Sales grew.
Did the business improve?

A fictional stationery shop, 12 months of sample data, and a question that revenue alone cannot answer.

SAMPLE PROJECT - FICTIONAL DATA

This demonstration uses deliberately constructed data, not a real business or client engagement. It illustrates an analysis workflow and does not claim a delivered commercial result. All figures are INR. Period: January-December 2026; H1 = January-June, H2 = July-December.

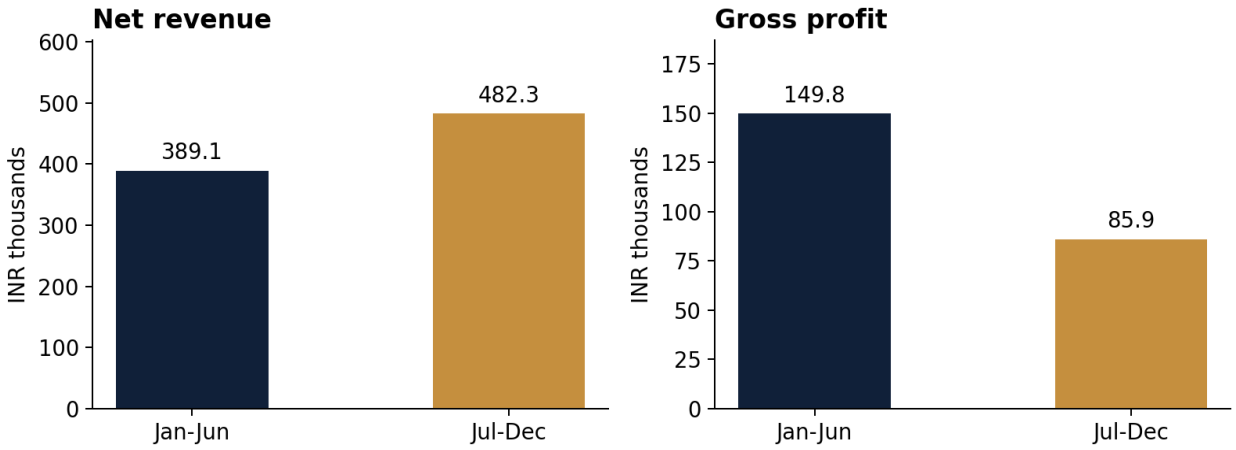
Metric	H1	H2	Change
Net revenue	INR 389,120	INR 482,330	+24.0%
Gross profit	INR 149,760	INR 85,900	-42.6%
Gross margin	38.5%	17.8%	-20.7 pp

The answer

H2 net revenue increased 24.0%, while gross profit fell 42.6%. Higher unit volumes did not offset lower profit per unit. Revenue growth alone would have hidden the deterioration in gross margin.

Gross profit is revenue less product cost. It is not net profit: rent, salaries, advertising, payment fees, shipping and tax are excluded.

More sales. Less gross profit.



What changed in the sample?

Product list prices and unit costs stay fixed. H1 discounts are 5% for all categories; H2 discounts rise to 20% for notebooks, 25% for planners and 30% for accessories. Units sold increase, especially in accessories.

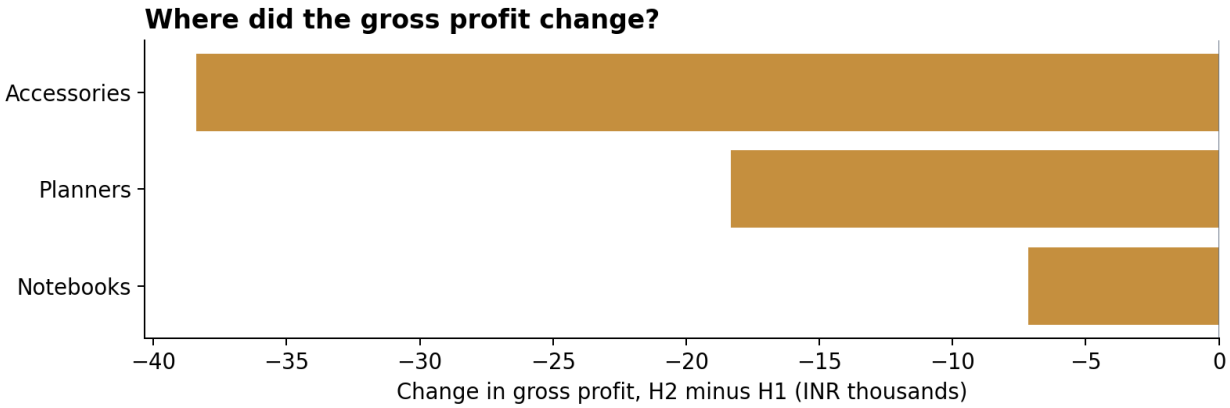
Category	H1 gross profit	H2 gross profit	Change
Notebooks	INR 51,200	INR 44,050	INR -7,150
Planners	INR 60,160	INR 41,850	INR -18,310
Accessories	INR 38,400	INR 0	INR -38,400

The important detail

Accessories sell for INR 300 with a unit cost of INR 210. At a 30% discount, net revenue is also INR 210 per unit. Their H2 gross profit is therefore zero, before any operating costs. More accessory sales increase revenue but add no gross profit.

This is an accounting explanation within a constructed scenario. It does not establish that a real promotion caused customer behaviour.

Follow the margin, not just the volume.



What I would recommend in this scenario

1. Review accessory discounts first. The 30% discount is the gross-profit break-even point at the stated product cost; the operating break-even point would require a smaller discount.

2. Set category-level margin checks. Track net revenue, gross profit and gross margin together. Review any product sold at or below its unit cost.

3. Test a narrower discount. Compare a limited promotion with a suitable control group. Check gross profit after returns and marketing costs, not just units sold.

4. Collect the missing evidence. Add order-level transactions, returns, campaign spend, customer repeat purchases and fulfilment costs before deciding which promotions to retain.

No improvement is claimed

These are proposed next steps, not actions carried out for a client. No profit uplift, cost saving or customer result is claimed. The example ends with a recommendation and a plan for validation.

Make the answer reproducible.

Dataset and checks

The CSV contains 36 rows: 12 months x 3 categories. Each row is a category-month summary, not an individual transaction. Checks: 36 unique month-category combinations; no missing required fields; non-negative units, prices and costs; discounts within 0-100%; row formulas and half-year totals reconcile.

Metric	Formula
Gross sales	Units sold x list price
Discount amount	Gross sales x discount rate
Net revenue	Gross sales - discount amount
Cost of goods sold (COGS)	Units sold x unit cost
Gross profit	Net revenue - COGS
Gross margin	Total gross profit / total net revenue
Period growth	H2 total / H1 total - 1

How to explore it in Excel

Open sample-sales-data.csv. Insert a PivotTable: Half in Rows; Net revenue and Gross profit in Values (Sum). For category detail, put Category below Half. Calculate gross margin from the summed totals; do not average the row-level margins.

Files included

sample-sales-data.csv contains the input data and row-level calculations. verify-sales.py recalculates every row with Python Decimal and prints the totals. data-dictionary.txt explains the fields and assumptions.

Limits

Fictional data, designed to illustrate a specific pattern. No customer behaviour, order count, returns, tax, shipping, advertising spend or operating expenses are modelled. Findings cannot be generalized to a real shop without its actual data.