# Retail Business Performance & Profitability Analysis

## 🔷 Introduction

This project analyzes retail sales data to uncover business insights and improve profitability. The goal is to understand category performance, regional demand, low-margin products, and seasonal sales patterns. Tools used include SQL, Python (Colab), and Power BI.

## 🔷 Tools Used

* **SQL**: Used to clean data, calculate total profit by category, and identify top-performing products.
* **Python** **(Colab)**: Used to visualize correlation and analyze profit margins.
* **Power BI:** Used to build an interactive dashboard for stakeholders.

## 🔷 Steps Involved

* Imported and cleaned the raw dataset using SQL and DB Browser for SQLite.
* Ran SQL queries to calculate sales, profit, and profit margin across categories and regions.
* Used Python to analyze correlations and visualize profit trends by sub-category.
* Designed a Power BI dashboard with cards, charts, and slicers to make data interactive.
* Derived actionable insights to help improve business performance.

## 🔷 Key Insights & Observations

✅ Technology category contributed the highest total profit and should be promoted more.

✅ The West region generated the highest sales, suggesting strong demand.

⚠️ Tables and Bookcases showed low profit margins, requiring pricing or cost optimization.

⏰ Sales increased in Q4, indicating a seasonal trend that can guide marketing and inventory

planning.

## 🔷 Conclusion

By analyzing retail data using SQL, Python, and Power BI, we identified product categories and regions that drive performance, uncovered low-efficiency areas, and found seasonal trends. These findings support smarter business decisions in pricing, promotions, and inventory strategy.