

Project Report-

Project Name: Retail Business Performance & Profitability Analysis

Prepared By: Rohit Kumar

Introduction:

This project analyzes retail transactional data to uncover underperforming product categories, optimize inventory turnover, and identify seasonal sales trends. With thousands of transactions across regions, the objective is to deliver actionable insights using a combination of data processing, analysis, and visualization.

Abstract:

In competitive retail environments, effective inventory and profit management are critical. Using SQL for data wrangling, Python for correlation analysis, and Power BI for dynamic visualizations, this project reveals which product segments drain profits, how inventory days correlate with profitability, and which products behave seasonally. The output includes a detailed dashboard and query files for operational strategy optimization.

Tools Used - SQL:

Data cleaning, transformation, and profit calculations by category - Python (Pandas, Seaborn):
Correlation analysis between inventory days and profitability - Power BI: Interactive visual dashboard creation with filters for region, season, and product type.

Steps Involved in Building the Project -

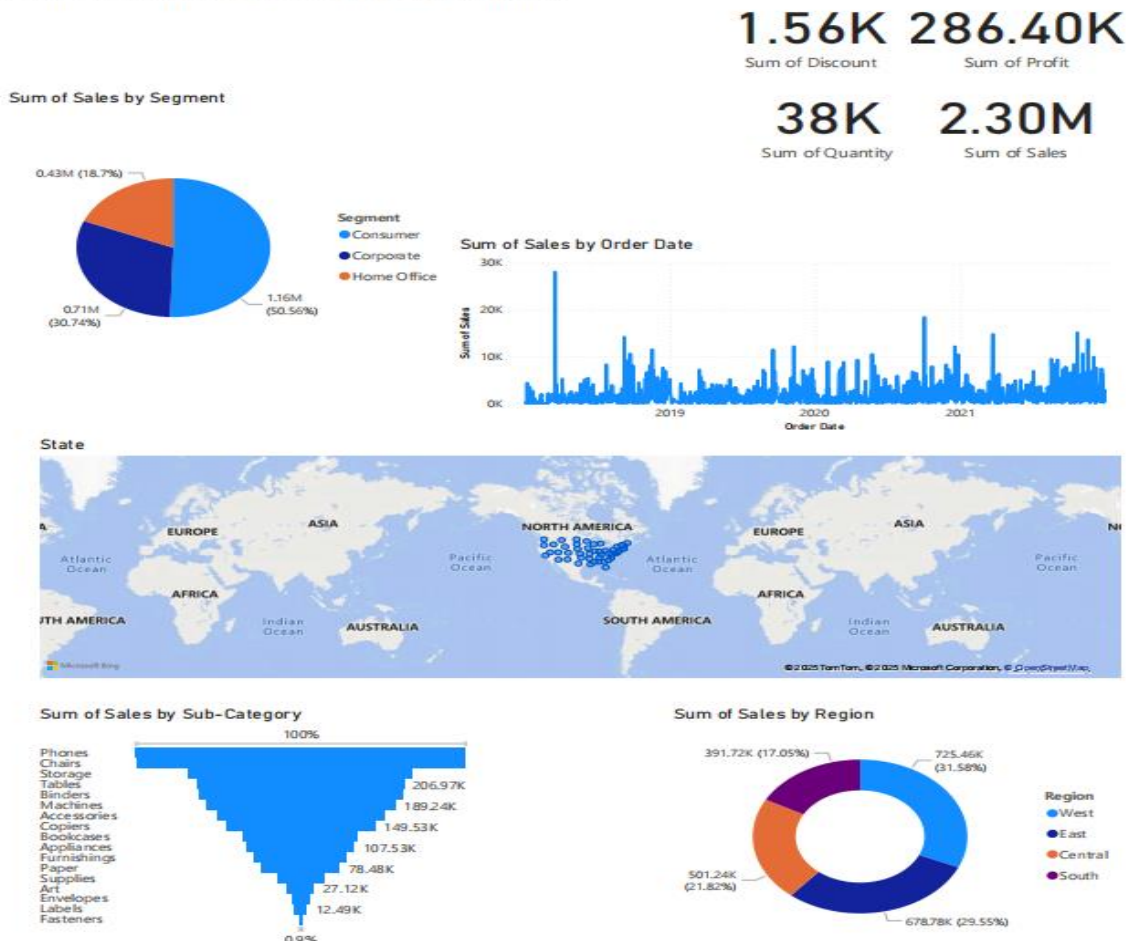
Imported raw data into SQL; cleaned nulls and standardized columns - Used SQL to calculate total profit, sales, and profit margin by category and sub-category - Leveraged Python to estimate inventory turnover and correlate it with profitability - Built a Power BI dashboard to visualize:

Profit margins by category

- Monthly trends in sales and profit
- Seasonal variation in product performance
- Slow-moving and overstocked inventory
- Applied filters and slicers in the dashboard to assist strategic decision-making

Power Bi Report:

Retail business performance analysis: Dashboard



Conclusion

Retail Business Performance & Profitability Analysis The project successfully uncovered patterns in profitability and inventory efficiency. Insights like identifying profit-draining categories, managing overstocked items, and understanding seasonality empower businesses to optimize inventory and improve margins. The integration of SQL, Python, and Power BI ensures the solution is scalable, actionable, and visually insightful.