# Sales Performance Analysis – Problem Statement

## 1. Project Overview

A retail e-commerce company is seeking to understand and optimize its sales performance across various products, regions, and customers. The management has provided raw transactional data and expects a comprehensive analysis that reveals sales trends, profitability insights, and improvement opportunities. The analyst is expected to clean, analyze, visualize, and summarize the data into actionable business insights.

## 2. Objective

To perform end-to-end analysis of the company's sales data and identify key patterns, growth areas, and bottlenecks affecting overall profitability. The final deliverables should include both analytical findings and visual dashboards that enable data-driven decision making.

## 3. Data Description

| Dataset | Description |
|---|---|
| sales.csv | Order-level sales data including date, customer ID, product ID, quantity, price, discount, and profit. |
| products.csv | Product information such as category, subcategory, cost, and supplier details. |
| customers.csv | Customer demographics and region or market segment details. |

## 4. Business Questions to Address

• Which product categories and subcategories contribute the most to total sales and profit?
• Which regions or customer segments have declining sales trends?
• What is the month-over-month sales growth rate?
• Who are the top 10 customers by revenue and profit margin?
• Which discount strategies lead to lower profitability?
• What are the overall KPIs: Total Sales, Profit Margin %, and Average Order Value?

## 5. Deliverables

The analyst should provide the following deliverables:
1. Data Cleaning Notebook (Python/SQL) – handling missing values, duplicates, and data normalization.
2. Exploratory Data Analysis Report – trends, KPIs, visualizations.
3. Dashboard – Interactive Power BI/Tableau dashboard summarizing sales performance.
4. Business Insights Summary – 5–7 actionable recommendations for management.

## 6. Tools and Technologies

• Python (Pandas, NumPy, Matplotlib, Seaborn) or SQL for data analysis.
• Power BI or Tableau for dashboard creation.
• Excel or Google Sheets for quick exploratory analysis.
• GitHub for project version control and submission.

## 7. Evaluation Criteria

Submissions will be evaluated based on:
• Depth of Analysis and Clarity of Insights (30%)
• Data Cleaning and Transformation Quality (20%)
• Visualization and Dashboard Design (25%)
• Business Interpretation and Recommendations (25%)

## 8. Expected Outcome

The final analysis should enable management to identify high-performing products, regions, and customers, while highlighting improvement opportunities in low-margin areas. The insights should be actionable and demonstrate a strong connection between data findings and business decisions.