

Retail Sales Analysis – Problem Statement & Insights

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■ Project Title

Retail Sales Analysis using SQL Server

■ Problem Statement

Our company operates a retail store that records thousands of sales transactions across multiple product categories. The management team lacks a clear view of sales performance, customer behavior, and time-based sales trends. The goal of this project is to use SQL Server to clean, explore, and analyze retail sales data to extract valuable insights that can guide better decision-making and revenue growth.

■ Objectives

1. Clean and validate raw sales data.
2. Identify unique customers and key sales categories.
3. Analyze total and average sales by category, month, and time of day.
4. Determine the best-performing months and customer segments.
5. Provide business insights to improve marketing and operations.

■ Data Analysis & Key Results

- Total Sales Transactions: 2000
- Unique Customers: 155
- Categories: Clothing, Electronics, Beauty
- Total Sales by Category:
 - Clothing: 311,070
 - Electronics: 313,810
 - Beauty: 286,840
- Average Age (Beauty): 40 years
- Best Month (2022): July
- Best Month (2023): February
- Most Sales Shift: Evening
- Top 5 Customers by Total Sales: #3, #1, #5, #2, #4

■ Insights & Performance Interpretation

- **Customer Behavior:** The store serves a wide customer base (155 unique customers), showing healthy diversity and repeat purchases.
- **Category Insights:** Electronics leads total sales with 313,810, closely followed by Clothing and Beauty, suggesting strong demand across all categories.
- **Time-Based Trends:** The Evening shift records the highest sales, implying customers are more active during late hours.
- **Monthly Trends:** July (2022) and February (2023) were top-performing months, potentially due to seasonal promotions or holidays.
- **Top Customers:** Customers #3 and #1 are high-value clients contributing the largest portion of sales — a great target for loyalty programs.
- **Demographics:** The average Beauty category buyer age (40) suggests mid-age female customers form a strong market segment.

■ ■ Tools & Skills Used

SQL Server | Data Cleaning | Aggregation Functions | Joins | Window Functions | Ranking
| Business Analysis | Data Interpretation