Stories Coffee Hackathon — Executive Summary
Turning Sales Data into Profit Actions (2025 + Jan 2026)

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Problem Statement

Stories Coffee provided detailed operational sales and profitability data and asked a direct business question:

"I have all this data... tell me how to make more money."

Our objective was to determine:

- Which products and categories generate the highest profit

- Which items contribute weak margins or losses

- Where profit leakage exists

- What practical actions can increase profitability quickly and sustainably

This project was treated as a real consulting engagement focused on measurable financial impact.

Key Findings

- **Profit is highly concentrated.** Distribution analysis shows many products clustered around small profit values, while a smaller group generates significantly higher profit. These are clear star performers.

- **Higher cost often correlates with higher profit — but not always.** The cost vs. profit analysis shows an overall positive relationship, yet some high-cost items generate low or negative margins.

- **Loss-making items exist.** Certain products produce negative total profit, reducing overall margin and signaling pricing or cost inefficiencies.

- **Time variation impacts performance.** Monthly analysis shows stronger performance in certain periods (Aug–Dec) and weaker periods (notably June), indicating operational timing effects.

Recommendations

1. **Protect and scale star performers**
   - Ensure availability of top profit-driving items.
   - Improve visibility and upselling.
   - Replicate high-performing products across weaker branches.

2. **Eliminate profit leakage**
   - Identify consistently loss-making products.
   - Apply pricing adjustments where feasible.

- Remove or redesign persistently unprofitable items.

Expected Impact

  - Immediate margin improvement by correcting negative-profit items.

  - Increased profit per transaction through focused upselling.

  - Better branch-level consistency by promoting proven high-margin products.

Methodology

Our approach followed a structured analytical workflow:

1. **Data Cleaning and Preparation**

2. **Exploratory Data Analysis (EDA)**

   - Analyzed profit and sales distributions (histograms and boxplots).

   - Studied cost vs. profit relationships using scatter plots.

   - Examined monthly and branch-level trends.

   - Identified profit concentration and loss patterns.

3. **Business Interpretation**

   - Translated analytical findings into financial insights.

   - Prioritized high-impact areas affecting profitability.

   - Designed actionable operational recommendations.

Repository: https://github.com/Mohamad-HK22/EECE_490_hackathon **Data:** Stories Coffee POS exports (2025 + Jan 2026)