2024-01-15	Office Supplies	Binders	West	Ravi Sharma	15	25	15	0.0
1002	2024-03-23	Consumer Electronics	Phones	East	Anita Singh	10	200	150	10.0
1003	2024-07-11	Office Supplies	Paper	East	Ravi Sharma	40	3	2	0.0
1004	2024-10-05	Consumer Electronics	Accessories	West	Anita Singh	5	30	20	5.0
1005	2024-11-21	Furniture	Chairs	South	John Doe	8	150	100	15.0

1006	2024 12 15	Furniture	Tables	South	John Doe	7	120	80	0.0
1007	2024 02 12	Office Supplies	Storage	North	Kumar Patel	20	7	5	0.0
1008	2024 08 30	Consumer Electronics	Accessories	West	Ravi Sharma	12	25	18	5.0

Data Cleaning & Preparation

- Converted "Order Date" to datetime and extracted "Month," "Year," and "Quarter". Filled null
- values in "Discount % " with 0 for accuracy.
- Created new columns for "Total Sales" (Units Sold × Unit Price) and "Total Cost" (Units Sold × Cost Price).
- Unified inconsistent category names (e.g., “Cons. Electronics” → “Consumer Electronics”).

Key DAX Measures

- Total Sales: SUM Sales[Total Sales])
- Total Cost: SUM Sales[Total Cost])
- Profit: Total Sales] - Total Cost]
- Profit Margin: DIVIDE Profit , Total Sales])
- Average Discount: AVERAGE Sales[Discount % Total Units Sold: SUM Sales[Units Sold])

Dashboard Visuals & Tables

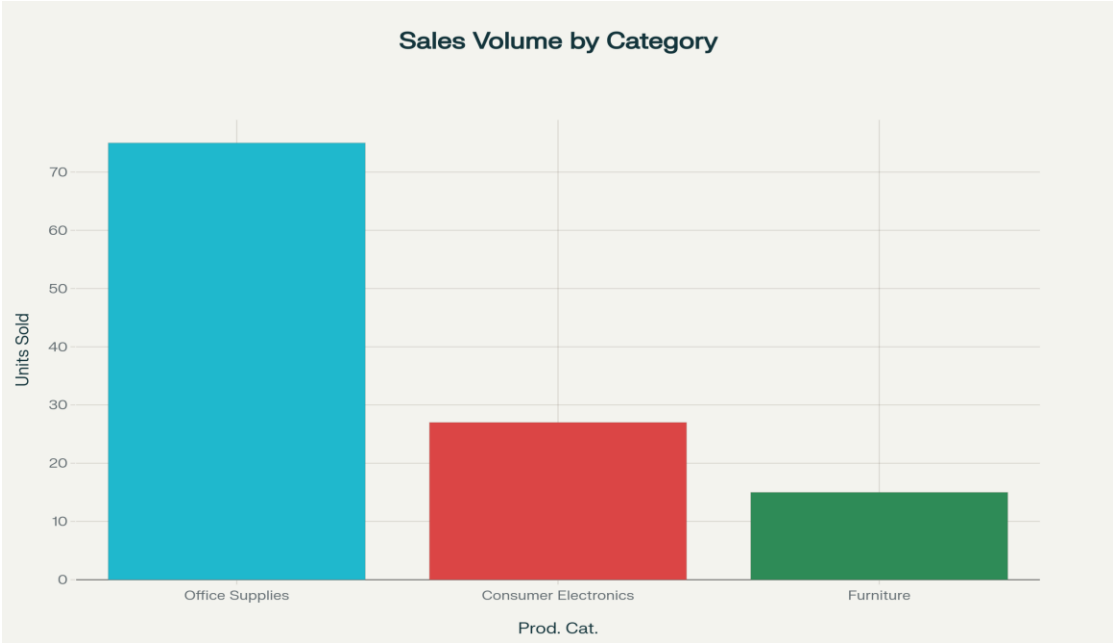
KPI Cards

Metric	Value
Total Sales	₹4,735
Total Profit	₹1,554
Profit Margin	32.8%
Avg. Discount	4.4%
Units Sold	117

Sales by Product Category

Product Category	Units Sold	Total Sales	Total Cost	Total Profit	Profit Margin
Office Supplies	75	635	405	230	36.2%
Consumer Electronics	27	2,450	1,816	634	25.9%
Furniture	15	2,040	1,360	680	33.3%

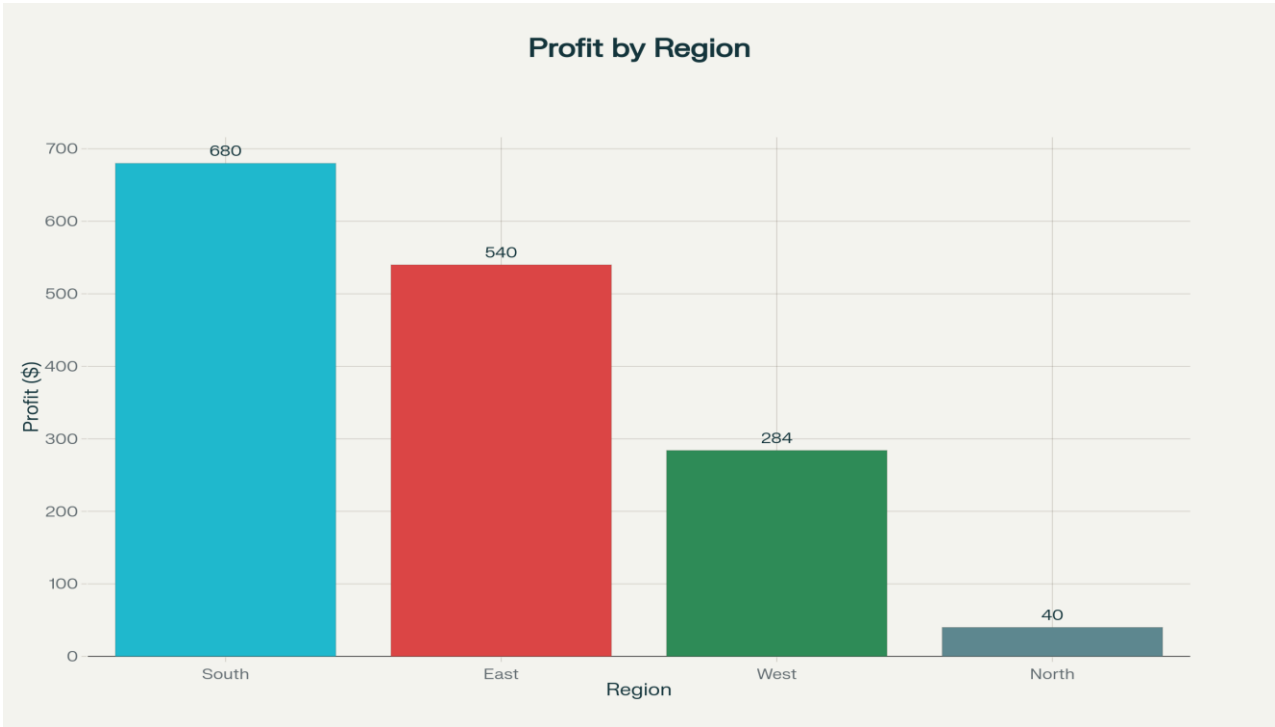
Sales by Product Category visualized in



Profit by Region

Region	Total Sales	Total Profit	Profit Margin
South	2,040	680	33.3%
East	2,120	540	25.5%
West	825	284	34.4%
North	140	40	28.6%

Profit by Region visualized in



Sales Rep Performance

Sales Representative	Total Sales	Total Profit	Profit Margin
Ravi Sharma	795	274	34.5%
Anita Singh	2,150	550	25.6%
John Doe	2,040	680	33.3%
Kumar Patel	140	40	28.6%

Seasonality: Q4 Example

Quarter	Total Sales	Total Profit
1	2,665	730
3	420	124
4	2,040	680

Profit Margin by Product Category & Region Matrix Example)

Product Category	West	East	South	North
Office Supplies	40.0%	31.7%	—	28.6%
Consumer Electronics	28.0%	25.0%	—	—
Furniture	—	—	33.3%	—

Results

- Top Region: South region generated the highest profit (₹680), while the West region had the highest profit margin (34.4%).
- Best Product Category: Office Supplies led in both unit sales and profit margin (36.2%), while Consumer Electronics recorded the highest total sales value.
- Star Sales Representative: Ravi Sharma achieved the best profit-to-sales ratio (34.5%) across all reps.
- Seasonality: Sales peaked during Q4 (October–December), driven by year-end discounts and promotions.

Conclusion

The Power BI dashboard enabled intuitive, real-time filtering of key performance metrics by product category, region, and sales representative. This facilitated actionable business insights for profit optimization and discount planning. The structure is scalable and suitable for extending to forecasting, real-time KPI tracking, and inventory management, making it a valuable decision-support tool for business users.