

Stories Coffee Hackathon — Executive Summary

Turning Sales Data into Profit Actions (2025 + Jan 2026)

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February 2026 Deployed in link : <https://eece-490-hackathon1.onrender.com/> (may take few seconds to load)

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