Certified Data Analysts

Capstone Project

Customer Retention and Sales Optimization in Retail

Part 1 - Data Preparation, SQL Analytics & Excel Dashboarding

Business Scenario

A national retail chain wants to improve customer retention, understand purchase patterns, and optimize its product offerings. The analytics team has access to data from multiple sources including sales transactions, customer demographics, marketing campaigns, and product catalogs. Your job is to create a complete data analytics solution using various tools to drive business insights and present strategic recommendations.

Data Sources:

1. **Sales Transactions:**
   Includes product purchases, quantities, discounts, store info, and timestamps.
2. **Customer Data:**
   Demographics, loyalty scores, sign-up date, contact info.
3. **Product Catalog:**
   Product names, categories, prices, and supplier data.
4. **Marketing Campaigns:**
   Email/SMS promotions, campaign reach, conversion rates.

Task Breakdown:

1. **Excel Analytics**
   - Perform descriptive statistics (mean, median, mode, standard deviation).
   - Use pivot tables to summarize sales by region, product category, and time.
   - Create simple dashboards with slicers and charts.

2. **SQL (PostgreSQL / MySQL / SQLite)**
   - Design and normalize a database schema using the datasets.
   - Write queries to:
     i. Identify top 10 customers by revenue.
     ii. Find repeat vs one-time customers.
     iii. Calculate monthly revenue growth.
     iv. Join customer and transaction data to get customer LTV.

Project Objectives:

1. Perform descriptive statistical analysis and summarize retail data using Microsoft Excel.
2. Build pivot tables and dashboards to visualize sales trends and performance by region, category, and time.
3. Design and normalize a relational database schema based on real-world retail datasets.
4. Write SQL queries to extract insights on revenue, customer behavior, and monthly growth.

The submission requirements:

1. **Report:**
   - **Platform:** Google Drive
   - **Format:** word, excel or PDF
   - **Final Deliverables:**
     - Excel analysis workbook (.xlsx)
     - SQL schema and query scripts (.sql)