Retail Business Performance & Profitability Analysis

Internship Project Report

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Program: B.Tech. Semester 6
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1. Introduction

Retail businesses constantly face challenges in managing profitability, optimizing inventory, and adapting to seasonal market demands. This project explores transactional retail data to identify key revenue trends, assess product performance, and recommend actionable business strategies.

2. Abstract

The objective of this project is to conduct a comprehensive analysis of a retail dataset using SQL, Python (Pandas, Seaborn), and Tableau. We aimed to: - Detect profit-draining product categories - Uncover high and low-performing regions - Analyze seasonality in sales - Build a dashboard to visualize KPIs and trends

The project workflow involved importing data into SQLite for cleaning and query operations, followed by correlation analysis and dashboard visualization in Tableau.

3. Tools Used

Tool	Purpose
SQLite	Data storage, cleaning, and SQL analysis
Python	Correlation and preprocessing
Tableau	Dashboard and KPI visualization
GitHub	Version control and final submission

4. Steps Involved in Building the Project

a. Data Preparation

- Source: Retail transactional CSV file
- Loaded into DB Browser for SQLite
- Cleaned missing/null values
- Added calculated fields:
  - Revenue = Quantity * List Price
  - Profit = Selling Price - Cost Total
  - Profit Margin = Profit / Revenue

b. SQL Analysis

- Queries to calculate total revenue, profit, discount, and profit margin
- Identified top revenue-generating products and sub-categories
- Analyzed sales trends across months and years
- Determined seasonal patterns and regional profit distribution

c. CSV Export

- Exported SQL-cleaned data as cleaned_orders.csv for further analysis

d. Tableau Dashboard

- Uploaded cleaned CSV to Tableau Cloud
- Created calculated fields:
  - Discount Amount
  - Selling Price
  - Cost Total
  - Profit
  - Profit Margin (%)
- Built KPI summary sheet (Revenue, Profit, Margin, Max Profit)
- Developed interactive visualizations:
  - Monthly Sales Trend
  - Region-wise Profitability
  - Sub-Category Growth
  - Low Margin High Quantity Products

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5. Insights & Strategic Suggestions

Insight	Recommendation
High sales but low profit in some products	Reduce discounts or renegotiate cost prices
East region had maximum profit contribution	Allocate more stock and marketing to East
October and February showed sales peaks	Boost inventory and campaigns pre-peak
Negative growth in some sub-categories	Consider bundling, offers, or delisting

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6. Conclusion

This project provided end-to-end exposure to business analytics—from data wrangling in SQL to executive dashboarding in Tableau. Through this analysis, we identified major profitability drivers, seasonal sales trends, and inventory optimization opportunities. These insights are critical for strategic retail decision-making and improving operational efficiency.

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7. Screenshots (Attached in Repo)

- Tableau KPI Dashboard
- Regional Profit Charts
- Monthly Trend Line Charts

GitHub Repository: Retail-store-analysis
Submission Date: 09 June 2025

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