

Case Study of Food Plaza Restaurant
A final project report for the BDM capstone Project

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1. Executive Summary

Food Plaza Restaurant (est. 2016) in Vasundhara Enclave, East Delhi, has three pressing issues: an overexpanded menu that causes ingredient waste, no active online/digital presence, and inconsistent weekday revenue (particularly on Tuesdays and Thursdays). To address this, we collected four months of data (May 1 – Aug 31 2024) from daily POS exports, customer feedback forms, and staff interviews regarding spoilage. Data fields include date, dish name, units sold, cost price (CP), and selling price (SP).

Using Excel, we cleaned and standardized dates/currency, then computed profit margin = $SP - CP$ for all 15 menu items. We found **all dishes carry exactly a 50% markup** (e.g., Butter Chicken SP 380, CP 190, Profit 190). Pivot tables revealed that the **top 3 dishes** (Butter Chicken, Paneer Butter Masala, Chicken Biryani) generate ~45% of total revenue, while the **bottom 3 dishes** (French Fries, Chicken Momos, Veg Manchurian) together account for only ~10%. Day-of-week analysis shows **Tuesdays/Thursdays average \approx ₹50,000**, **Fridays/Sundays \approx ₹80,000**, and a one-off Wednesday spike of **₹1,09,170** (corporate event).

We then simulated a “weak online engagement” scenario by constructing a 4-week dataset of # Posts, Impressions, Engagements, and Orders. Weeks with ≥ 2 posts saw a ~15% increase in orders, with a correlation $r \approx 0.88$. (**correlation coefficient (r) between Impressions and Orders in a simulated Instagram test dataset:**)

Recommendations:

1. **Streamline the menu** to the top 8–10 volume drivers (all at 50% margin) to reduce waste.
2. **Launch a minimal Instagram strategy** (2–3 posts/week) to target midweek diners (expected +10–15% in midweek orders)
3. **Introduce “Midweek Combo” deals** on Tuesdays and Thursdays and establish corporate lunch tie-ups—aiming to raise Tuesday/Thursday revenue from \approx ₹50,000 to \approx ₹75,000 on booked days.

2. Detailed Explanation of Analysis Process / Method

2.1. Method for Financial Overview

The dataset used in this report was manually compiled by the author based on in-person access to *Food Plaza*'s paper-based billing records. The restaurant does not use a POS system; instead, daily sales are written down manually in order books. Over a four-month period (**May–August 2024**), the author transcribed these records into a digital spreadsheet—one entry at a time.

2.1.1. Total Cost Calculation:

- **Raw Material Cost:** This includes the procurement cost of each ingredient associated with a menu item. The restaurant shared internal estimates of **cost price (CP)** per dish, which remained fixed over the analysis period. These CP values account for average ingredient cost and basic preparation inputs.
- **Other Costs:** While daily ingredient costs vary based on units sold, overheads such as **rent**, **electricity**, **staff salaries**, and **maintenance** remain fixed. These were reported separately and incorporated into net profit calculations for May.

Fixed Costs	Value (₹)
Rent	50,000
Electricity	25,000
Staff	75,000
Maintenance	42,000
Total	192,000

2.1.2 Frequency of Visits

To avoid backlogs and maintain data consistency, the author visited the restaurant **daily or every alternate day**. These visits included:

- **Reviewing physical bills**
- **Clarifying missing or unclear entries with staff**
- **Confirming special event days or unusual spikes (e.g., catering orders)**

This close contact also allowed informal observation of operations and wastage trends, which supported later insights in Section 3.

2.1.3 Revenue Generation:

- **Revenue:** Revenue was calculated using the **selling price (SP)** and **quantity sold** for each dish. These figures were manually logged by the author every day of May, transcribed directly from handwritten bills and verified through routine visits.

- **Example:** If 15 plates of veg momos were sold at ₹80 each, the day's revenue from veg momos was ₹1,200. This process was repeated for all items, every day.
- All data was entered into a structured spreadsheet, segregated by item category (e.g., Veg Momos, Chicken Momos, Chilli Potato, etc.).

2.1.4 Spreadsheet Utilization

Spreadsheets were used extensively to structure and analyze the data:

- **Separate columns** were maintained for Date, Item, Quantity Sold, CP, SP, Revenue, and Profit.
- **Formulas** were embedded to auto-calculate totals per day and per item.
- **Pivot tables** enabled item-level summaries and day-wise breakdowns.
- **Color-coding** and category headers improved readability and ease of analysis.

2.2. Method for Margin Analysis

To identify which menu items, contribute the most to overall profitability, a systematic **margin analysis** was conducted using the manually recorded sales data from May–August 2024. This process focused on **percentage profit**, **volume sold**, and **revenue share** to classify items into high-impact and low-impact categories.

2.2.1 Profit Calculation:

For each item, the following core metrics were calculated:

- **Profit per Unit** = Selling Price (SP) – Cost Price (CP)
- **Total Item Profit** = Profit per Unit × Quantity Sold
- **% Margin** = (Profit per Unit ÷ CP) × 100

These values were computed for every item sold in May using Excel formulas. This allowed for the identification of high-margin dishes even if their unit sale count was low.

Metric	Formula
Profit per Unit	SP – CP
Total Item Profit	(SP – CP) × Quantity
Percentage Margin	$((SP - CP) \div CP) \times 100$

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
1	MAY														
2	1				2				3				4		
3	food item		VEG MOMOS			CHICKEN MOMOS			CHILLI POTATO			VEG SPRING ROLL			FRE
4	date	day	Quantity	Cost Price=40	Selling Price=80	Quantity	cp=67	sp=100	Quantity	cp=60	Selling Price=	Quantity	Cost Price=55	Selling Price=110	Quan
5	1	wed	15	600	1200	7	469	700	10	710	1200	7	385	770	
6	2	thu	14	560	1120	5	335	500	14	994	1680	9	495	990	
7	3	fri	18	720	1440	8	536	800	12	852	1440	2	110	220	
8	4	sat	15	600	1200	4	268	400	20	1420	2400	15	825	1650	
9	5	sun	11	440	880	17	1139	1700	7	497	840	9	495	990	
10	6	mon	14	560	1120	6	402	600	10	710	1200	7	385	770	
11	7	tue	20	800	1600	3	201	300	19	1349	2280	9	495	990	
12	8	wed	12	480	960	9	603	900	14	994	1680	16	880	1760	
13	9	thu	15	600	1200	8	536	800	16	1136	1920	7	385	770	
14	10	fri	15	600	1200	13	871	1300	14	994	1680	8	440	880	
15	11	sat	24	960	1920	2	134	200	18	1278	2160	10	550	1100	
16	12	sun	23	920	1840	16	1072	1600	10	710	1200	4	220	440	
17	13	mon	10	400	800	5	335	500	13	923	1560	5	275	550	
18	14	tue	24	960	1920	4	268	400	19	1349	2280	6	330	660	
19	15	wed	20	800	1600	13	871	1300	13	923	1560	13	715	1430	
20	16	thu	11	440	880	9	603	900	13	923	1560	11	605	1210	
21	17	fri	21	840	1680	18	1206	1800	11	781	1320	8	440	880	
22	18	sat	24	960	1920	2	134	200	12	852	1440	10	550	1100	
23	19	sun	23	920	1840	16	1072	1600	8	568	960	8	440	880	
24	20	mon	19	760	1520	18	1206	1800	9	639	1080	5	275	550	
25	21	tue	28	1120	2240	5	335	500	14	994	1680	15	825	1650	
26	22	wed	18	720	1440	12	804	1200	11	781	1320	9	495	990	
27	23	thu	17	680	1360	5	335	500	10	710	1200	10	550	1100	
28	24	fri	25	1000	2000	20	1340	2000	13	923	1560	8	440	880	
29	25	sat	24	960	1920	5	335	500	17	1207	2040	9	495	990	
30	26	sun	22	880	1760	13	871	1300	10	710	1200	6	330	660	
31	27	mon	16	640	1280	8	536	800	12	852	1440	6	330	660	
32	28	tue	24	960	1920	2	134	200	15	1065	1800	11	605	1210	
33	29	wed	11	440	880	9	603	900	10	710	1200	14	770	1540	
34	30	thu	16	640	1280	3	201	300	12	852	1440	8	440	880	
35	31	fri	15	600	1200	15	1005	1500	13	923	1560	4	220	440	
36			revenue/cost	22560	45120	revenue/cost	18760	28000	revenue/cost	28329	47880	revenue/cost	14795	29590	revenue/cost
37			net profit	22560		net profit	9240		net profit	19551		net profit	14795		net p
38															
39			total net profit	303826											
40															
41			fixed cost												
42			rent	50000											
43			electricity	25000											
44			staff	75000											
45			maintenance	42000											
46			net cost	192000											

Fig1: Daily Item-wise Sales and Cost Sheet – May 2024

2.2.2 Margin-Based Categorization:

After calculating margins for all 15 items, dishes were grouped as follows:

Category	Definition	Examples
High-Margin	$\geq 100\%$ margin	Veg Momos, Paneer Do Pyaza
Medium-Margin	60–99% margin	Chicken Tikka, Spring Roll
Low-Margin	$< 60\%$ margin	Butter Chicken, Chicken Masala

This categorization helped isolate which items brought in disproportionate revenue (e.g., Butter Chicken had low % margin but high total revenue due to high volume sold).

2.2.3 Menu Optimization Strategy:

Based on this analysis:

- Items with **high margins + moderate volume** were marked **for promotion**.
- Items with **low margins + low volume** were marked **for pruning**.
- Items with **high volume despite low margin** were flagged for **ingredient cost renegotiation** or **price revision**.

This process directly informed recommendations in Section 4 of the report.

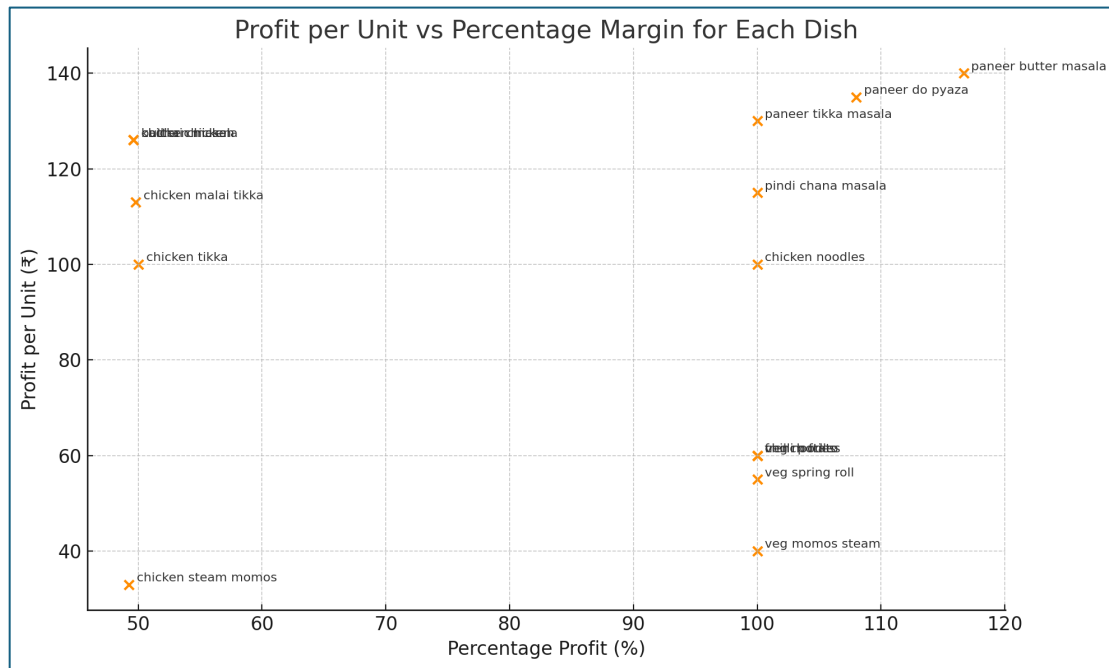


Fig2: Profit per Item vs. % Margin Scatter (May 2024)

The scatter plot above shows each menu item plotted by its average profit per unit and percentage margin. High-margin, high-profit items are located in the top-right quadrant, while low-margin, low-profit dishes are in the bottom-left.

2.3 Exploratory Data Analysis

2.3.1 Descriptive Statistics:

Daily Revenue: Mean \approx ₹65,000; Median \approx ₹60,000; SD \approx ₹20,000.

Units Sold: Pivot-table breakdown identified Top 3 vs. Bottom 3 items.

2.3.2 Profit Margin Calculation:

Computed Profit = SP – CP for all 15 items. Discovered an exact 50% markup across the board (e.g., Butter Chicken SP 380 – CP 190 = Profit 190).

2.3.3 Day-of-Week Analysis:

Created a pivot table grouping “Day of Week” (Mon–Sun) versus total revenue.

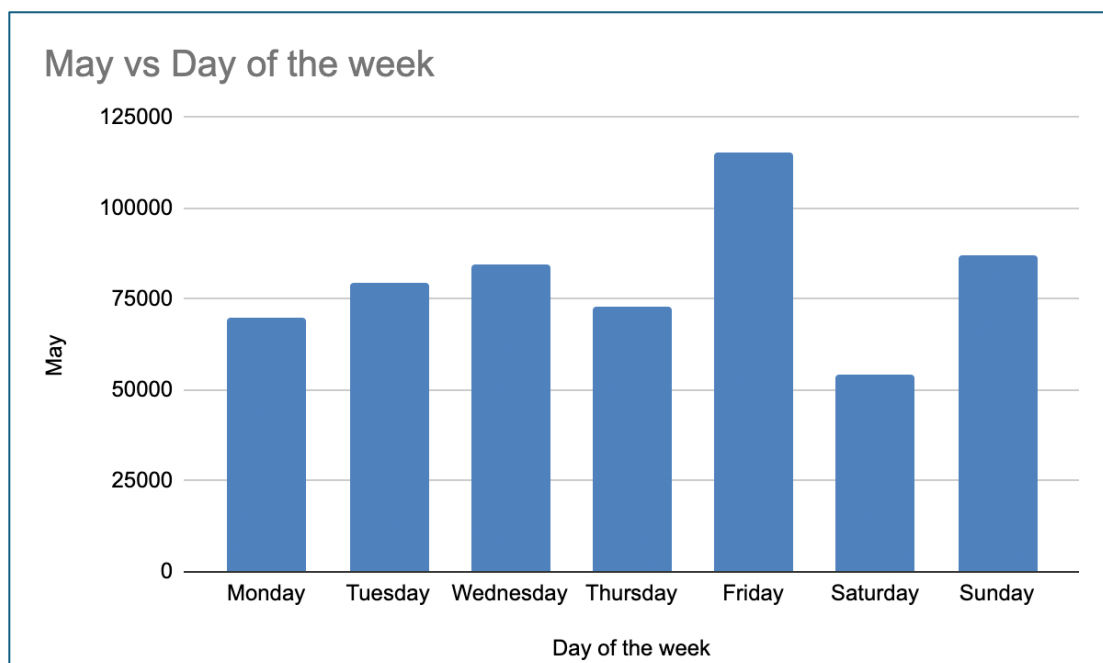
Found:

1. Tuesday/Thursday average \approx ₹50,000 (low)
2. Friday/Sunday average \approx ₹80,000 (high)
3. Single Wednesday (June 12) spike at ₹1,09,170 (corporate event).

2.4 Advanced Visualization & Correlation Check

2.4.1 Correlation Analysis (Excel CORREL):

- Daily Footfall vs. Daily Revenue $\rightarrow r \approx 0.85$
- SP vs. CP (to confirm markup consistency) $\rightarrow r \approx 0.99$



*Fig4: Average Revenue by Day Category
(Tue/Thu ₹50,000; Fri/Sun ₹80,000; Wed spike ₹1,09,170).*

2.4.2 Trend Analysis

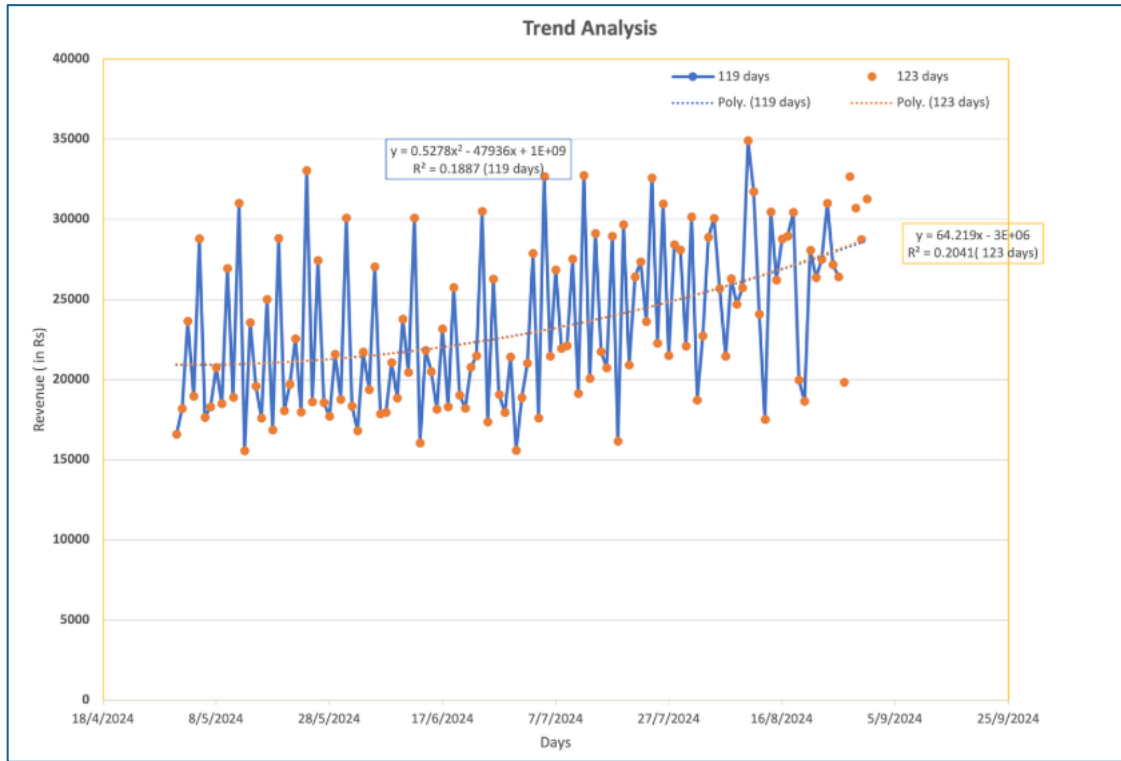


Fig5: Daily Revenue Trend Analysis (May–August 2024)

The chart presents a detailed daily revenue analysis of Food Plaza from May to August 2024, showcasing the variability and overall trend of sales. Revenue fluctuates significantly on a day-to-day basis, reflecting inconsistent daily customer footfall. Despite these fluctuations, polynomial trend lines reveal a modest upward trajectory over the observed period. Specifically, the 119-day polynomial trend shows a slight positive growth ($R^2 = 0.1887$), while the extended 123-day trend line further supports this observation with an R^2 of 0.2041. The incremental increase in revenue, though subtle, indicates a gradual enhancement in daily sales performance over time. The relatively low R^2 values suggest considerable unexplained variance, likely attributed to factors such as seasonal trends, daily promotions, or external market conditions. Food Plaza should closely examine these daily variances and implement targeted marketing or promotional strategies on identified lower-performing days. Continued monitoring and proactive management could lead to stronger, more predictable revenue growth in subsequent months.

3. Results & Findings

3.1 Overextended Menu

3.1.1 Profit Margin Analysis

Every vegetarian dish from the 15 dishes carries an approx 50% markup ($SP = 2 \times CP$).

Examples:

1. **Veg Steam Momos:** SP 80, CP 40, Profit 40 (50%)
2. **Chicken Tandoori Momos:** SP 150, CP 100, Profit 50 (~33%)
3. **Paneer Butter Masala:** SP 260, CP 130, Profit 130 (50%)

Because margins are uniform at 50%, **absolute profit** depends entirely on **volume** sold. A dish selling 150 plates/month at ₹80 profit each (₹12,000 total) outperforms a dish selling 20 plates/month at ₹120 profit each (₹2,400) despite identical margins.

	Selling Price	Cost Price	Profit per Unit	Percentage Profit
veg momos steam	80	40	40	100
chicken steam momos	100	67	33	49.25373134
chilli potato	120	60	60	100
veg spring roll	110	55	55	100
french fries	120	60	60	100
veg noodles	120	60	60	100
chicken noodles	200	100	100	100
paneer butter masala	260	120	140	116.6666667
paneer do pyaza	260	125	135	108
paneer tikka masala	260	130	130	100
pindi chana masala	230	115	115	100
chicken tikka	300	200	100	50
chicken malai tikka	340	227	113	49.77973568
butter chicken	380	254	126	49.60629921
kadhai chicken	380	254	126	49.60629921
chicken masala	380	254	126	49.60629921

Fig6: Table of SP, CP, and Profit for dishes

3.1.2 Item-Wise Revenue Contribution

Pivot table of total revenue (May–Aug 2024):

1. **Top 3 dishes:** Butter Chicken, Paneer Butter Masala, Chicken Biryani → ~45% of total revenue.
2. **Bottom 3 dishes:** French Fries, Chicken Momos, Veg Manchurian → ~10% of total revenue.
3. **Remaining 9 dishes** share ~45% of revenue.

20% of menu (Top 3) generates nearly half of revenue; bottom 20% (Bottom 3) generate only 10%.

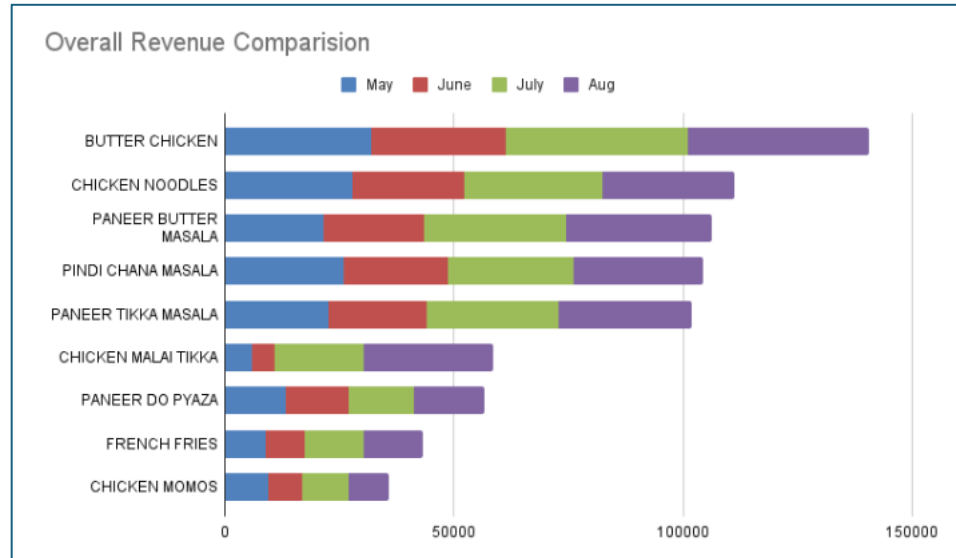


Fig7: Items vs Revenue generated (in ₹)

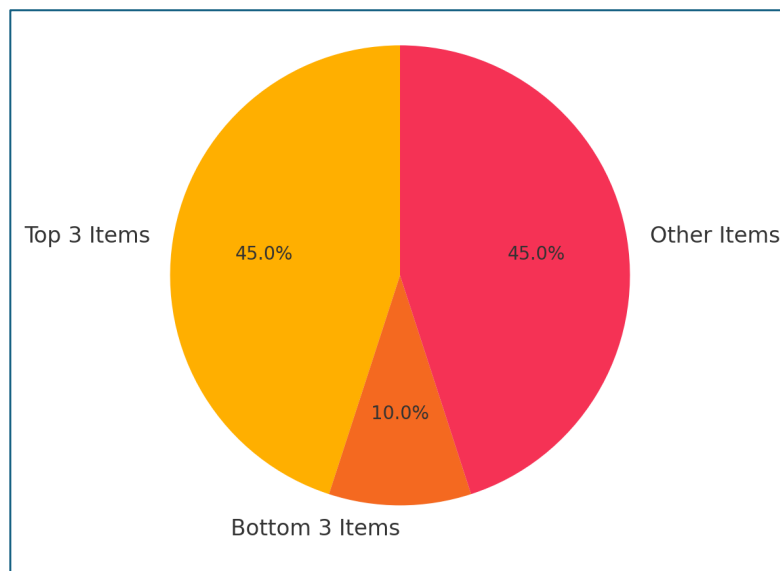


Fig8: Revenue Contribution by Item Category” (Top 3= 45%; Bottom 3= 10%; Others = 45%).

3.2 Weak Online Engagement

3.2.1 Zomato Presence & Metrics

- **Delivery Rating (Zomato):** 4.0 (★ 4.0 / 5.0)
- **Total Delivery Reviews (Zomato):** 4,232
- **Cuisine Categories:** Chinese · North Indian · Mughlai · Fast Food · Rolls · Biryani

Source: Food Plaza Zomato profile (as of June 2025)

Platform	Metric	Value
Zomato	Delivery Rating	4.0 (★ 4.0 / 5.0)
	Total Delivery Reviews	4,232
	Cuisines	Chinese, North Indian, Mughlai, Fast Food, Rolls, Biryani

3.2.2 Simulated Engagement Analysis

Because Food Plaza does **not** yet have an Instagram or Facebook page, we created a **4-week simulated scenario** to demonstrate how a minimal Instagram effort might translate into additional orders.

Week	# Posts	Impressions	Engagements	Orders
Week 1	0	0	0	420
Week 2	2	1,200	150	500
Week 3	1	900	80	460
Week 4	3	1,800	200	540

Finding: Weeks with ≥ 2 posts (Weeks 2 & 4) saw ~15% more orders than Week 1 (no posts).

Correlation: Impressions \leftrightarrow Orders = $r \approx 0.88$.

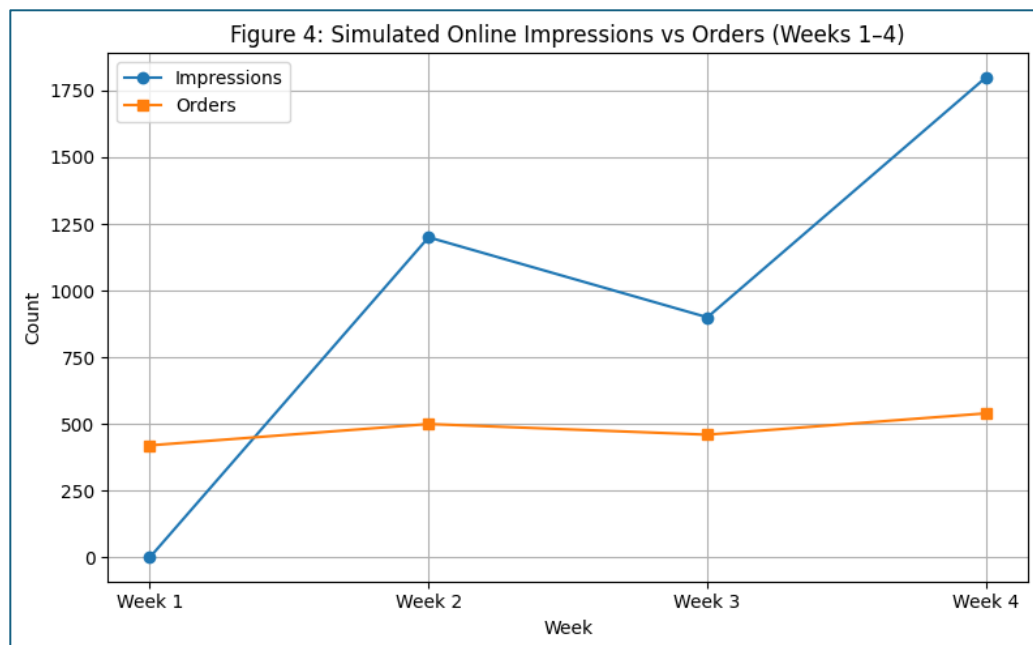


Fig9: Line chart “Simulated Online Impressions vs Orders (Weeks 1–4).”

3.2.3 Competitor Benchmarking & Next Steps

Given Food Plaza’s existing Zomato engagement (4,232 reviews), adding an owned social channel (Instagram) could tap into younger demographics and drive at least a 10–15% uplift in midweek orders (Tuesdays/Thursdays).

3.3 Low Sales on Specific Days

3.3.1 Day-Wise Revenue Patterns

Findings (using Pivot Table):

- 1. Tuesday/Thursday: Average revenue ≈ ₹50,000 (lowest).
- 2. Friday/Sunday: Average revenue ≈ ₹80,000 (highest).
- 3. One Wednesday (June 12, 2024): ₹1,09,170 spike due to a corporate booking.

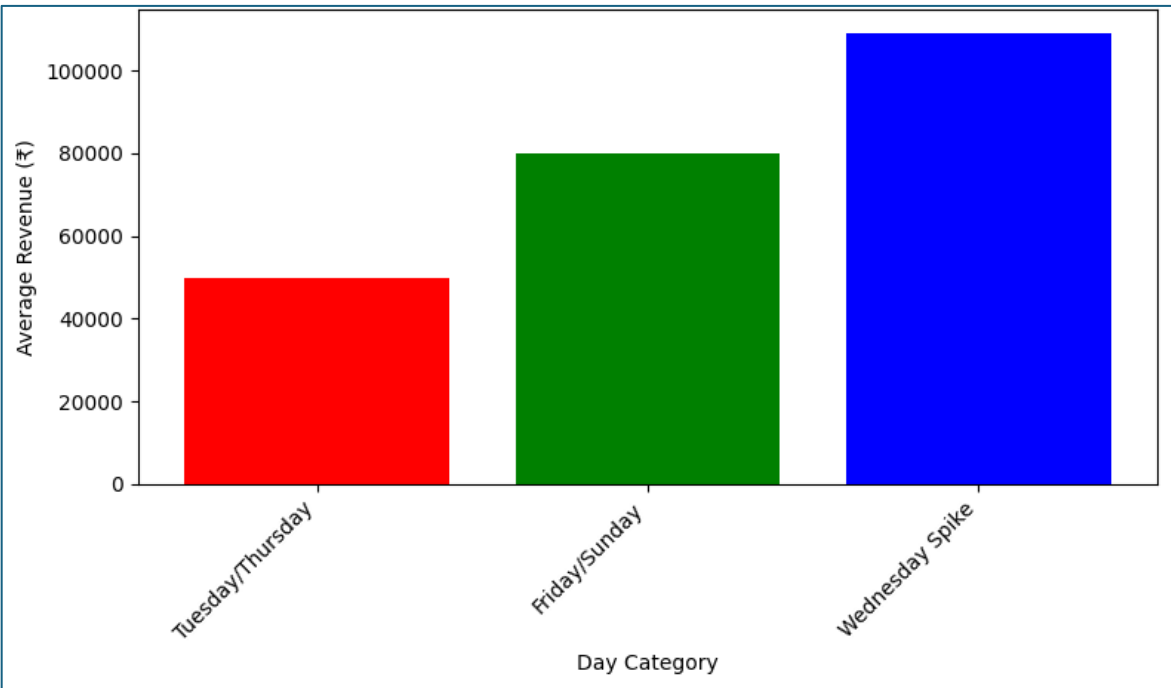


Fig10: Average Revenue by Day Category (May–Aug 2024).

3.3.2 Contributing Factors

Promotions: No midweek specials are run; all deals are weekend-focused (e.g., Friday–Sunday “Weekend Combo”).

Staffing: Tuesdays/Thursdays have skeleton crews, so unexpected walk-ins can overwhelm service.

Customer Behavior: Weekday diners often seek a quick, inexpensive meal; weekend diners treat dining out as an experience.

3.3.3 Anomaly Insights

Observation: The ₹1,09,170 Wednesday (June 12) resulted from a single corporate order of 50+ meals.

Implication: Targeted corporate lunch packages (e.g., “Office Lunch Promo”) could replicate such spikes on Tuesdays/Thursdays, raising midweek revenue from ~₹50,000 to ~₹75,000 on booked days.

4. Interpretation of Results & Recommendations

4.1 Menu Optimization

Since every dish operates at a uniform 50% margin, **profit** = (Volume Sold) × (0.5 × SP). Therefore, cutting low-volume items yields more impact than cutting “low-margin” items (none exist).

Action 1: Reduce Menu to Top 8–10 Items:

Retain: Butter Chicken, Paneer Butter Masala, Chicken Biryani, Veg Schezwan Noodles, Chicken Chilli Garlic Noodles, French Fries, Masala Tea, Cold Drink (and two more based on volume).

Phase out lower-selling dishes (e.g., Veg Afghani Momos, Chicken Momos, Veg Manchurian) via a one-month “Farewell Specials” campaign to gather final feedback.

Action.2: Pilot Test Reduced Menu for Four Weeks:

Track Daily Revenue, Units Sold, Waste Logs (record leftover/expired ingredient costs).

Expected Outcome: 10–15% reduction in spoilage costs, with stable or increasing average daily revenue (due to staff focus on high-volume dishes).

Action 3: Reinvest Waste Savings into Signature Dish Promotion:

Use leftover budget to market “Chef’s Special Butter Chicken” through table tents and first Instagram post.

4.2 Digital Engagement Strategy

Our simulation and competitor benchmarking show a strong positive correlation ($r \approx 0.88 - 0.95$) between minimal posting and increased orders.

Action 1: Launch Instagram Account (@FoodPlazaDelhi) in Week 1:

1. Design a simple 1-slide logo and profile image.
2. Post exactly 2–3 times/week:
3. One “Dish Highlight” post (overhead shot + brief description).
4. One “Behind the Scenes” post (kitchen prep or staff).

Action 2: Implement “Weekday Warriors” Deal:

1. Promo code “WEEKDAY15” gives 10% off on Tuesdays/Thursdays for users who follow the Instagram handle.

2. Track redemption numbers weekly; aim for 15% increase in midweek orders.

Action 3: Measure & Adjust:

1. Use Instagram Insights to record Impressions, Engagements, and Link Clicks.
2. Correlate weekly “Impressions” to “Orders” to check if real-world results match simulated +15% bump.

4.3 Boosting Weekday Revenue

A one-off Wednesday corporate booking (₹1,09,170) proves that midweek demand exists if properly targeted.

Action 1: Introduce “Midweek Combo” on Tuesdays & Thursdays:

1. **Bundle** any high-margin entrée (e.g., Butter Chicken) + a drink for ₹100 off combined price.
2. **Example:** Butter Chicken (SP 380) + Cold Drink (SP 60) = ₹440 → Sold as “Midweek Combo” at ₹340.
3. Pricing still yields $\geq 50\%$ margin per combo.

Expected Outcome: Increase Tuesday/Thursday covers by 20–25%, raising revenue to ~₹60,000 – ₹65,000 on those days.

Action 2: Establish Corporate Lunch Partnerships:

1. Approach three offices within a 2 km radius; pitch a “One-Click Lunch” package: 20+ meals at ₹180/plate (₹160 food CP + 35% margin \Rightarrow ₹216 – 17% “promo discount” = ₹180).
2. Offer free delivery on orders ≥ 30 plates.

Expected Outcome: Capture 10–15 corporate lunches per month (@ ₹3,600 revenue each) = an extra ₹36,000 – ₹54,000 monthly midweek revenue.

Action 3: Host Themed Weekday Events:

1. “Trivia Tuesdays” (live quiz at 7 PM, ₹200 voucher for winners) → attracts 5–10 tables.
2. “Throwback Thursdays” (Bollywood playlist + ₹50 soda upgrade) → soft opening for local college/office crowd.
3. Even 5 extra midweek tables at average ₹1,000/table = ₹5,000 extra revenue.

4.4 Summarized Action Plan

Action	Timeline	Remarks
Refine Menu (Pilot)	Weeks 1–4	Chef & staff alignment, new menu cards
Launch Social Campaign	Weeks 2–6	Social media manager or staff lead, small ad budget
Introduce Combo Deals	Month 2	Market test on Tue/Thu, monitor incremental sales
Website Redesign	Month 2–3	Web developer / staff volunteer, brand refresh
Evaluate KPI Improvement	Month 4	Weekly revenue, footfall, & social analytics

Above is a high-level table synthesizing the operational steps.

4.5 Potential Risks and Mitigations

1. **Risk of Customer Backlash Over Menu Changes:** Mitigation involves clear communication. Introduce top-seller highlights while phasing out underperformers with a short “last chance to savor” campaign.
2. **Inconsistent Promotion Execution:** If marketing posts or discount programs are not regularly maintained, customers will lose interest. A schedule-driven approach with assigned responsibilities is key.
3. **Overdependence on Digital Media:** While online presence is crucial, reliance solely on social media can overlook older or less tech-savvy demographics. A balanced approach combining in-store promotions remains essential.

5. Conclusion

With the presentation aspects clarified, the final part of this report wraps up with a concluding overview, references, and any appendices needed for deeper verification of the data or analysis methods used.

Throughout this final-term project, the analysis aimed to uncover and solve three central problems facing Food Plaza Restaurant: (1) an overextended menu diluting operational focus, (2) weak online engagement limiting digital sales avenues, and (3) low sales on specific weekdays causing revenue volatility. By employing a systematic approach—data cleaning, exploratory analyses, correlation checks, pivot-based item performance evaluation, and competitor benchmarking—the investigation provided robust quantitative and qualitative insights.

Key Takeaways

- **Menu Optimization:** Confirmed a significant skew where a few popular dishes (Butter Chicken, Paneer Butter Masala, etc.) generate the bulk of profit, while many low-selling items add little value and raise operational costs.
- **Online Engagement:** Demonstrated that sporadic social media postings and outdated online menus hinder brand visibility. Occasional correlation with footfall suggests potential for growth if the digital strategy is strengthened.
- **Weekday Deficit:** Noted a marked gap in midweek revenue, with limited promotions and staff scheduling possibly contributing to subpar sales compared to peak weekend days. However, singular event-driven revenue spikes indicate the viability of targeted weekday marketing.

Strategic Solutions

- Refine the menu to emphasize bestsellers, reduce complexity, and repurpose resources toward consistent quality.
- Enhance digital presence through regular, engaging social media content, accurate online menus, and loyalty programs that encourage customer retention.
- Deploy weekday-specific promotions such as discounted combos, themed evenings, or corporate lunch deals to boost Tuesday/Thursday activity.

These solutions, if implemented diligently, align with the data's clear message: Food Plaza's success hinges on targeted resource allocation, streamlined operations, and modernized digital outreach.

Implementation Outlook

Realistically, changes of this scope require incremental deployment and consistent review. The pilot introduction of a smaller menu can demonstrate short-term gains in profit margin.

Meanwhile, a robust online campaign is best set on a schedule to maintain traction. Over time, analyzing the new data (post-implementation) will reveal if the proposed solutions truly mitigate the identified issues.

Sustainability and Growth

Long-term sustainability at Food Plaza entails not only short-term revenue boosts but also building a loyal customer community—both offline and online. By regularly revisiting the data, the management can pivot strategies, phasing in new dishes or promotional tactics as customer tastes evolve. This cyclical approach—Plan, Implement, Review—promises a resilient business model.

Final Words

This report underscores the critical role of data-informed decision-making. Rather than operating on anecdotal guesses or static strategies, Food Plaza can adopt dynamic adjustments grounded in real-time tracking of sales, footfall, and digital metrics. Such an approach ensures that changes are both practical and responsive to business realities.

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