PROJECT 4: Zomato Order & Restaurant Analysis Using Power BI

Submitted by

Samaja M S

SQL QUERIES

-- 2.Data Exploration Queries

-- Count the number of restaurants in each city.

- select city,count(restaurant_name)
  from Zomato_restaurants
  group by city;

city	count(restaurant_name)
Mumbai	115
Chennai	91
Delhi	93
Bangalore	109
Kolkata	92

-- Find the top 5 cities with the highest number of orders.

- select r.city,count(o.order_id) as cnt
  from Zomato_restaurants r
  join Zomato_Orders o on o.restaurant_id=r.restaurant_id
  group by city
  order by cnt desc
  limit 5;

city	cnt
Mumbai	3384
Bangalore	3300
Delhi	2857
Kolkata	2732
Chennai	2727

-- Calculate the total revenue generated by each restaurant.

- select r.restaurant_name, sum(o.total_cost) as revenue
  from Zomato_restaurants r
  join Zomato_Orders o on o.restaurant_id=r.restaurant_id

```
group by restaurant_name
order by revenue desc;
```

restaurant_name	revenue
▶ Restaurant_99	26308.57
Restaurant_98	28775.230000000003
Restaurant_97	25388.339999999997
Restaurant_96	40557.44000000001
Restaurant_95	34542.95
Restaurant_94	27257.13
Restaurant_93	27050.070000000003
Restaurant_92	44060.490000000005
Restaurant_91	42629.96
Restaurant_90	24817.319999999992
Restaurant_9	32112.41
Restaurant_89	35257.48
Restaurant_88	34077.65

-- Data Aggregation

-- Find the average order amount for each city.

- ```
  select r.city, avg(o.total_cost) as average
  from Zomato_restaurants r
  join Zomato_Orders o on o.restaurant_id=r.restaurant_id
  group by city order by average desc;
  ```

city	average
▶ Chennai	1041.1271360469361
Bangalore	1040.8770787878777
Kolkata	1039.50251830161
Mumbai	1035.9983008274241
Delhi	1033.986506825343

-- Identify the top 5 restaurants with the highest total sales.

- ```
  select r.restaurant_name, sum(o.total_cost) as highest_total_sales
  from Zomato_restaurants r
  join Zomato_Orders o on o.restaurant_id=r.restaurant_id
  group by restaurant_name
  order by highest_total_sales desc
  limit 5;
  ```

| restaurant_name	highest_total_sales
▶ Restaurant_116	50931.259999999995
Restaurant_262	48860.23999999999
Restaurant_56	48645.779999999984
Restaurant_27	48562.09999999999
Restaurant_127	48203.2

-- Data Joins

-- Join the Zomato_Orders and Zomato_Restaurants tables to get restaurant names along with order details.

- CREATE TABLE Zomato_restaurants_orders AS
  SELECT
  o.order_id, o.customer_id, o.order_date, o.order_time, o.delivery_time, o.total_cost,
  o.item_count, o.payment_method, o.customer_rating, r.restaurant_id, r.restaurant_name,
  r.city, r.area, r.cuisine, r.avg_rating, r.total_ratings, r.price_range, r.delivery_available
  FROM Zomato_Orders o
  JOIN Zomato_Restaurants r
  ON o.restaurant_id = r.restaurant_id;

- select * from Zomato_restaurants_orders limit 5;

DASHBOARD

Task 1: Number of Restaurants per City
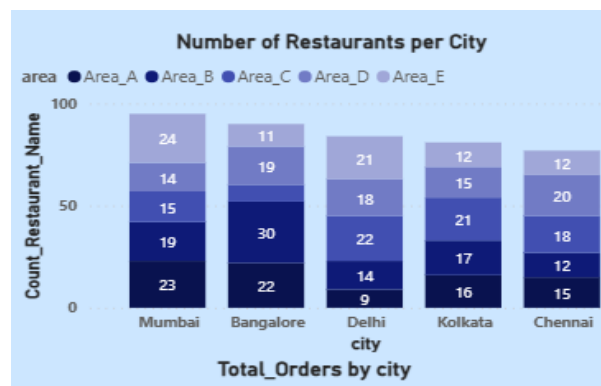
Observation

- The bar chart clearly shows **Mumbai (95)** leading with the highest number of restaurants, followed closely by **Bangalore (90)** and **Delhi (84)**.

- **Kolkata (81)** and **Chennai (77)** have slightly fewer restaurants, indicating comparatively smaller market activity on the platform.

- The detailed **table view (City → Area)** provides deeper insights into restaurant distribution within each city.

  o Example: *Bangalore Area_B (30)* and *Mumbai Area_E (24)* show dense restaurant clusters.

- o In contrast, *Chennai Area_E (12)* or *Bangalore Area_C (8)* have relatively fewer restaurants.

Insights

- Cities like **Mumbai** and **Bangalore** represent **high restaurant density zones**, likely reflecting higher urban demand and customer base.

- Lower counts in areas like *Area_C* across cities could suggest opportunities for new restaurant openings or lower demand zones.

- This distribution could correlate with **population density** or **food delivery demand**, which can be explored in later analysis.

Task 2: Percentage of Orders from Different Cities

- DAX USED: Total_Orders = COUNT(Zomato_restaurants_orders[order_id])
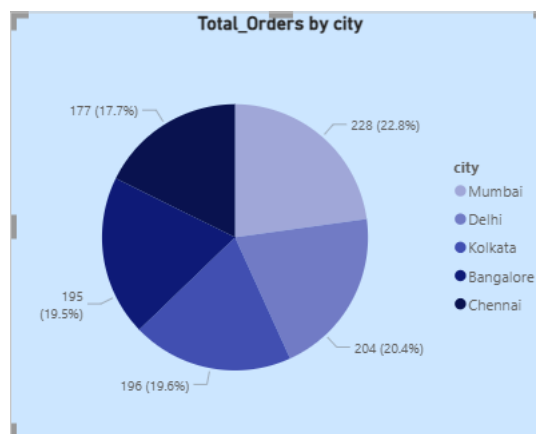
Observation

- The pie chart shows that **Mumbai** contributes the largest share of total orders (**22.8 %**), followed closely by **Delhi (20.4 %)**, **Bangalore (19.6 %)**, and **Kolkata (19.5 %)**.

- **Chennai** accounts for the smallest share (**17.7 %**) of total orders.

- The distribution appears fairly balanced across cities, indicating that Zomato's customer activity is widespread rather than concentrated in just one region.

Insights

- **Mumbai's higher order percentage** aligns with its large urban population and dense food delivery demand.

- **Delhi and Bangalore** show strong performance as well, suggesting mature customer engagement.

- **Chennai's lower percentage** could point to either fewer active users or less restaurant availability relative to demand—potentially an area for market growth.

- Comparing with **Task 1 (restaurant count)**:
  - If a city like Delhi has fewer restaurants but a high order share, it indicates **high order density per restaurant** → good performance efficiency.
  - If another city has many restaurants but moderate order share, it could suggest **market saturation**.

Task 3: Order Amount Trends Over Time

- DAX USED: Total_Revenue = SUM(Zomato_restaurants_orders[total_cost])
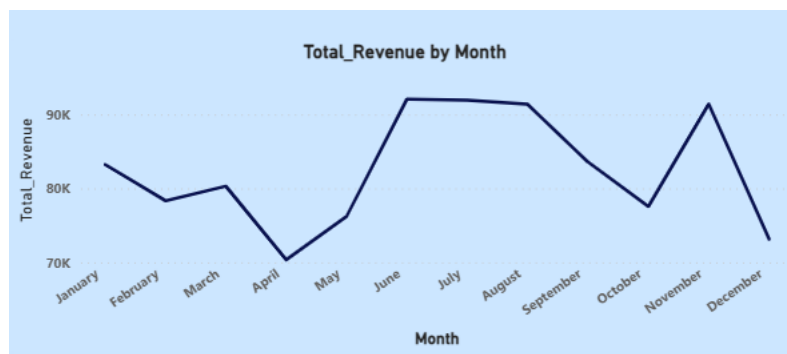

Observation

- The line chart plots **total order cost (revenue)** aggregated by **month**, clearly illustrating **sales fluctuations throughout the year**.

- **July** shows the **highest total revenue**, peaking slightly above **90K**, suggesting a strong mid-year demand surge.

- **April** records the **lowest revenue**, dropping near **70K**, possibly reflecting a seasonal dip or post-festive slowdown.

- **November** shows a brief uptick before a decline in **December**, which could indicate end-of-year promotional activity followed by reduced ordering during holidays.

Insights

- The **peak in July** could coincide with festive seasons, food festivals, or increased online ordering during monsoon months.

- **Revenue dips** in **April** and **December** may point to off-peak demand periods, offering opportunities for targeted marketing or discounts to boost engagement.

- Maintaining sufficient delivery staff and promotional offers during **high-demand months (June–August)** could maximize profitability.

- The trend suggests **cyclical order behavior**, valuable for **forecasting future demand** and **inventory planning**.

Task 4: Correlation of Factors Affecting Average Rating
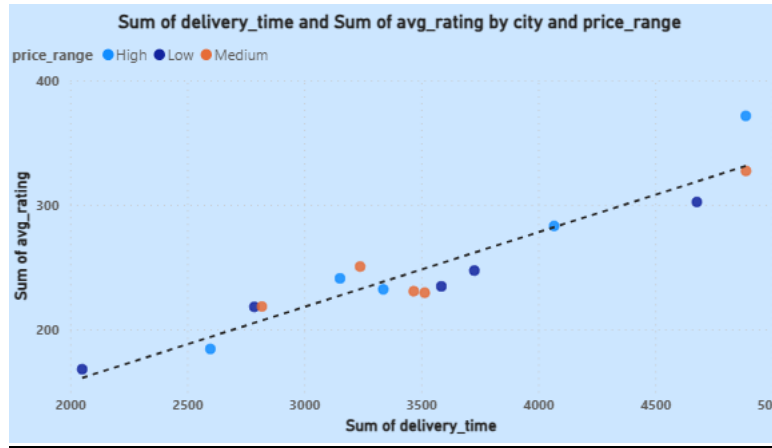
Objective:

To identify whether factors such as **delivery time** and **price range** influence the **average restaurant rating** across different cities.

Visualization Setup:

- **X-Axis:** Sum of delivery_time

- **Y-Axis:** Sum of avg_rating

- **Legend (Color):** price_range

- **Details:** city

- **Analytics:** Trendline added (shows correlation direction)

Insights:

1. There is a **strong positive correlation** between **delivery_time** and **avg_rating**.
   → As delivery time increases, the overall restaurant rating also tends to increase.
   → This might suggest that **high-end or premium restaurants** (which take longer to deliver) tend to receive **higher ratings**, possibly due to **better food quality** or **premium service**.

2. The **color grouping by price_range** reveals:

   o High price restaurants (dark blue) generally sit at higher rating levels.

   o **Low price** restaurants (light blue) cluster towards **shorter delivery and lower ratings**.

   o **Medium** range (orange) falls between the two.

3. This implies that **price range** acts as a **moderating factor** — higher pricing correlates with both **longer delivery** and **better customer satisfaction**.

Task 5: Top 5 Restaurants by Total Sales

Objective:

To identify the top-performing restaurants based on total revenue and analyze the factors contributing to their success.
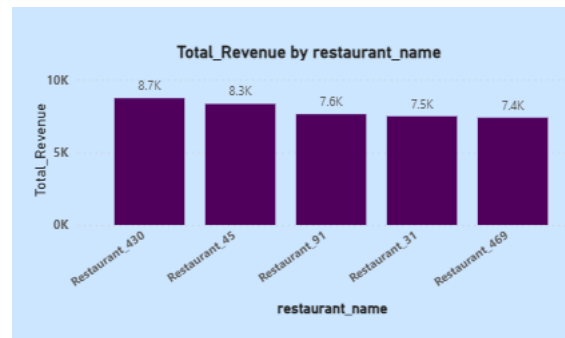
restaurant_name	Sum of avg_rating	Total_Orders	Sum of delivery_time	price_range	Sum of total_cost
Restaurant_31	17.50	7	266	High	7,474.73
Restaurant_430	25.90	7	349	High	8,719.66
Restaurant_45	20.30	7	301	Low	8,323.18
Restaurant_469	22.50	5	262	Low	7,380.05
Restaurant_91	20.30	7	373	Low	7,618.95
Total	106.50	33	1551		39,516.57

Observations:

- The **top-earning restaurant is Restaurant 430** with a total revenue of **₹8.7K**, followed by **Restaurant 45 (₹8.3K)** and **Restaurant 91 (₹7.6K)**.

- All top 5 restaurants maintain **similar order volumes (7 orders each)**, suggesting that **revenue differences come from pricing or average order value**, not volume.

- **High price-range restaurants (Restaurant 430 and 31)** consistently appear among the top performers, indicating that **premium pricing drives higher total revenue**.

- **Restaurant 430** also has the **highest average rating (25.9)**, showing a **positive link between quality perception and revenue**.

- Delivery times vary moderately (262–373 mins total), showing **no strong negative impact** on high revenue performance.

Insights:

- **Pricing strategy matters:** Restaurants in the *high-price* category earn more even with similar order counts.

- **Customer satisfaction (ratings)** correlates with higher earnings—top restaurants tend to maintain better ratings.

- **Balanced performance** (good rating + acceptable delivery time + competitive pricing) helps restaurants achieve strong revenue.

- **Premium restaurants (430, 31)** likely attract repeat or high-spending customers.

Key takeaway:
The highest-earning restaurants succeed due to a **combination of premium pricing, strong ratings, and consistent service**—suggesting that **quality and brand perception drive revenue more than order volume**.

Task 7: Order Density by City Using a Heat Map

| city	Total_Orders
Mumbai	228
Kolkata	196
Delhi	204
Chennai	177
Bangalore	195
Total	1000

Observations

- **Mumbai** has the highest order count (**228 orders**), shown by the darkest shade — meaning it's the most active city.

- **Chennai** shows the lowest order density (**177 orders**) — lighter color = lower activity.

- **Delhi, Bangalore, and Kolkata** fall in the mid-range of order density.

Insights

1. **High Demand City** → Mumbai leads in total orders, suggesting strong customer activity or a large restaurant base.

2. **Balanced Mid-Tier Cities** → Delhi, Bangalore, and Kolkata have moderate order volumes, indicating stable but not peak demand.

3. **Low Demand Zone** → Chennai shows fewer orders — this could be due to fewer restaurants, lower marketing presence, or limited delivery coverage.

4. **Next Step (Optional)** → Compare with your "Number of Restaurants per City" visual —

   o If Mumbai also has the **most restaurants**, then supply is matching demand.

   o If not, it may signal **over-demand** (a growth opportunity).

# Task 8: KPI Cards – Total Revenue & Average Order Value
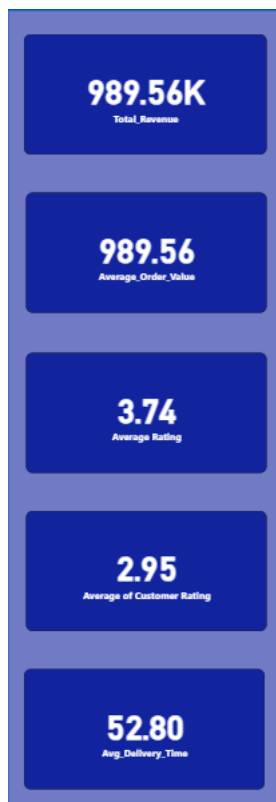
Observations

- The KPIs displays the Total revenue, average order value, average rating, average customer rating and average delivery time.
- This is very helpful, as we apply slicers these gives us a comprehensive view about cities, areas, restaurants and their performance.

Task 9: Restaurant-Wise Sales Summary in a Table

restaurant_name	Total_Revenue	Total_Orders	Average_Order_Value
Restaurant_0	145.45	1	145.45
Restaurant_1	1,176.11	2	588.06
Restaurant_10	858.26	2	429.13
Restaurant_100	1,489.51	1	1,489.51
Restaurant_101	3,763.99	5	752.80
Restaurant_103	121.55	1	121.55
Restaurant_104	4,548.26	4	1,137.07
Restaurant_105	930.85	1	930.85
Restaurant_106	3,587.88	3	1,195.96
Restaurant_107	2,395.76	2	1,197.88
Restaurant_109	3,666.80	3	1,222.27
Restaurant_11	1,921.63	1	1,921.63
Restaurant_110	1,852.38	1	1,852.38
Restaurant_111	1,097.44	1	1,097.44
Restaurant_112	2,307.53	3	769.18
Restaurant_113	1,356.56	1	1,356.56
Restaurant_114	6,440.20	4	1,610.05
Total	**9,89,561.15**	**1000**	**989.56**

Task 10: Power BI Dashboard – Combining All Visuals
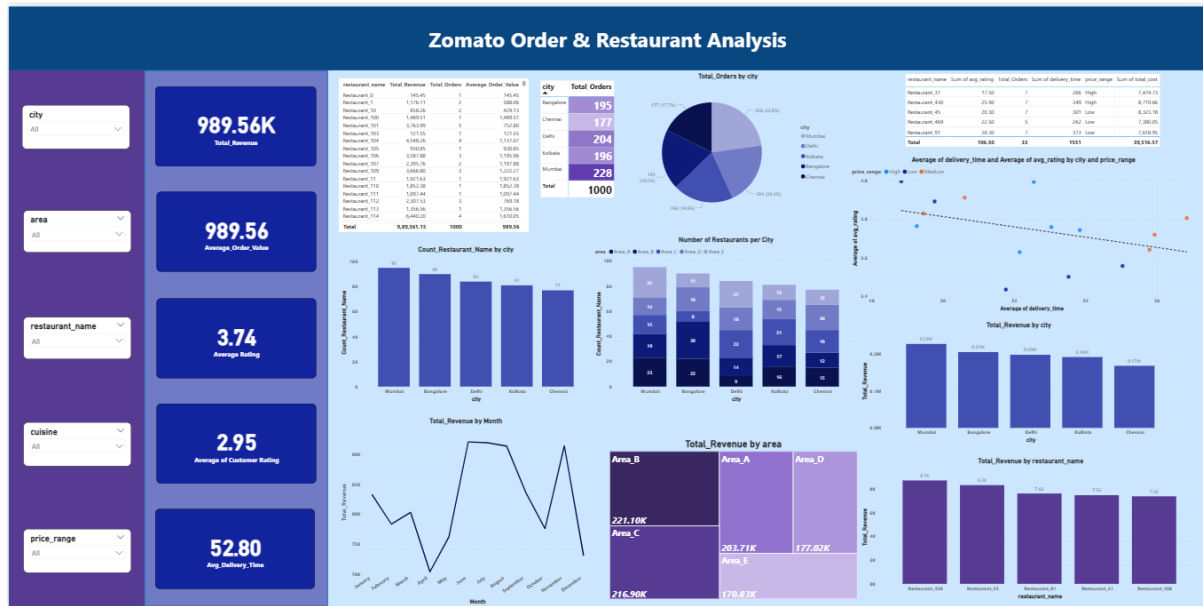
Overall Summary & Key Takeaways

1. **Mumbai** consistently leads across metrics — restaurant count, orders, and revenue — representing the **largest and most active market**.

2. **Delhi** and **Bangalore** perform strongly, showing **efficient restaurant utilization** and strong customer engagement.

3. **Chennai** and **Kolkata** lag slightly, highlighting **potential for strategic growth** and improved marketing efforts.

4. **Revenue trends** show **seasonal fluctuations**, with peaks around July — valuable for **sales forecasting and promotion planning**.

5. **High-priced restaurants** outperform others in both **ratings and revenue**, showing the **power of premium positioning**.

6. **Customer satisfaction (ratings)** is a key revenue driver, outweighing order volume in many cases.

7. **Order density heat maps** align with city-level performance — **urban hubs dominate** while emerging regions offer **untapped potential**.

Strategic Implications

- **Growth Opportunity:** Focus on expanding restaurant partnerships in low-order cities like Chennai.

- **Marketing Strategy:** Run **promotions during off-peak months (April, December)** to balance seasonal dips.

- **Operational Efficiency:** Monitor high-delivery-time zones to maintain balance between service quality and speed.

- **Premium Positioning:** Encourage **quality-focused, higher-priced restaurants**, as they correlate with stronger performance and ratings.