Retail Analytics Project – Case Study

1. Introduction

The retail industry generates massive amounts of transactional data every day. To remain competitive, businesses must be able to track sales, profit margins, customer behaviour, and product performance effectively.

This project leverages **Power BI** and structured **data analytics methodology** to analyse retail sales data and deliver actionable insights.

2. Objectives

The main goals of this project were:

- Track **Total Sales, Total Profit, Profit Margin %, and Average Order Value (AOV)**.

- Identify **high-performing categories, subcategories, and products**.

- Compare performance across **regions and customer segments**.

- Build an **interactive dashboard** for data-driven decision-making.

---

3. Tools & Techniques

- **Power BI**: Data cleaning, transformation, visualization, and dashboard creation.

- **Excel/CSV**: Data storage and exploration.

- **Data Analytics principles** (Google Certificate).

- **Project Management techniques** (Google Certificate).

---

4. Data Overview

- Dataset: Retail sales dataset (Superstore data, 2014–2017).

- Size: ~10,000 records.

- Key fields: Order Date, Region, Category, Sub-Category, Sales, Profit, Quantity, Discount.

---

5. Methodology

1. **Data Preparation**

   o Checked for missing values and duplicates.

   o Verified consistency in categories and regions.

   o Created calculated fields (e.g., Profit Margin %, Avg. Order Value).

2. **Dashboard Design**

   o KPI cards for instant tracking of Sales, Profit, Margin %, and AOV.

   o Trend line chart for yearly performance.

   o Bar chart for top-performing regions and products.

   o Tree map for category/sub-category profit breakdown.

   o Donut chart for customer segment distribution.

3. **Validation**

   o Cross-checked totals with source Excel data to ensure accuracy.

---

6. Key Insights

- **Revenue & Profit Growth:** Consistent increase over years, with strong Q4 performance.

- **Category Performance:** Technology and Office Supplies lead in revenue, but Furniture shows lower margins.

- **Regional Insights:** The West region contributes the highest profit, while Central lags behind.

- **Customer Segments:** Consumer segment is the largest contributor, followed by Corporate.

- **Top Products:** A few technology items account for a major share of profit.

---

7. Recommendations

- Focus on **improving Furniture margins** by reducing discounts or negotiating supplier costs.

- Invest in **high-margin technology products** to maximize profitability.

- Target **Central region** with localized promotions to improve performance.

- Strengthen customer loyalty programs for **Consumer segment** (largest revenue base).

---

8. Conclusion

This project demonstrates how raw retail data can be transformed into **actionable business insights** using Power BI and data analytics methodology. The dashboard provides a one-stop view for business leaders to track performance, identify opportunities, and support strategic decision-making.