



# SWIGGY SQL DATA ANALYSIS



# Core Pillars of the Swiggy Ecosystem



## Swiggy Food

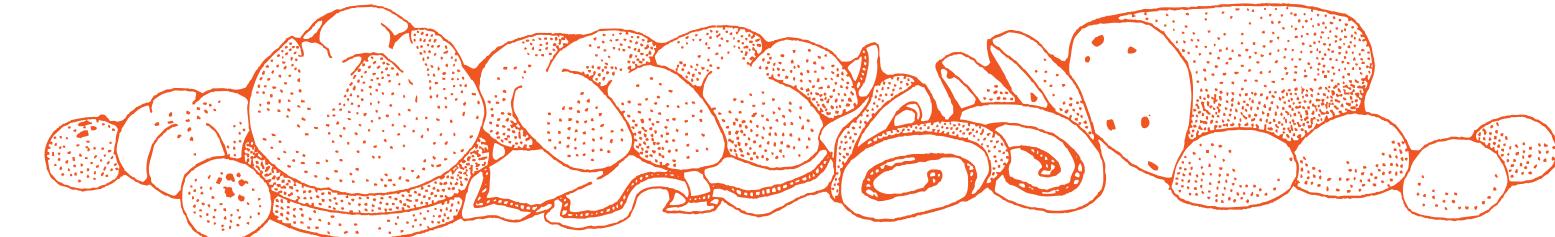
Food ordering and delivery from partner restaurants.

## Instamart

Quick Commerce (Grocery & Essentials) delivered in minutes.

## Genie (Pick-up & Drop)

Peer-to-peer parcel delivery service within the city.



# Types of Data Analysis Conducted

## Customer Behavior & Insights

Customer Lifetime Value analysis, Churn prediction, Segmentation by behavior patterns, Premium member analysis, and order frequency trends.

## Restaurant Performance

Revenue ranking by cuisine and city, Monthly growth rates, Most popular dishes by region, and restaurant efficiency metrics.

## Operational Effectiveness

Delivery assignment issues, Missing delivery time tracking, Vehicle type efficiency, and operational bottleneck identification.

## Order & Sales Analysis

Peak order time slots, Order value distribution, Monthly sales trends, Day-of-week demand forecasting, and dish popularity metrics.

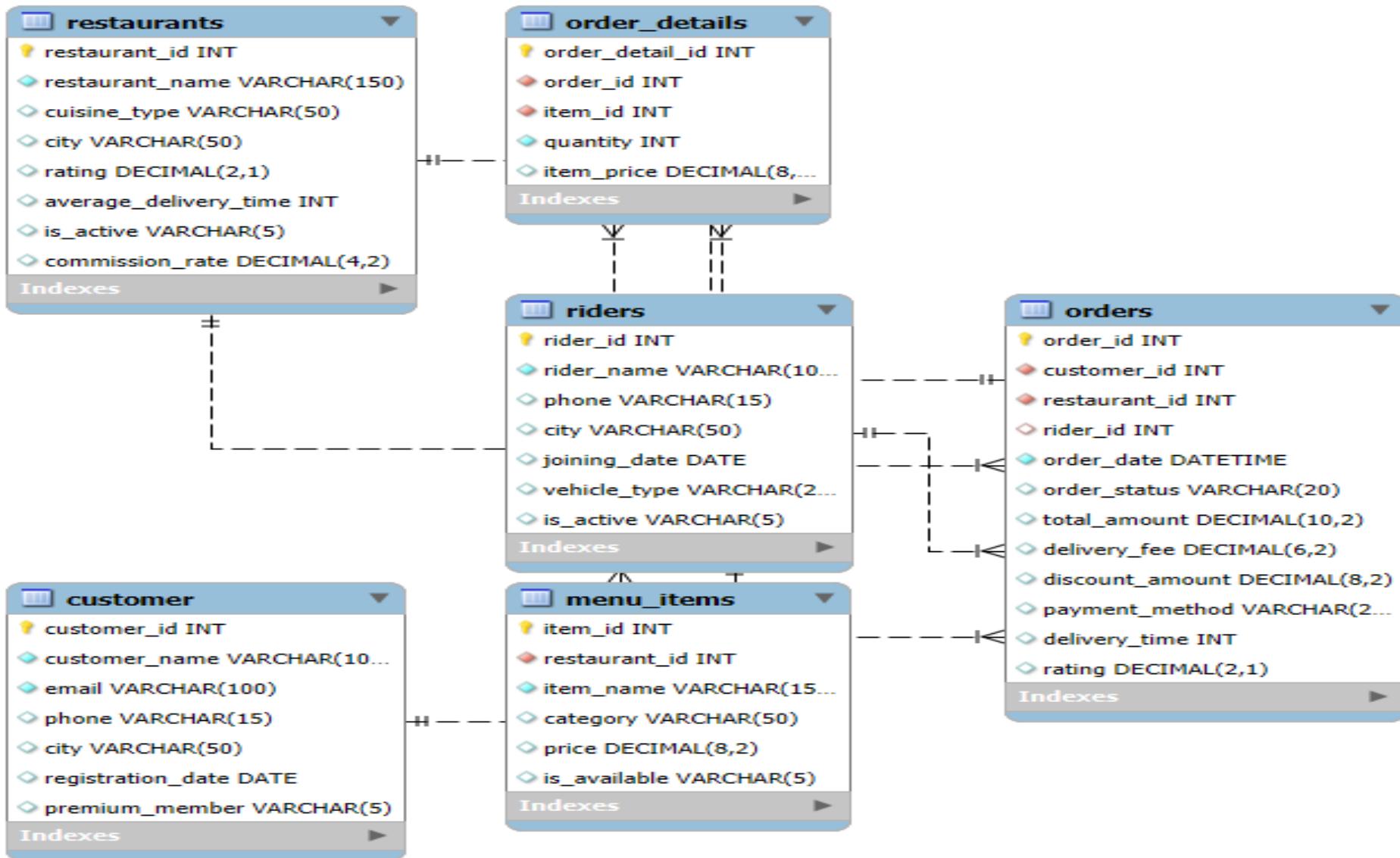
## Rider Efficiency & Performance

Delivery time analysis by vehicle type, Rider earnings and commission tracking, Performance ratings, and delivery efficiency comparison.

## Exploratory Data Analysis

Data quality checks, Missing value identification, Delivery status validation, and anomaly detection in operations.

# Database Schema & Entity Relationships



# Tools & Technologies



## SQL

Data modeling, exploration, and comprehensive analysis using 20 advanced queries for insights generation



## Power BI

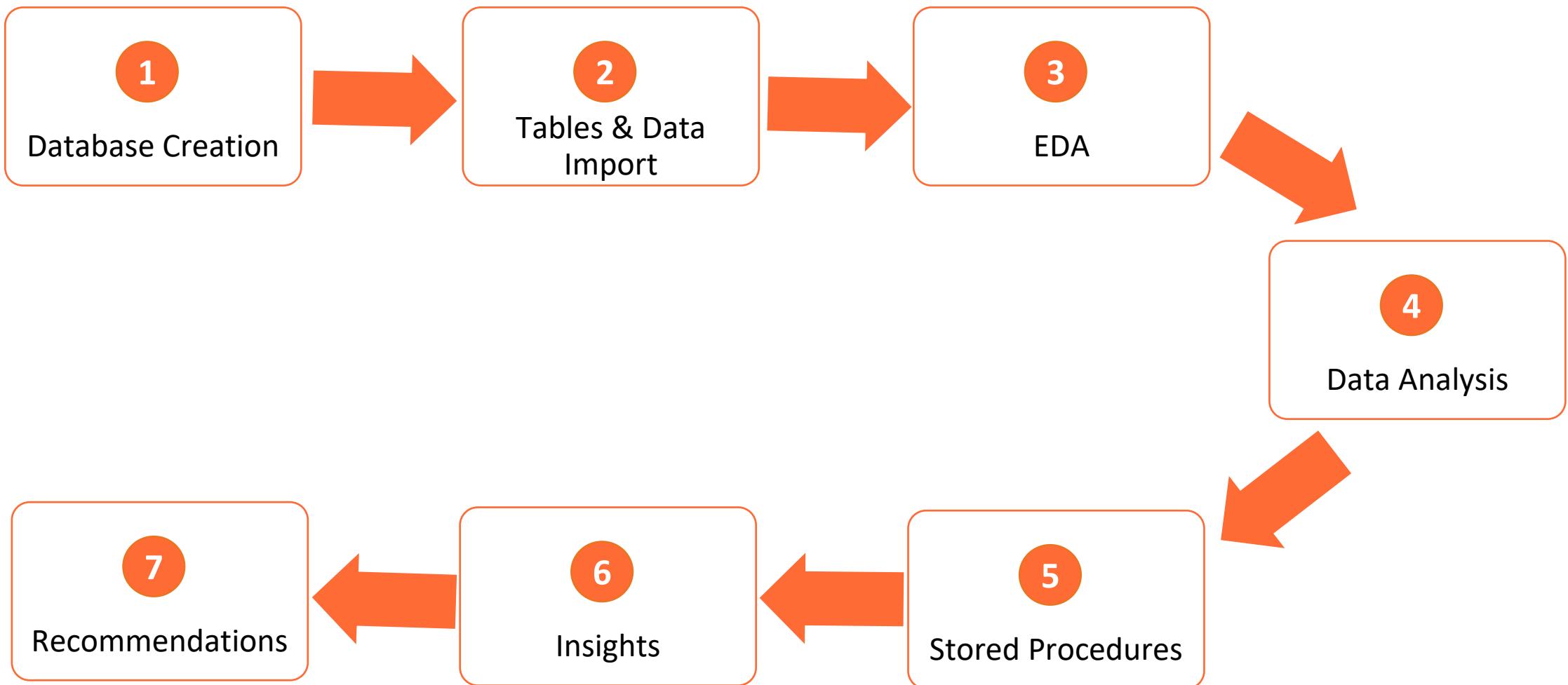
Interactive dashboards and data visualization for real-time business intelligence and KPI tracking



## PowerPoint

Professional presentation tool for creating engaging slides and communicating insights to stakeholders

# Analysis Workflow



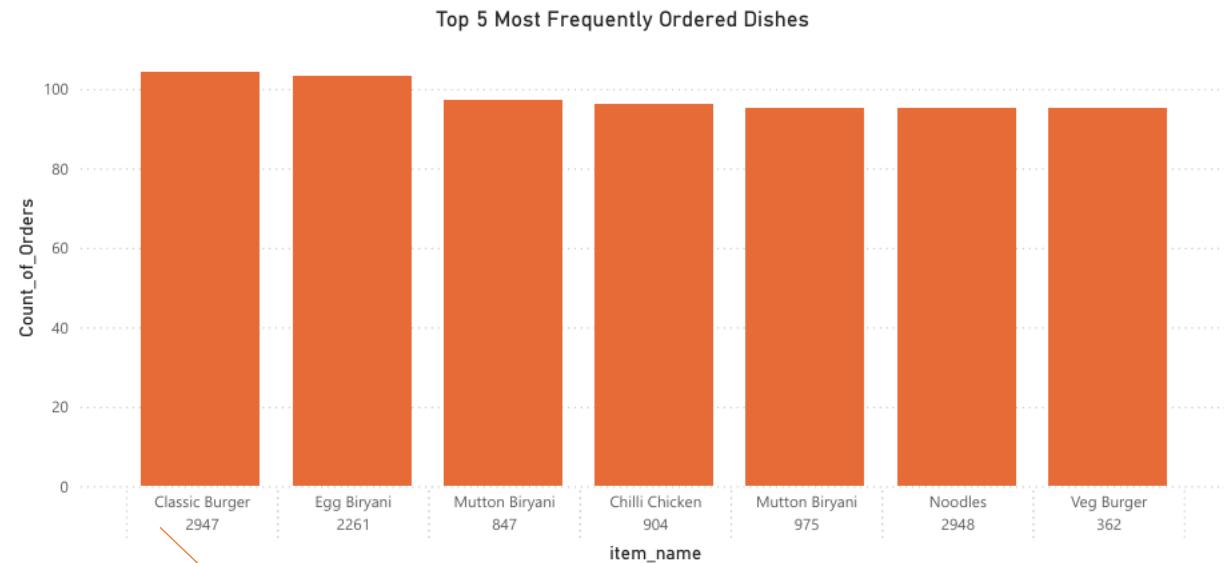
# Let's Crack The Business Problems





## Top 5 Most Frequently Ordered Dishes

	item_name	total_orders
▶	Classic Burger	104
	Egg Biryani	103
	Mutton Biryani	97
	Chilli Chicken	96
	Veg Burger	95



### Purpose:

Identify the most popular menu items by total order quantity to understand customer preferences and optimize inventory

The Classic Burger dominates with 104 orders, narrowly edging out Egg Biryani (103 orders). It indicates relatively balanced customer preferences with no single runaway bestseller.



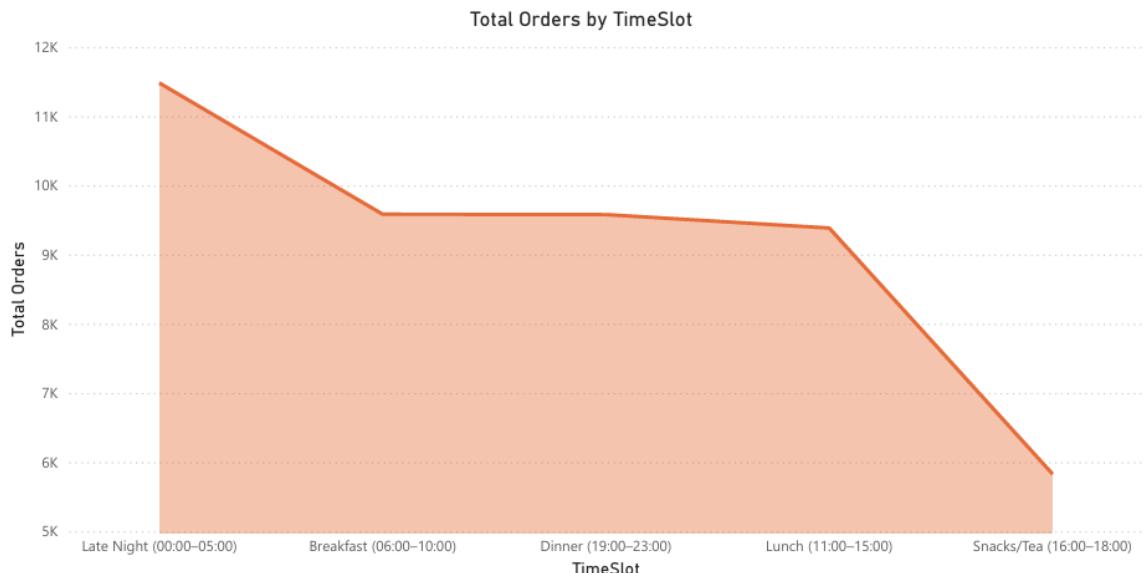
## Peak Order Time Slot Analysis

time_slot	total_orders	revenue	avg_order_value
Late Night (00:00-05:00)	11481	₹8,062,734.13	702.27
Breakfast (06:00-10:00)	9584	₹6,683,309.62	697.34
Dinner (19:00-23:00)	9579	₹6,646,536.10	693.87
Lunch (11:00-15:00)	9385	₹6,599,505.09	703.20
Snacks/Tea (16:00-18:00)	5830	₹4,088,231.67	701.24

Late Night (00:00-05:00) dominates with 11,481 orders generating ₹8.06 crores, representing our highest revenue window. This night owl segment demonstrates strong monetization potential with a premium average order value of ₹702.27, suggesting customers order higher-value items during late hours.

### Purpose:

Analyze order distribution across different time slots (Breakfast, Lunch, Snacks, Dinner, Late Night) to understand demand patterns





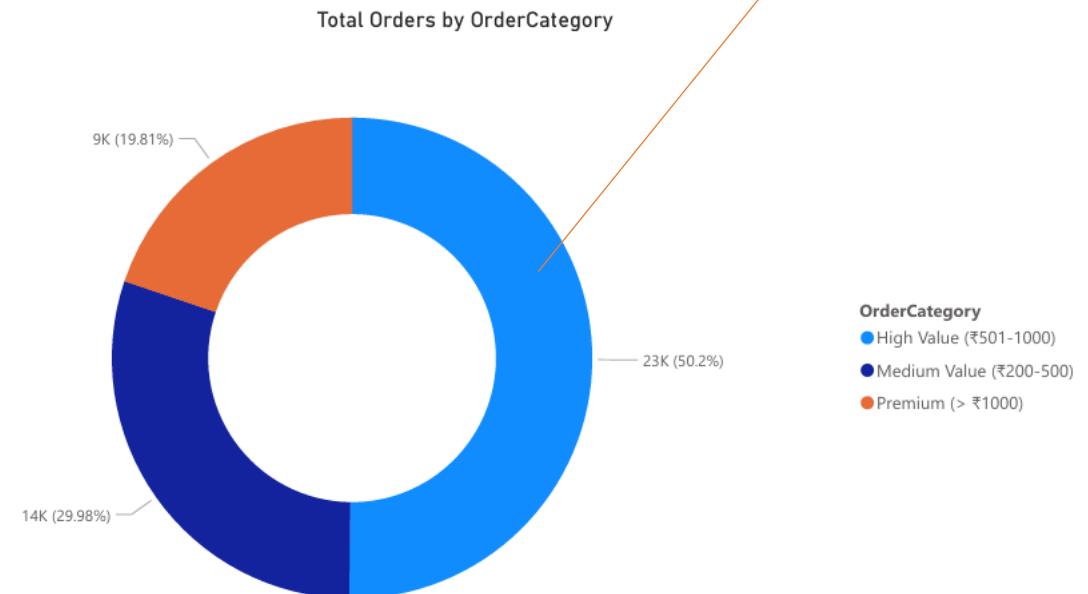
## Order Value Distribution Analysis

order_category	order_count	total_revenue
Medium Value (₹200-500)	13735	₹4,794,771.08
Premium (> ₹1000)	9125	₹9,995,883.13
High Value (₹501-1000)	22999	₹17,289,662.40

High-Value orders (₹501-1000) represent the sweet spot: 22,999 orders generating ₹17.29 crores our largest revenue contributor. This segment demonstrates price elasticity acceptance and should be the focus for upselling and margin optimization.

### Purpose:

Segment orders into value categories (Low, Medium, High, Premium) to understand customer spending behavior





## Top 10 High-Value Customers

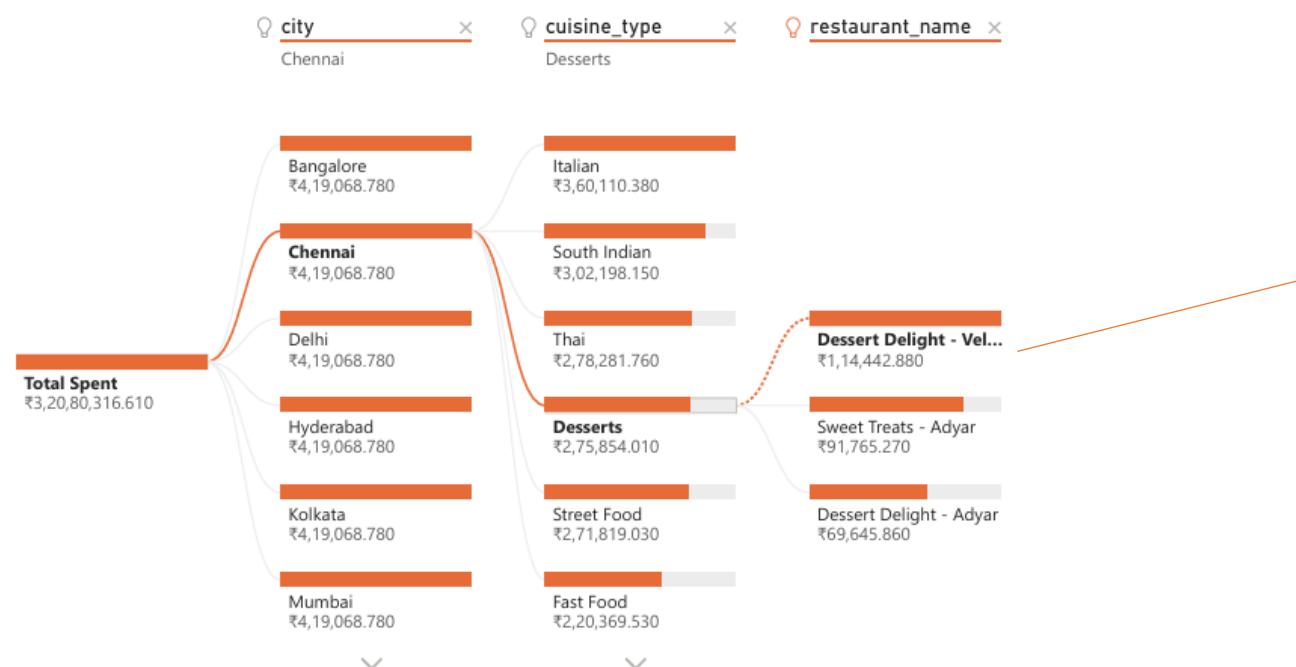
	customer_id	customer_name	city	premium_member	total_orders	lifetime_value	avg_order_value	last_order_date
▶	2849	Priya Malhotra	Hyderabad	FALSE	19	₹15,380.90	₹809.52	2024-09-10
	4643	Priya Shah	Kolkata	FALSE	20	₹15,134.94	₹756.75	2024-11-17
	2410	Kavya Kapoor	Chennai	FALSE	19	₹14,931.21	₹785.85	2024-12-30
	1087	Sanjay Nair	Kolkata	FALSE	16	₹14,833.31	₹927.08	2024-11-15
	647	Aditya Chopra	Pune	FALSE	20	₹14,596.59	₹729.83	2024-12-20
	875	Vikram Shah	Hyderabad	TRUE	17	₹14,568.33	₹856.96	2024-12-06

- Top customers average ₹700-900 per order across 16-20 lifetime orders, generating ₹14-15K each. This micro-segment's consistency and order frequency makes them ideal candidates for premium subscription programs and exclusive early access to new restaurants.
- VIP customers cluster in metros (Hyderabad, Kolkata, Pune, Chennai). City-specific VIP programs and localized restaurant partnerships can amplify lifetime value in these high-performing markets.



# Restaurant Revenue Ranking

	restaurant_id	restaurant_name	cuisine_type	city	total_orders	total_revenue
▶	339	Chopstick Express - Indiranagar	Chinese	Bangalore	63	₹41,296.38
	384	Dragon House - Koramangala	Chinese	Bangalore	61	₹41,579.65
	317	Bella Italia - Ballygunge	Italian	Kolkata	61	₹41,952.72
	484	Mexican Fiesta - Marathahalli	Mexican	Bangalore	67	₹43,296.00
	406	Tandoor Palace - Whitefield	North Indian	Bangalore	62	₹43,329.48
	199	Biryani House - Whitefield	Biryani	Bangalore	61	₹43,368.22



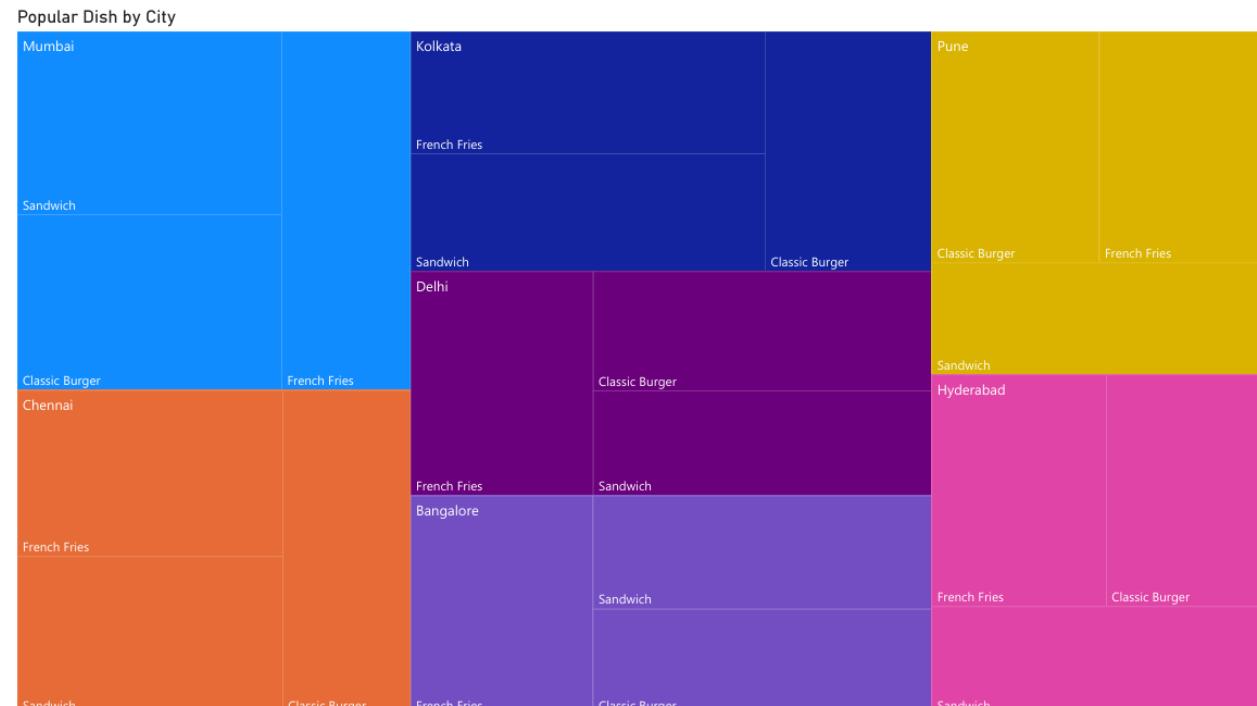
Chopstick Express and Dragon House lead with ₹41,296.38 despite similar order volumes (61-63), indicating premium pricing power and customer affinity. These restaurants warrant preferential placement and co-marketing investments.



## Most Popular Dish by City

	city	most_popular_dish	total_quantity_sold
▶	Bangalore	French Fries	2052
	Chennai	French Fries	2311
	Delhi	French Fries	2177
	Hyderabad	French Fries	2090
	Kolkata	French Fries	2241
	Mumbai	Sandwich	2562

French Fries dominates 5 of 6 cities (2,000-2,300 orders), positioning as Swiggy's universal comfort item. This creates powerful cross-sell opportunities—bundle fries with premium main courses to increase basket size and average order value.

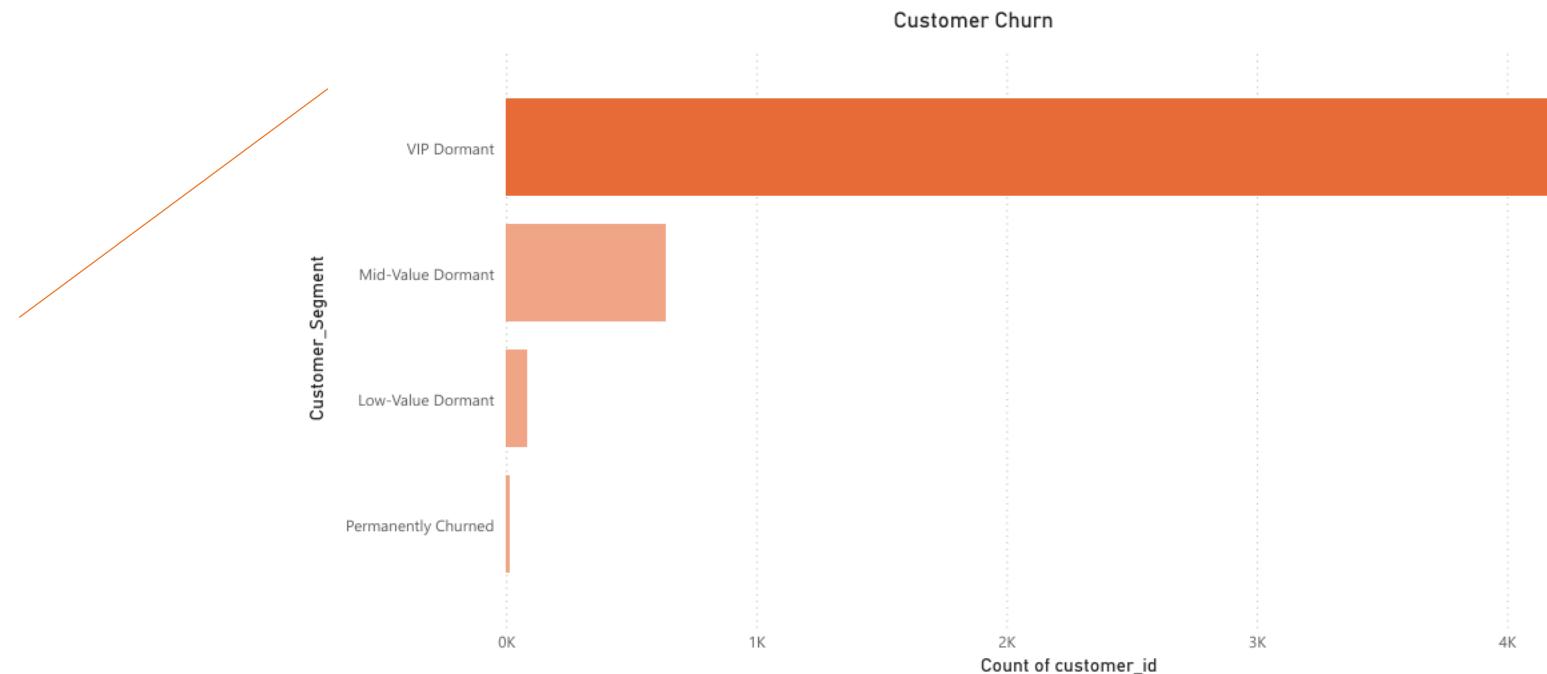




## Customer Churn Analysis (Inactive Customers)

customer_segment	customer_count	percentage_of_dormant	avg_days_dormant	min_days_dormant	max_days_dormant	total_orders_segment	avg_orders_per_customer
VIP Dormant	4256	85.29	354	301	450	40430	9.50
Mid-Value Dormant	636	12.75	502	451	599	4898	7.70
Low-Value Dormant	85	1.70	651	601	745	485	5.71
Permanently Churned	13	0.26	823	754	909	46	3.54

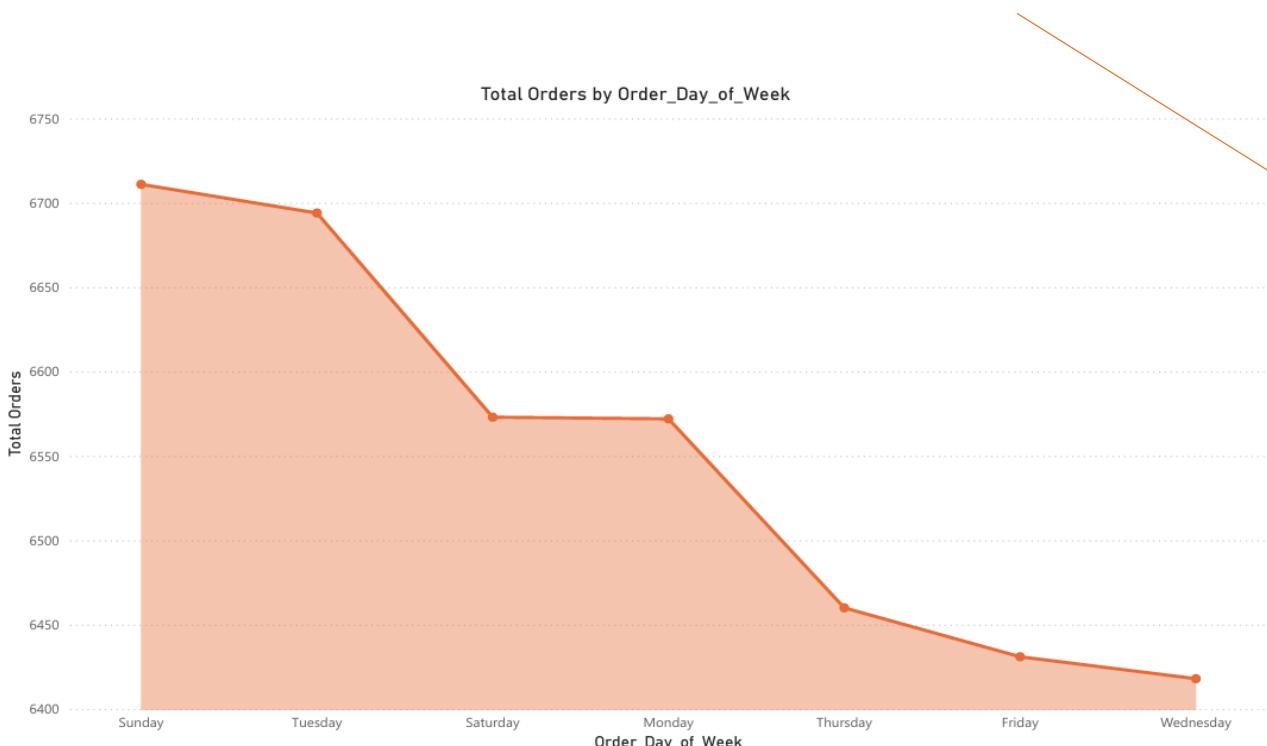
4,256 VIP customers (85.29% of dormant base) have gone inactive—representing massive revenue leakage. Emergency re-engagement campaign with exclusive offers and personalized outreach is critical; losing this segment impacts ₹40000 in potential annual revenue.





## Day of Week Analysis

	day_of_week	day_number	total_orders	total_revenue	avg_order_value	unique_customers
▶	Sunday	1	6711	₹4,679,210.97	₹697.24	3722
	Tuesday	3	6694	₹4,700,978.55	₹702.27	3704
	Saturday	7	6573	₹4,645,395.08	₹706.74	3670
	Monday	2	6572	₹4,606,783.56	₹700.97	3683
	Thursday	5	6460	₹4,479,862.74	₹693.48	3620
	Friday	6	6431	₹4,523,410.28	₹703.38	3668

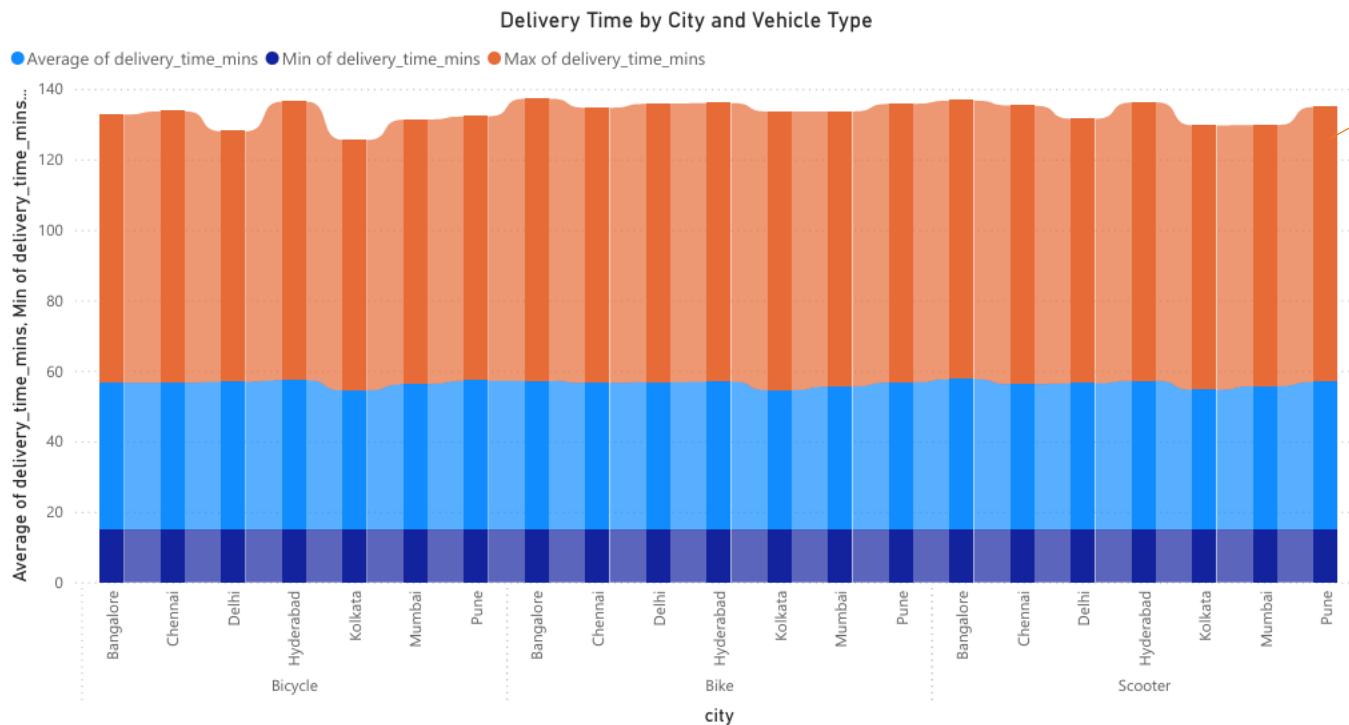


Sunday peaks at 6,711 orders with ₹4.67 crores revenue, followed by Tuesday (6,694 orders). Mid-week weakness (Friday: 6,431 orders) presents promotional opportunity to deploy targeted Friday offers to smooth demand curves.



# Delivery Efficiency by Vehicle Type & City

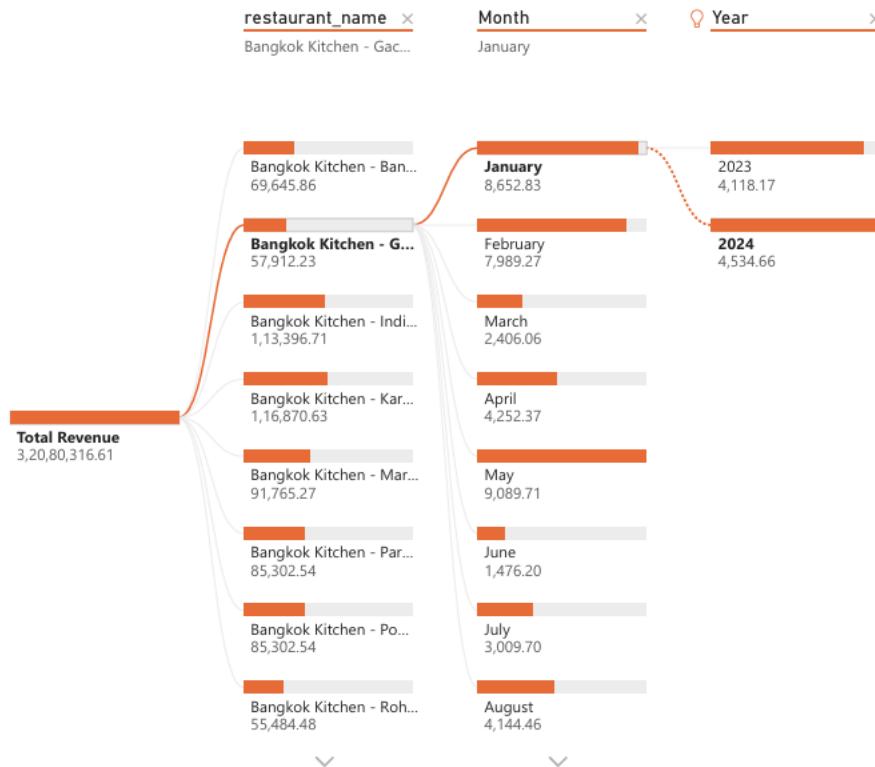
	rider_city	vehicle_type	total_deliveries	avg_delivery_time_mins	min_delivery_time_mins	max_delivery_time_mins
▶	Kolkata	Bicycle	803	39.49	15	71
	Kolkata	Bike	3597	39.55	15	79
	Kolkata	Scooter	2274	39.63	15	75
	Mumbai	Bike	3974	40.59	15	78
	Mumbai	Scooter	1687	40.69	15	74
	Chennai	Scooter	1679	41.24	15	79



All vehicle types maintain 39.39-41.24 min average delivery times across cities, indicating operational standardization. This consistency builds customer trust.



# Monthly Restaurant Growth Rate



restaurant_name	month	monthly_revenue	monthly_orders	prev_month_revenue	growth_rate	trend
Bangkok Kitchen - Gachibowli	2024-12	₹6,009.42	7	₹2,678.91	124.32%	Growth
Bangkok Kitchen - Gachibowli	2024-11	₹2,678.91	4	₹3,578.30	-25.13%	Dedine
Bangkok Kitchen - Gachibowli	2024-10	₹3,578.30	7	₹4,809.68	-25.60%	Dedine
Bangkok Kitchen - Gachibowli	2024-09	₹4,809.68	7	₹3,296.11	45.92%	Growth
Bangkok Kitchen - Gachibowli	2024-08	₹3,296.11	4	₹4,853.93	-32.09%	Dedine
Bangkok Kitchen - Gachibowli	2024-07	₹4,853.93	6	₹3,817.15	27.16%	Growth

Growth swings from +124.32% (Dec 2024) to -32.09% (Aug 2024) reveal extreme revenue instability—likely driven by seasonal promotions or menu changes rather than organic growth. Implement consistent promotional calendars to stabilize revenue trajectory.

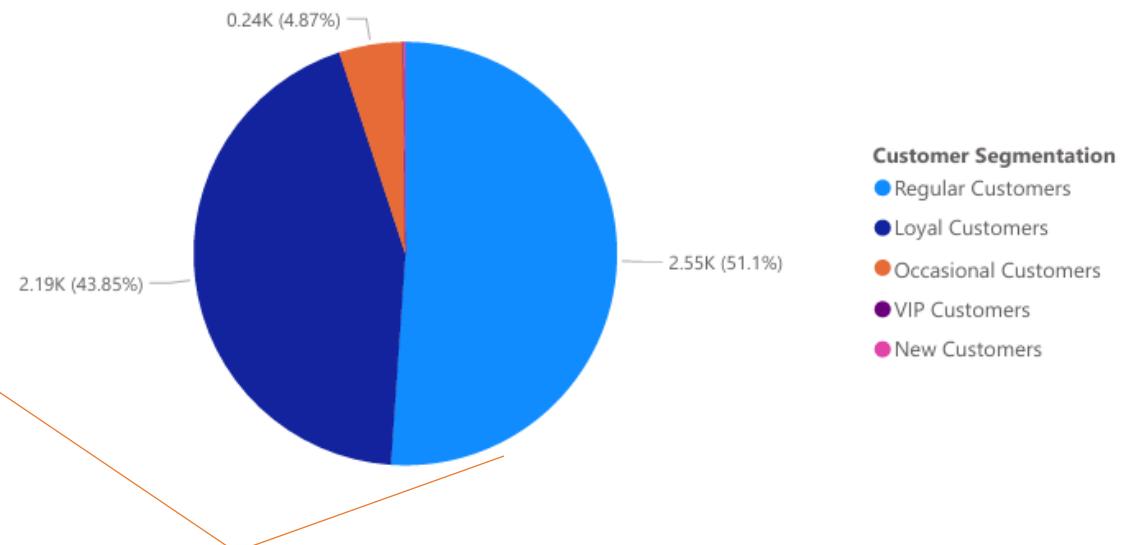


## Customer Segmentation by Behavior

	customer_segment	customer_count	total_revenue	avg_customer_value	avg_orders_per_customer
▶	VIP Customers	5	₹68,775.29	₹13,755.06	20.00
	Occasional Customers	243	₹611,551.10	₹2,516.67	3.61
	New Customers	4	₹2,267.63	₹566.91	1.00
	Loyal Customers	2188	₹18,232,902.49	₹8,333.14	11.91
	Regular Customers	2550	₹13,164,820.10	₹5,162.67	7.38

2,188 Loyal Customers generate ₹1.82 crores (highest segment revenue) with 11.91 average orders—this is our most valuable cohort. Dedicate premium support, exclusive previews, and loyalty rewards to deepen engagement and prevent competitor poaching.

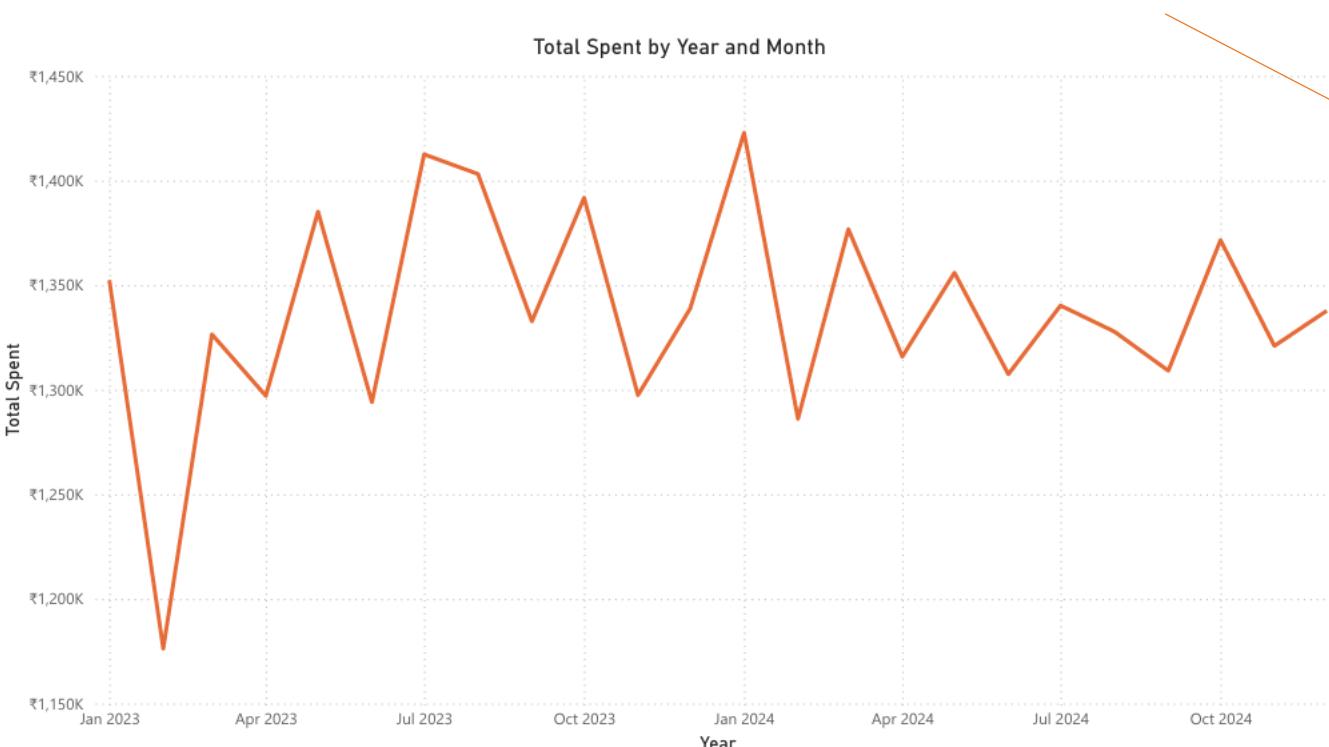
Count of customer\_id by Customer Segmentation





## Month-over-Month Sales Trend Analysis

	month	total_orders	monthly_sales	avg_order_value	prev_month_sales	sales_growth	order_growth	trend
▶	2024-12	1925	₹1,337,720.81	₹694.92	₹1,320,980.06	1.27%	1.26%	Growth
	2024-11	1901	₹1,320,980.06	₹694.89	₹1,371,499.74	-3.68%	-1.40%	Decline
	2024-10	1928	₹1,371,499.74	₹711.36	₹1,309,101.13	4.77%	2.88%	Growth
	2024-09	1874	₹1,309,101.13	₹698.56	₹1,327,805.30	-1.41%	-2.55%	Decline
	2024-08	1923	₹1,327,805.30	₹690.49	₹1,340,273.72	-0.93%	-0.21%	Decline
	2024-07	1927	₹1,340,273.72	₹695.52	₹1,307,442.52	2.51%	2.45%	Growth



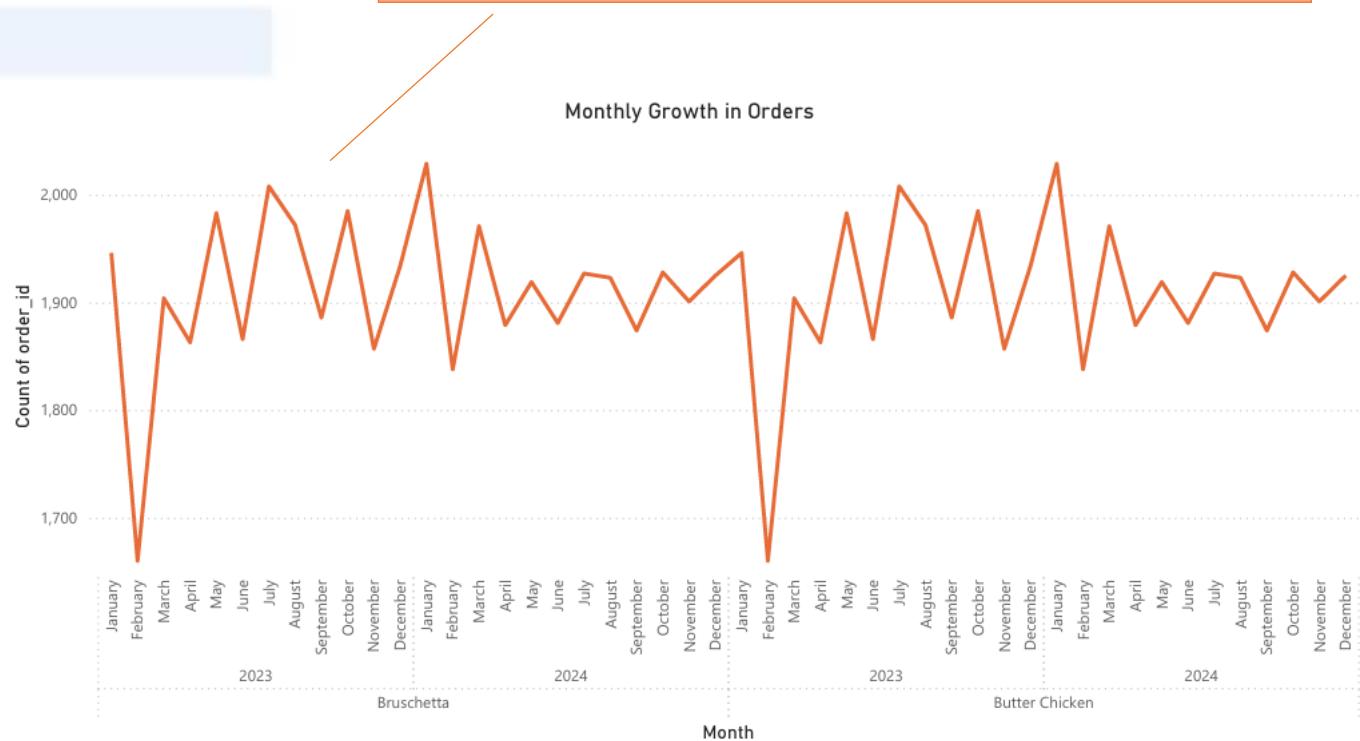
Revenue fluctuates between ₹1.19 crores (Jan 2024 trough) and ₹1.37 crores (Oct 2024 peak), indicating 17% seasonal variance. Plan inventory, staffing, and marketing spend to align with these predictable cycles.



## Menu Item Popularity Trend Over Time

	item_name	order_month	total_quantity_ordered
▶	Bruschetta	2023-01	47
	Bruschetta	2023-02	49
	Bruschetta	2023-03	55
	Bruschetta	2023-04	54
	Bruschetta	2023-05	67
	Bruschetta	2023-06	59

**Bruschetta Steady Performer** 47-67 monthly orders with no declining trend indicates consistent appeal. Use as platform anchor—feature in seasonal promotions and bundle with trending items to drive cross-category sales.

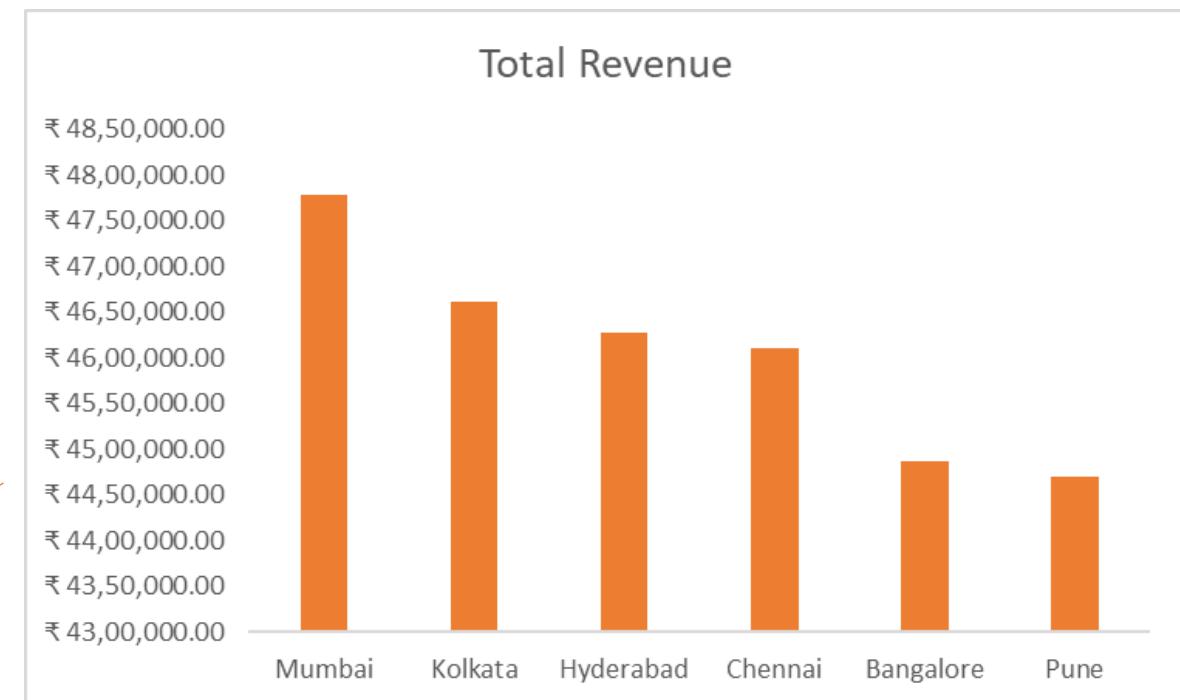




## Ranking City by Total Revenue

	city	Total_revenue	rnk
▶	Mumbai	4779398.87	1
	Kolkata	4661605.79	2
	Hyderabad	4627918.16	3
	Chennai	4609997.15	4
	Bangalore	4486544.40	5
	Pune	4470678.52	6

**Mumbai Dominance** ₹4.78 crores revenue establishes clear market leadership, 3% ahead of Kolkata (₹4.66 crores). Reinvest Mumbai success learnings operational excellence, restaurant density, customer acquisition efficiency into tier-2 cities.



# Stored Procedure

## Restaurant Performance Dashboard

```
DELIMITER //
```

```
• CREATE PROCEDURE GetRestaurantPerformance(IN rest_id INT, IN start_date DATE, IN end_date DATE)
BEGIN
    SELECT
        r.restaurant_name,
        r.cuisine_type,
        r.city,
        COUNT(o.order_id) AS total_orders,
        CONCAT('₹', FORMAT(SUM(o.total_amount), 2)) AS total_revenue,
        CONCAT('₹', FORMAT(AVG(o.total_amount), 2)) AS avg_order_value,
        ROUND(AVG(o.rating), 2) AS avg_rating,
        COUNT(CASE WHEN o.order_status = 'Delivered' THEN 1 END) AS successful_orders,
        COUNT(CASE WHEN o.order_status = 'Cancelled' THEN 1 END) AS cancelled_orders,
        ROUND(COUNT(CASE WHEN o.order_status = 'Cancelled' THEN 1 END) * 100.0 / COUNT(o.order_id), 2) AS cancellation_rate,
        COUNT(DISTINCT o.customer_id) AS unique_customers
    FROM restaurants r
    LEFT JOIN orders o ON r.restaurant_id = o.restaurant_id
        AND o.order_date BETWEEN start_date AND end_date
    WHERE r.restaurant_id = rest_id
    GROUP BY r.restaurant_id, r.restaurant_name, r.cuisine_type, r.city;
END //
```

```
DELIMITER ;
```

```
-- Usage: CALL GetRestaurantPerformance(1, '2024-01-01', '2024-12-31');
```



## OUTPUT:

restaurant_name	cuisine_type	city	total_orders	total_revenue	avg_order_value	avg_rating	successful_orders	cancelled_orders	cancellation_rate	unique_customers
Punjab Dhaba - Worli	North Indian	Mumbai	68	₹46,863.51	₹689.17	3.21	68	0	0.00	64



## Top Key Insights

### Late-Night Dominance

**₹8.06 Cr** revenue from **11,481 orders**

↳ Untapped monetization opportunity with dedicated service tier

### Geographic Concentration

**Mumbai + Kolkata = 20% total revenue**

Tier-2 cities: ₹44-46 Cr clustering (mature competition)

↳ Diversification essential for resilience

### High-Value Orders Engine

Range: **₹501-1000** | Largest revenue contributor

↳ Premium upselling & bundle strategies viable

### VIP Churn Crisis

**4,256 dormant VIPs** (85% of inactive)

↳ Emergency reactivation program needed

### French Fries Universal Hit

Most popular in **5 of 6 cities**

Orders: 2,000-2,300 per city | Consistent demand

↳ Strategic bundling & procurement leverage

### Weekend Spending Premium

Sunday peak: **6,711 orders**

Friday lowest: 6,431 orders (gap identified)

↳ Demand smoothing opportunity



## Strategic Recommendations

### CUSTOMER RETENTION

**Immediate:** Target 4,256 dormant VIPs with ₹500-1000 exclusive offers

**Tactical:** Deploy predictive churn model at 30-day inactivity gap

**Structural:** Launch VIP concierge tier with 24/7 support & guaranteed 20-min delivery

### MONETIZATION

**Product:** "Night Owl Premium" tier with 20-min guaranteed delivery (₹20-30 fee)

**Partners:** Recruit 50+ 24-hour restaurants & ghost kitchens

**Pilots:** Launch in Mumbai & Bangalore, target 15% penetration

### DEMAND SMOOTHING

**Campaign:** "Friday Feast" with 20-25% discount on ₹500+ orders

**Pricing:** Surge pricing on peak days (Sun/Tue) for 5-8% margin gain

**Merchant Incentives:** Higher commission splits (+1-2%) for Friday drivers

### MENU STRATEGY

**Supply Chain:** Centralize with 2-3 suppliers for 12-15% cost reduction

**Bundles:** Create "Sides Bundle" (Burger + Fries + Drink) across restaurants

**Partnerships:** Exclusive supply agreements with ₹2-3 commission increase



## Strategic Recommendations (Continued)

### GEOGRAPHIC EXPANSION

**Bangalore:** Deep-dive on underperformance vs. Mumbai (₹4.49 Cr vs ₹4.78 Cr)

**Hyderabad:** Launch "Local Legends" with 100+ exclusive restaurant partnerships

**Pune:** Customer acquisition blitz targeting 50K new users in 3 months

### CUSTOMER PROGRESSION

**Segmentation:** Re-segment 2,188 Loyal customers to VIP tier (currently only 5)

**Ladder:** Occasional → Regular → Loyal → VIP with escalating benefits

**Gamification:** Milestone rewards every 5 orders for 30% progression rate

### RESTAURANT PARTNERSHIPS

#### Volatility

**Analysis:** Address 124% → -32% MoM swings (Bangkok Kitchen case)

#### Promotional

**Calendar:** Co-create annual roadmap with top 100 restaurants

**Early Warning:** Flag restaurants with 2+ consecutive declines for intervention



# THANK YOU