



DATA-DRIVEN IMPROVEMENT PLAN FOR CAKEBERRY BAKERY

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Cakeberry Bakery: Insights and Data-Backed Improvement Plan

Summary

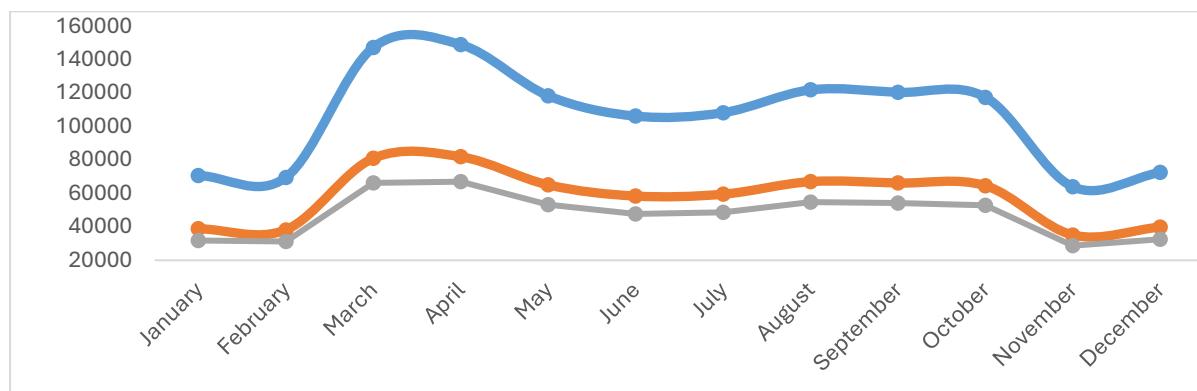
Getting to Know Cakeberry Bakery

Cakeberry Bakery, located in the scenic region of Gilgit-Baltistan, has established itself as a trusted destination for both residents and travellers seeking fresh, quality food. Known for its diverse range of baked goods and traditional snacks such as samosas, chicken rolls, cookies, patties, and sandwiches, the bakery has built a reputation for balancing quality with affordability, making it a popular stop within the community and among visitors. However, despite its success, Cakeberry faces operational challenges that hinder efficiency and profitability. Seasonal demand fluctuations often lead to stockouts during peak tourism periods and wastage during regular days, while the absence of data-driven inventory management and profit tracking results in overproduction of low-selling items and limited focus on high-demand products. These challenges are critically examined and effectively resolved in this report through robust data analysis and forecasting techniques.

Performance Insights

Tracking Monthly Shifts in Revenue, Costs, and Profit

The monthly performance trends indicate that Cakeberry Bakery experiences its highest revenue in March and April, reaching up to 150,000, largely due to the onset of Ramadhan and the initial phase of seasonal tourism, which drives increased demand. These months also incur the highest operational costs, peaking around 85,000, reflecting the scale of production required to meet elevated customer traffic. Conversely, November marks the lowest point in both revenue (~69,000) and costs (~36,000), attributed to a decline in tourist activity and a seasonal shift in consumer preferences. August emerges as the most balanced month, with mid-range figures across revenue, cost, and profit, suggesting stable local demand and consistent operations.



Leading Product in Sales

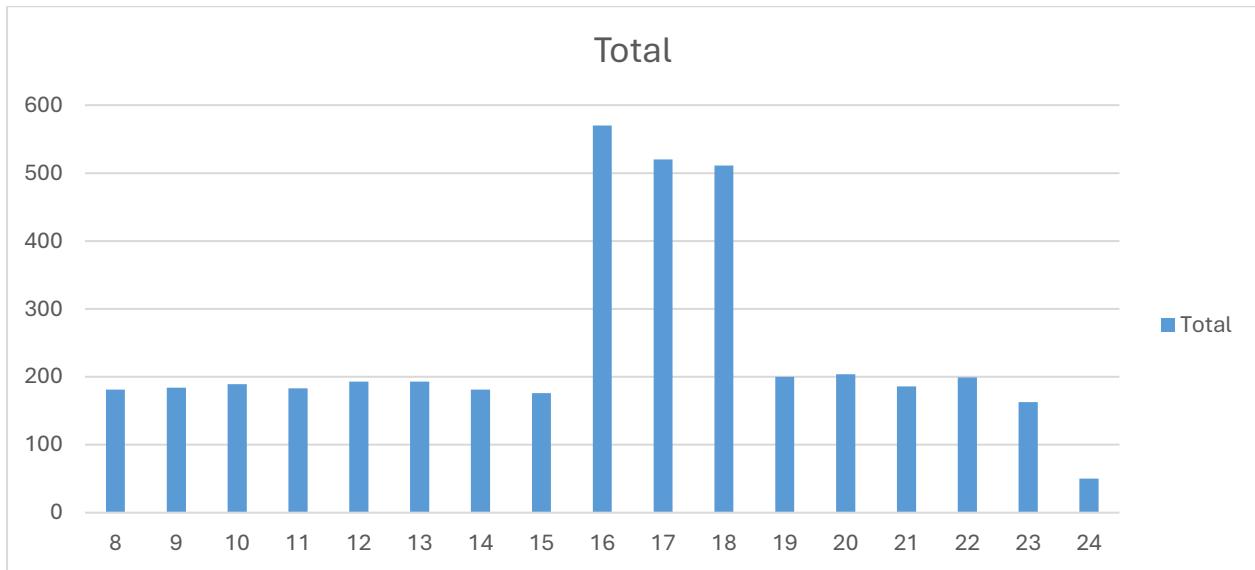
Based on the revenue distribution, **Cake Slice** contributes the largest share at **32%**, making it the top-selling item. **Patties**, with a **20%** share, show average performance, while **Sandwiches**, at just **8%**, generate the least revenue. This mix highlights the bakery's strength in sweet offerings and suggests potential to improve its savoury product strategy.

Contribution of Each Item



Hourly Sales Analysis

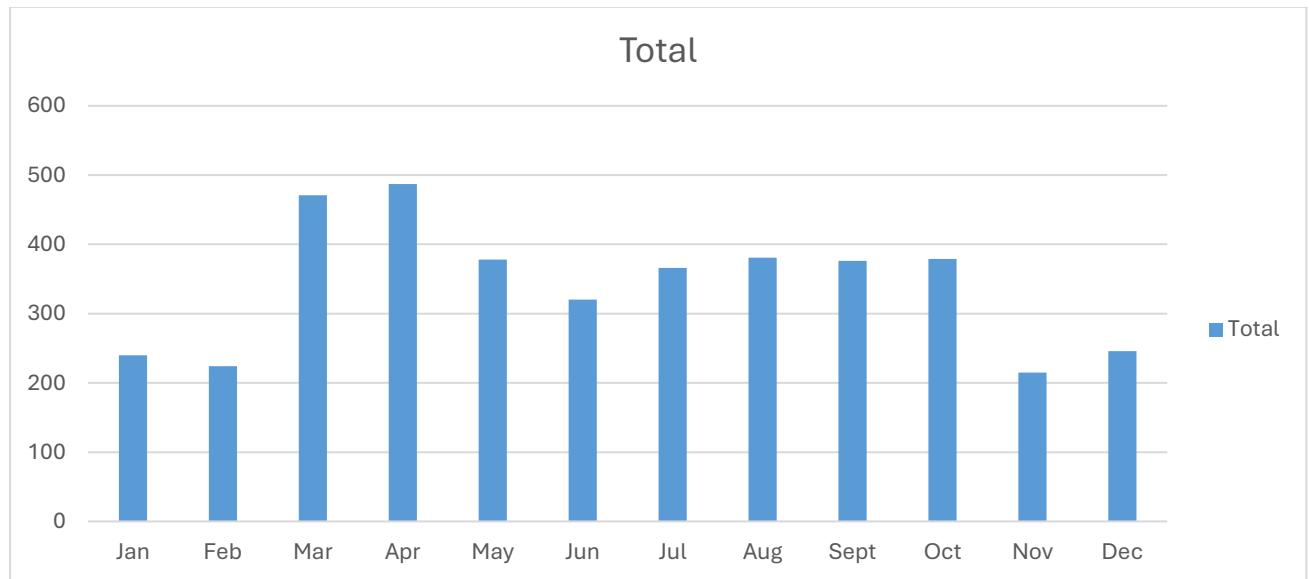
The busiest hours are between **16:00** and **18:00**, with peak orders at **16:00** (570 orders). This likely reflects evening foot traffic, as locals return from work and tourists explore the area, making Cakeberry a convenient refreshment stop. The least busy hour is **24:00** (50 orders), when most people have settled in for the night and outdoor activity declines. Around **12:00** to **14:00**, order volumes are moderate, indicating average performance during midday, driven by lunch-time purchases.



Operational Challenges with Data-Driven Solutions

Sales Forecasting Deficiency

Cakeberry Bakery experiences sharp seasonal shifts in demand, with sales more than **doubling** in April (**487 orders**) due to Ramadhan and early tourism, while dropping significantly in November (**215 orders**) amid freezing temperatures and reduced visitor activity. Despite these predictable patterns, the business lacks a forecasting method to anticipate such fluctuations, leading to inefficiencies in inventory and production planning.



Implementing Seasonal Demand Forecasting

To operate optimally, Cakeberry Bakery should adopt a seasonal demand forecasting system that analyses historical order data across months. With clear peaks in April due to Ramadhan and tourism, and significant drops in November from harsh weather and reduced activity, predictive analytics can help anticipate demand shifts. By integrating monthly order trends into planning, the bakery can align production with expected sales, reduce stockouts and wastage, and ensure resource allocation matches seasonal needs. This data-driven approach will enhance operational efficiency and profitability year-round.

Peak Day Stockouts and Slow Day Wastage

During our interview, the owner highlighted product shortages on peak days and wastage on slow days. Without inventory forecasting aligned to seasonal demand and taste shifts, Cakeberry loses potential revenue when popular items run out and faces minor losses when unsold products add cost but no profit.

Solutions for Balancing Inventory Levels

We recommend forecasting inventory levels according to seasonal demand and taste shifts to minimise both shortages and wastage. Establishing a proper inventory management system is essential. This system should record stock opening (e.g., 500 cupcakes at 8 AM) and stock closing (e.g., 120 cupcakes at midnight). By subtracting closing from opening, the bakery can accurately determine whether products were wasted (unsold) or shortened (stockouts leading to lost potential profit), providing reliable data for strategic planning.

Inventory Management Without Data Insights

Items such as samosas, pastries, and patties are among the highest-selling products, yet Cakeberry lacks calculations for safety stock, reorder points, or expected daily demand. As a result, the bakery often loses potential profit on peak days when popular items run out and incurs unintended losses on slow days due to product wastage. This absence of data-driven inventory management prevents efficient control over stock levels and undermines overall profitability.

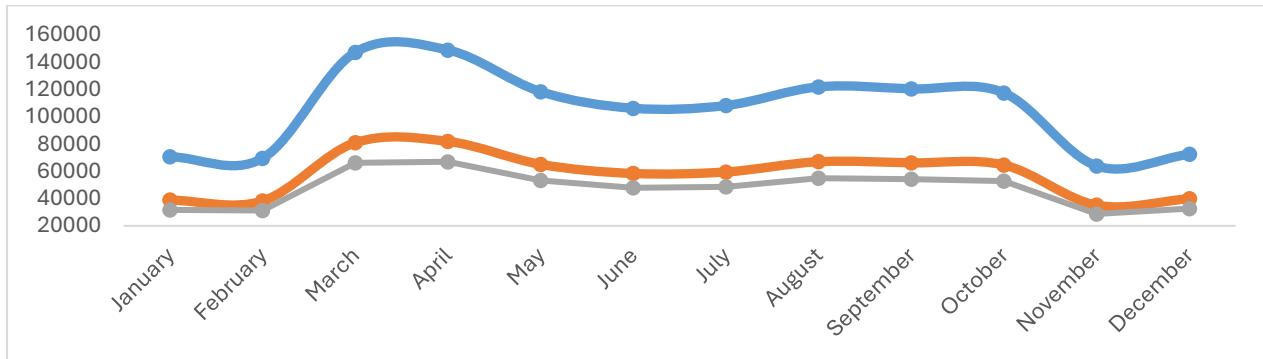
Inventory Monitoring System

We propose creating an Inventory Monitoring System integrated with the sales forecasting process to better capture seasonal demand shifts and potential changes in customer taste. By applying predictive analysis, the bakery can anticipate future demand patterns, while prescriptive analysis can recommend specific actions to optimise stock levels. This integration will enable continuous monitoring of each product's market performance, helping to minimise wastage during slow periods and

prevent shortages on peak days, ultimately ensuring more stable and efficient operations.

Absence of Profitability Trend Monitoring

Cakeberry's profit margins remain high during summer but begin to decline as colder months approach, with a sharp drop in both revenue and profit after December. This seasonal pattern suggests underlying factors affecting performance, yet the bakery lacks a system to monitor and analyse these trends. Without visibility into profitability shifts, Cakeberry is unable to forecast future outcomes, increasing the risk of unwise operational decisions.



Comprehensive Profitability Trend Analysis

To stay competitive in a saturated bakery market, Cakeberry must closely monitor and analyse profitability trends. Understanding seasonal shifts and performance patterns will enable accurate forecasting and informed operational decisions. This strategic approach not only helps anticipate future outcomes but also positions the business to maximise profit and maintain a strong market edge.

Data Analyst's Insights and Suggestions

Seasonal product strategy aligned to demand shifts

Cakeberry should align its offering with seasonal demand to capture peak revenue and stabilise off-peak months. Summer is already profitable due to tourism and Ramadhan-driven demand; winter requires a targeted push. Introduce warm, comforting products and adjust production plans, pricing, and promotions to match colder weather preferences and reduced foot traffic

Winter product line recommendations

- **Warm beverages:**

Coffee, speciality teas, and hot chocolate to increase average order value and repeat purchases.

- **Hearty items:**

Seasonal soups (tomato, chicken corn, lentil) and warm savoury bakes to suit evening peak hours.

- **Local favourite:**

Mamtu (Gilgit-Baltistan staple) to leverage regional taste, attract locals, and differentiate from competitors.