PRODUCT OPTIMIZATION & REVENUE CONTRIBUTION ANALYSIS
AFICIONADO COFFEE ROASTERS

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1. Background

Retail businesses generate large volumes of transactional data daily. However, without structured analysis, it is difficult to understand which products contribute most to revenue, which products are popular but less profitable, and which menu items underperform. Retail analytics helps organizations make data-driven decisions regarding pricing, promotions, and inventory optimization.

This project analyzes transaction-level sales data from Aficionado Coffee Roasters to evaluate product performance, revenue contribution, and category-level dependence across store locations.

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2. Problem Statement

Aficionado Coffee Roasters requires better visibility into product performance across categories and stores. Specifically, the organization needs to:

• Identify top-selling and least-selling products
• Understand revenue contribution across product categories
• Detect underperforming menu items
• Measure revenue concentration across the product portfolio
• Support data-driven product optimization decisions

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3. Dataset Description

The dataset contains transaction-level retail sales information including:

• Transaction ID
• Transaction time and year
• Store ID and store location
• Product category, type, and detail
• Transaction quantity
• Unit price

A new feature called **revenue** was computed using:

Revenue = transaction_qty × unit_price

This allowed revenue-based performance analysis at multiple levels.

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4. Analytical Methodology

The analysis followed a structured retail analytics workflow:

Data Ingestion & Validation
The dataset was loaded and validated to ensure product identifiers were consistent, quantities were positive, and prices were realistic.

Revenue Computation
Revenue was calculated at the transaction level and aggregated by product, product type, product category, and store location.

Product Popularity Analysis
Total units sold were calculated per product to identify high-demand and low-demand items.

Revenue Contribution Analysis
Revenue share percentage was computed to understand the financial contribution of individual products.

Category & Product-Type Performance
Revenue contribution was analyzed across categories such as Coffee, Tea, and Chocolate, as well as product-type performance within categories.

Revenue Concentration & Menu Balance
Pareto analysis was performed to identify revenue concentration and evaluate menu diversification risk.

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5. Exploratory Data Analysis

The exploratory analysis revealed patterns in product performance, category contribution, and store-level sales distribution.

Key analyses included:

• Revenue by product category
• Top-performing products by revenue
• Store-level revenue comparison
• Product popularity vs revenue relationship
• Revenue concentration across the product portfolio

Visualizations were used to highlight trends and performance differences across categories and products.

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6. Key Insights

• A small number of products contribute a large share of total revenue.
• Core beverage categories generate the majority of sales revenue.
• Some products show high popularity but lower revenue contribution.
• Several long-tail products contribute minimal revenue.
• Store-level performance varies across locations.

These insights highlight opportunities for product optimization and improved menu strategy.

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7. Recommendations

Based on the analysis, the following recommendations are proposed:

• Promote high-revenue “hero” products
• Review and optimize low-performing menu items
• Focus inventory planning on high-impact products
• Evaluate pricing strategies for popular items
• Maintain category balance to reduce revenue dependency risk

These actions can improve operational efficiency and overall profitability.

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8. Conclusion

This project demonstrates how retail transaction data can be transformed into actionable business insights using data analysis techniques. By identifying product-level performance patterns and revenue concentration, Aficionado Coffee Roasters can make informed decisions about menu design, pricing, and inventory management.

Retail analytics provides a scalable approach to improving revenue performance and supporting strategic planning across store locations.