Retail Sales & Customer Analytics (Jeddah-Focused)

1. Project Overview

This project focuses on analyzing retail sales and customer behavior data to support data-driven business decisions. The objective is to provide management with clear insights into sales performance, customer value, product contribution, and growth trends using SQL and Power BI.

The project is designed to reflect real-world retail challenges commonly faced by businesses in Jeddah, Saudi Arabia, such as identifying high-performing products, understanding customer demographics, and tracking month-on-month growth.

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2. Business Objectives

- Analyze overall sales performance and revenue trends
- Identify top and low-performing product categories
- Understand customer behavior and spending patterns
- Segment customers based on value and demographics
- Track key performance indicators (KPIs) for management reporting

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3. Dataset Description

The dataset represents transactional retail sales data with the following key attributes:

- Transaction details (transaction_id, date)
- Customer information (customer_id, gender, age, age_group)
- Product details (product_category)
- Sales metrics (quantity, price_per_unit)

Revenue was calculated using the formula:

Revenue = Quantity × Price per Unit

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4. Tools & Technologies Used

- SQL: Data extraction, aggregation, and advanced analysis
- Power BI: Interactive dashboards and KPI visualization
- Excel: Data validation and exploratory checks
- GitHub: Version control and project documentation

5. Data Preparation & Processing

- Validated data types and handled missing or inconsistent values
- Created calculated fields such as revenue and average order value (AOV)
- Grouped and aggregated data for reporting at monthly, category, and customer levels

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6. Key Metrics & KPIs

The following KPIs were calculated and visualized:

- Total Revenue
- Total Transactions
- Total Units Sold
- Average Order Value (AOV)
- Month-on-Month Revenue Growth
- Revenue Contribution by Product Category

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7. Analysis Performed

7.1 Sales Trend Analysis

- Monthly revenue trends were analyzed to identify growth patterns and seasonality
- Month-on-month growth was calculated using SQL window functions

7.2 Product Performance Analysis

- Revenue contribution by product category was evaluated
- The 80/20 principle was applied to identify high-impact categories
- Low-performing categories were highlighted for optimization opportunities

7.3 Customer Analytics

- Customers were segmented into High, Medium, and Low value groups based on spending
- Top revenue-generating customers were identified
- Gender and age-group based purchasing behavior was analyzed

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8. Dashboard Design (Power BI)

The Power BI dashboard was structured into multiple pages:

- Executive Overview: High-level KPIs and sales trends
- Product Performance: Top and low-performing categories

- Customer Analytics: Segmentation and customer value analysis
- Demographic Insights: Revenue by age group and gender
- Growth Analysis: Month-on-month revenue changes

The dashboard enables interactive filtering using slicers such as date, product category, gender, and age group.

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9. Key Insights

- A small number of product categories contribute the majority of total revenue
- High-value customers represent a significant portion of overall sales
- Certain age groups generate higher revenue, indicating targeted marketing opportunities
- Revenue trends reveal periods of growth and decline useful for planning and forecasting

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10. Business Impact

This analysis helps management: - Focus inventory and promotions on high-performing products - Improve customer retention strategies by targeting high-value segments - Monitor performance trends and respond proactively to changes - Support strategic decision-making using data-driven insights

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11. Future Enhancements

- Incorporate store-level and inventory stock data
- Add sales forecasting and demand prediction
- Integrate real-time data sources
- Expand analysis to include profitability and cost metrics

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12. Conclusion

This project demonstrates the practical application of SQL and Power BI to solve real-world retail analytics problems. It highlights the ability to transform raw transactional data into meaningful insights that support business and management decisions, making it highly relevant for Data Analyst, MIS Analyst, and Reporting Analyst roles in Saudi Arabia.