Stories Coffee Strategic Intelligence Report

CEO-ready executive brief | Full-year 2025 + Jan 2026 | 25 branches | 300+ products

840.5M	598.2M	71.2%	62.0M	1,056.9M
Revenue	Profit	Average Margin	Recoverable Leaks	2026 Projection (+26%)

Operational platform (live and reusable)

- **Live website:** ahmadandhassan.pythonanywhere.com
- **Upload-ready:** New monthly POS exports (same 4-file structure) rerun the full pipeline automatically.
- **Explicit compatibility:** Works for any dataset that follows the same Stories POS export format, with no manual code edits.
- **AI layer:** LLaMA 4 Scout 17B provides KPI-aware business Q&A and recommendation support.
- **Models used:** GradientBoostingRegressor (forecasting), KMeans + StandardScaler (branch segmentation), and rule-based leak diagnostics.

Repository: github.com/AhmadYateem/StoriesAnalysis

Problem Statement

Stories Coffee has strong topline growth, but leadership lacked a repeatable way to answer one core question: **where are we leaving profit on the table, and what should we do this week, this month, and this quarter to capture it?** Raw POS exports were inconsistent and not decision-ready. We rebuilt the data pipeline from raw hierarchical exports into clean analytical layers, then performed branch, product, service-type, and pricing diagnostics to isolate leakage mechanisms, growth drivers, and operational playbooks. The result is an execution-ready action plan tied to specific levers and quantified impact.

Key Findings

1. **62.0M in measurable margin leaks** across five root causes, led by negative-margin SKUs (30.1M) and zero-revenue modifiers (28.1M). This is not statistical noise; each leak is traceable to concrete product or POS behavior.
2. **16.9M modifier upsell upside** if all branches reach the top attach-rate benchmark (60.4%). The spread across branches reveals a training and scripting gap, not a demand ceiling.
3. **409 menu items classified** into action buckets: Stars (high volume/high margin), Plowhorses (high volume/low margin), Puzzles (low volume/high margin), Dogs (low volume/low margin). We flagged 123 Dogs and isolated high-margin Puzzles for promotional uplift.
4. **2026 chain revenue projected at 1.06B** using a branch-level **GradientBoostingRegressor**. We engineered cyclical month features (sin/cos), trend progression, and month effects to capture seasonality and growth signals with limited time history.
5. **4 branch strategy clusters identified** using KMeans on normalized revenue, growth, seasonality, mix, and margin features. This converts one-size-fits-all planning into segment-specific operating strategy.

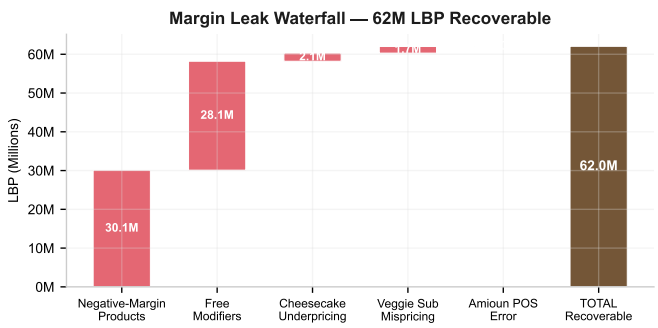

Figure 1: Margin leak concentration by source

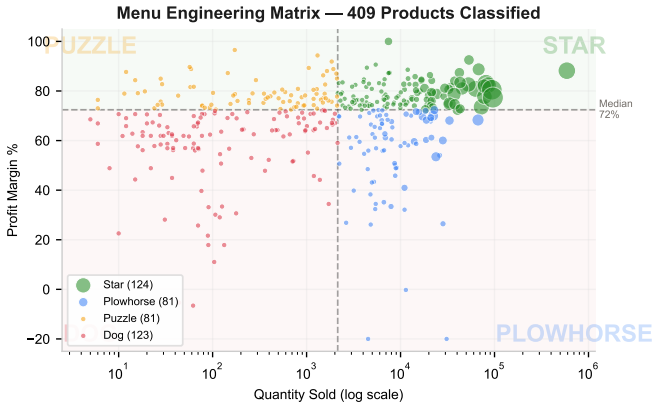

Figure 2: Menu matrix with action quadrants

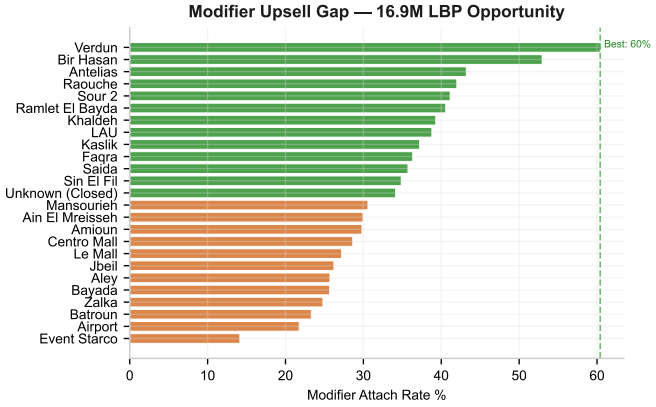

Figure 3: Modifier attach-rate gap by branch

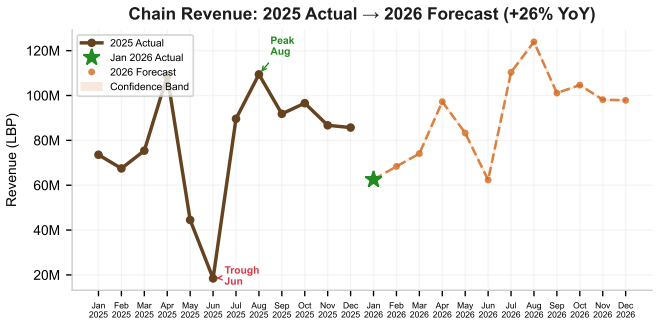

Figure 4: 2025 actuals and 2026 forecast

Recommendations

#	Timeline	Action	Impact
1	This week	Fix Veggie Sub price table and Amioun TABLE POS setup, then lock pricing governance to prevent recurrence.	1.7M
2	This month	Introduce paid premium modifiers (alt milk, decaf, extra shot) while preserving core customer-friendly options.	8M to 14M
3	This month	Reprice under-margin desserts, especially cheesecake range, using controlled elasticity-safe increments.	2.1M
4	This quarter	Roll out branch-level upsell coaching using top-branch scripts and weekly attach-rate scorecards.	16.9M
5	This quarter	Reprice or remove 47 negative-margin products and institutionalize weekly auto margin-exception alerts.	30.1M

Expected Impact

If Stories executes the top actions, expected incremental profit is:

$$\text{Recovered Margin} + \text{Upsell Gain} = 62.0M + 16.9M = 78.9M$$

This equals a **13.2% uplift** on the current 598.2M profit base. Even at a conservative 30% capture rate, first-year gain remains **23.7M**. Combined with projected growth, this creates a path to scale revenue while improving unit economics. Importantly, the value is operationally monitorable because every lever in the plan maps to a dashboard KPI and can be tracked month-over-month after each data upload.

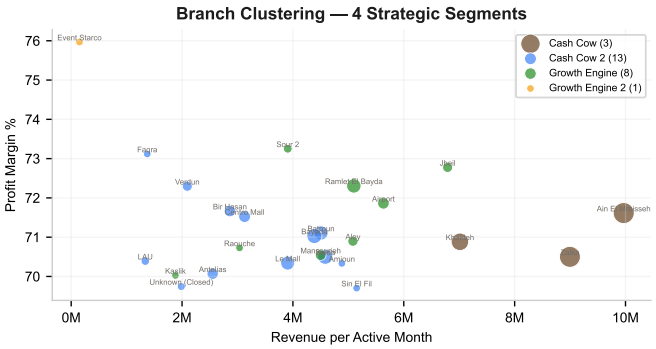

Figure 5: Branch strategic clusters

Modeling Snapshot

Forecasting: GradientBoostingRegressor with cyclical month features (sin/cos), trend index, and month effects.

Segmentation: KMeans ($k = 4$) on normalized branch features (revenue, growth, seasonality, mix, margin, efficiency).

Menu engineering: Median-threshold matrix to classify Stars, Plowhorses, Puzzles, and Dogs.

Leak analytics: Deterministic detectors for negative margins, free modifiers, and localized POS mispricing.

Methodology

Data engineering. Parsed 4 raw POS CSV files, removed repeated page headers, normalized branch names, reconstructed hierarchy, and corrected POS revenue truncation using TrueRevenue = TotalCost + TotalProfit.

Analytical depth. Performed leak decomposition, product economics, service-type diagnostics, category mix analysis, seasonality mapping, and branch-level outlier checks to separate structural issues from temporary fluctuations.

ML layer. GradientBoostingRegressor for branch-level forecasting and KMeans for branch segmentation with standardized features. Forecast features include cyclical month encoding plus trend, which improved stability with short history.

Productization. React + TypeScript + Vite frontend, Flask backend, LLaMA chat integration, CSV upload flow, and Dockerized deployment for reproducibility.

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