

# Customer Analysis for Retail — Case Study

## Overview

This case study focuses on analyzing retail customer transactions to understand buying behavior, store performance, and category-level insights. The objective is to transform raw transactional data into meaningful metrics and visualizations using data analysis techniques.

## Data Provided

You are provided with a retail dataset containing three tables:

- Customer: demographic details such as customer ID, date of birth, gender, and city code.
- Transactions: transaction-level information including dates, quantities, amounts, and store type.
- Product Hierarchy: product category and sub-category mapping.

## Business Problem

A retail company wants to analyze day-to-day transactions and track customer purchases and returns across locations and product categories. The goal is to generate reports, insights, and summaries that support data-driven decision making.

## Analysis Tasks

- 1 Merge the Customer, Transactions, and Product Hierarchy tables into a single dataset. Keep only customers who have made transactions.
- 2 Prepare a summary report including column names, data types, top and bottom records, five-number summaries for numeric fields, and frequency tables for categorical fields.
- 3 Create visualizations: histograms for numeric variables and bar charts for categorical variables.
- 4 Determine the time span covered by the transaction data and count transactions with negative total amounts.
- 5 Compare product category popularity between male and female customers.
- 6 Identify the city with the highest number of customers and compute its share of total customers.
- 7 Find which store type performs best by total sales value and by quantity sold.
- 8 Compute total revenue from Electronics and Clothing categories for flagship stores.
- 9 Calculate revenue generated by male customers within the Electronics category.
- 10 Count customers with more than 10 unique transactions after excluding transactions with negative totals.

11For customers aged 25–35: (a) calculate spending on Electronics and Books, and (b) compute total spending between 1 Jan 2014 and 1 Mar 2014.

Note: This is an original, generic case study description created for learning and portfolio purposes. It contains no proprietary branding or copyrighted instructional text.