**Problem Statement**

**Project Title**: Comprehensive Retail Analytics Dashboard System

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The retail business lacks a centralized, data-driven solution to monitor and analyze key performance metrics across customer behavior, profitability, product performance, and store operations. Without actionable insights into customer spending patterns, profit trends, product performance, and store-level financial metrics, the business struggles to make informed decisions regarding inventory management, staffing, marketing strategies, and financial planning. Specifically, there is a need to:

1. **Understand Customer Behavior**: The business requires detailed insights into profit generated by male and female customers and the average spending across different age groups to identify the most profitable customer segments for targeted marketing and customer retention strategies.
2. **Track Profitability Trends**: There is a lack of visibility into profit trends over time, including month-over-month growth rates and profitability by weekday, which hinders the identification of seasonal patterns, sales effectiveness, and optimal staffing or marketing schedules.
3. **Optimize Product Performance**: The absence of a clear analysis of top-selling and most profitable products, alongside product return and refund rates, limits the ability to make informed inventory decisions and prioritize high-value products.
4. **Evaluate Store Performance**: The business needs a clear comparison of store-level revenue against targets to identify underperforming or overperforming stores, along with a month-by-month breakdown of revenue and target variances to support financial planning and performance management.
5. **Analyze Revenue Patterns**: There is a need for quarterly and monthly revenue analysis against averages and targets, as well as a comparison of weekday versus weekend revenue, to enable better operational decisions, such as staffing adjustments and short-term financial planning.

**Objective**:

To design and implement a comprehensive retail analytics dashboard system comprising three dashboards that address these challenges:

* **Dashboard 1: Customer and Profitability Analysis**
  + Provide insights into profit generated by male and female customers and average spending by age groups to identify high-value customer segments.
  + Analyze profit trends over time, including month-over-month growth rates, to uncover seasonal patterns and sales effectiveness.
  + Evaluate profitability by weekday to optimize staffing and marketing efforts.
  + Detail top-selling and most profitable products, along with return and refund rates, to support inventory management and product prioritization.
* **Dashboard 2: Store Performance Analysis**
  + Compare store-level revenue against targets to highlight underperforming and overperforming stores for strategic resource allocation.
  + Provide a month-by-month breakdown of total revenue and target variances to facilitate financial planning and performance management.
* **Dashboard 3: Revenue Performance Analysis**
  + Display quarterly revenue against the average to assess performance relative to historical norms.
  + Compare weekday versus weekend revenue to inform staffing and operational decisions.
  + Track monthly revenue against targets to support short-term financial planning and performance adjustments.