Zomato Data Analysis – Indian Restaurants

Exploratory Data Analysis Report
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INTRODUCTION

❖ **Exploratory Data Analysis (EDA)** is the first step in analytics to understand data patterns, trends, and anomalies before advanced modeling.

❖ This project focuses on **Zomato's Indian restaurant dataset** to uncover success factors.

❖ **Objective:** Identify which features (location, cuisines, pricing, services, features) most strongly influence restaurant ratings.

DATASET OVERVIEW

Key Columns:
- ❖ Name, City, Cuisines, Cost for Two, Price Range ,Aggregate Rating, Rating Text, Votes ,Highlights (Wi-Fi, Alcohol, etc.), Delivery, Table Booking.

Summary Stats:
- ❖ Avg Rating: **3.40**
- ❖ Avg Cost for Two: **₹595** (Max: ₹30,000)
- ❖ Votes: -18 to 42,539
- ❖ **Rating Range:** 0.0 to 4.9

Dataset:

HANDLING MISSING DATA

Column	Action Taken
zipcode	Dropped
timings	Filled "Not Available"
cuisines	Filled "Unknown"
address	Filled "Not Available"
opentable_support	Dropped

Basic Statistics:

Distribution of Restaurant Ratings

Count of Restaurants by Rating Category
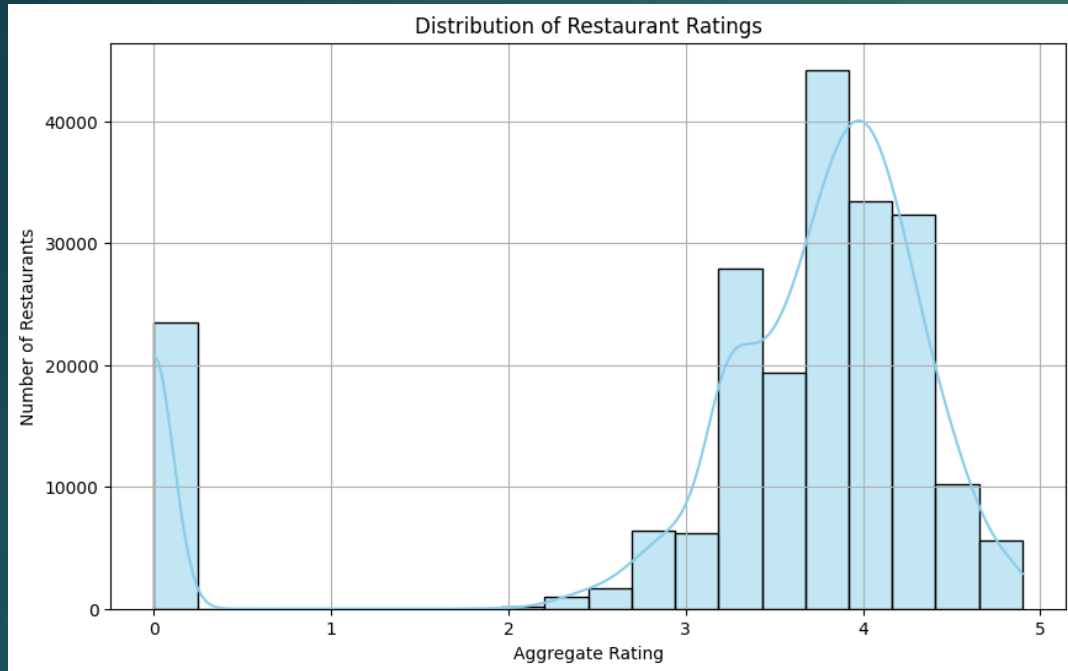
❖ Most restaurants have **average ratings (~3.4)**

❖ Ratings **cluster in the 3.0–4.5 range**

❖ Very few restaurants get extreme ratings (low or excellent)

❖ Many **0 values = no ratings**, not necessarily bad
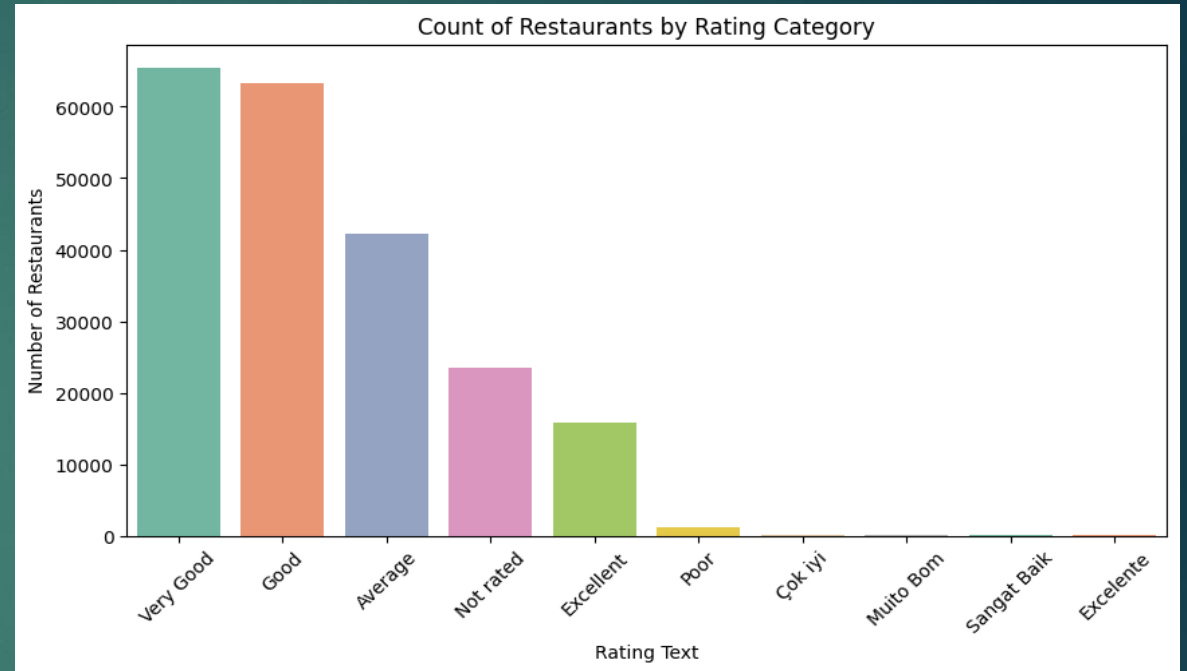
Average Rating of All Restaurants: 3.4

Location Analysis:

Restaurant Name	City	Aggregate Rating
The Salt Cafe Kitchen & Bar	Agra	4.9
Buttercup p	Ahmedab ad	4.9
Yanki Sizzlers	Ahmedab ad	4.9
TG's - The Oriental Grill (Hyatt)	Ahmedab ad	4.9
Hotel Abdullah	Amravati	4.9
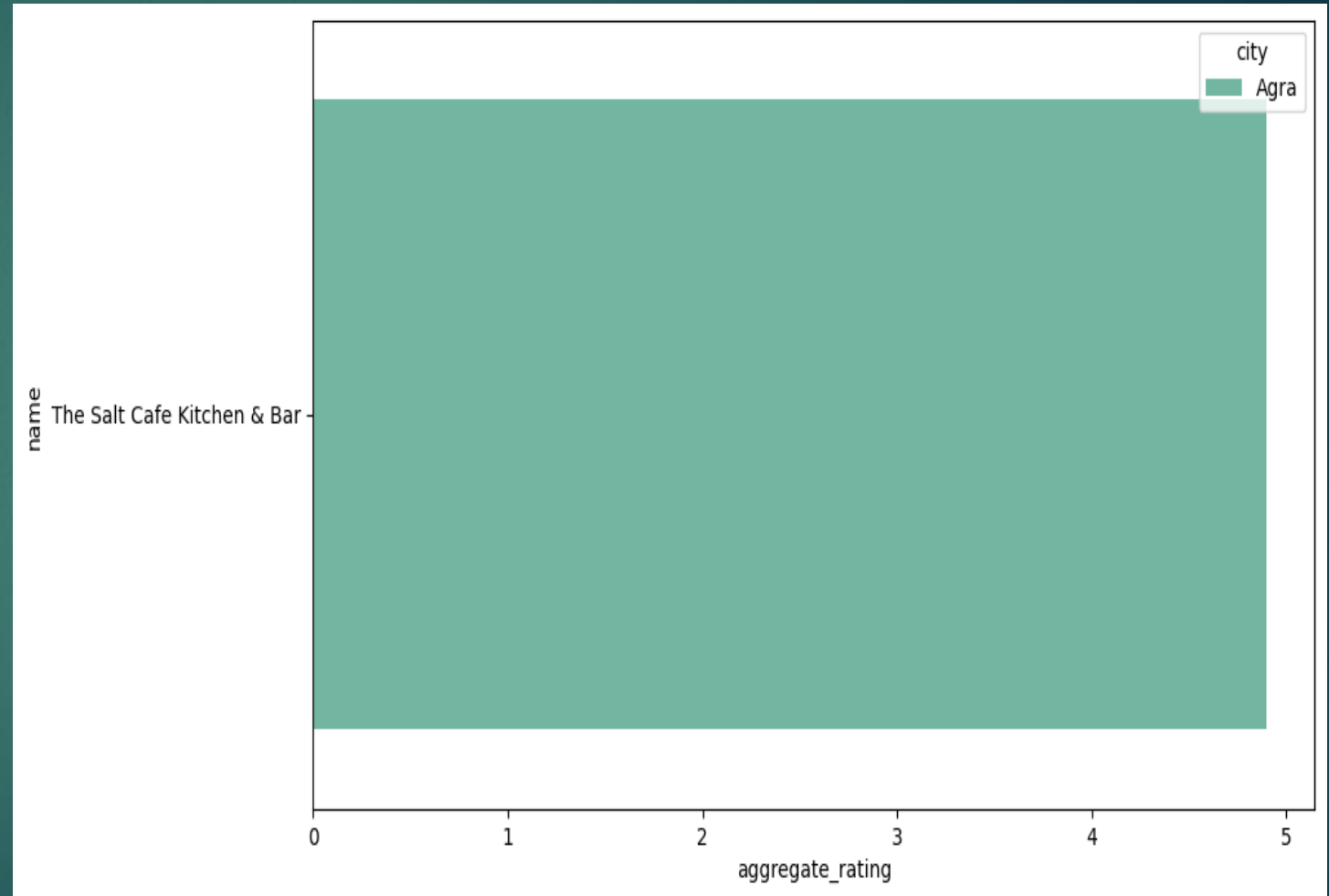
Cuisine Analysis:

Rank	Cuisine	Number of Restaurants
1	North Indian	15,996
2	Fast Food	6,721
3	Cafe	6,190
4	North Indian, Chinese	5,820
5	South Indian	5,217
6	Pizza, Fast Food	4,075
7	Bakery	3,238
8	Street Food	2,837
9	Biryani	2,118
10	Chinese	2,116

Top 10 Most Popular Cuisines

Cuisine Variety vs Aggregate Rating
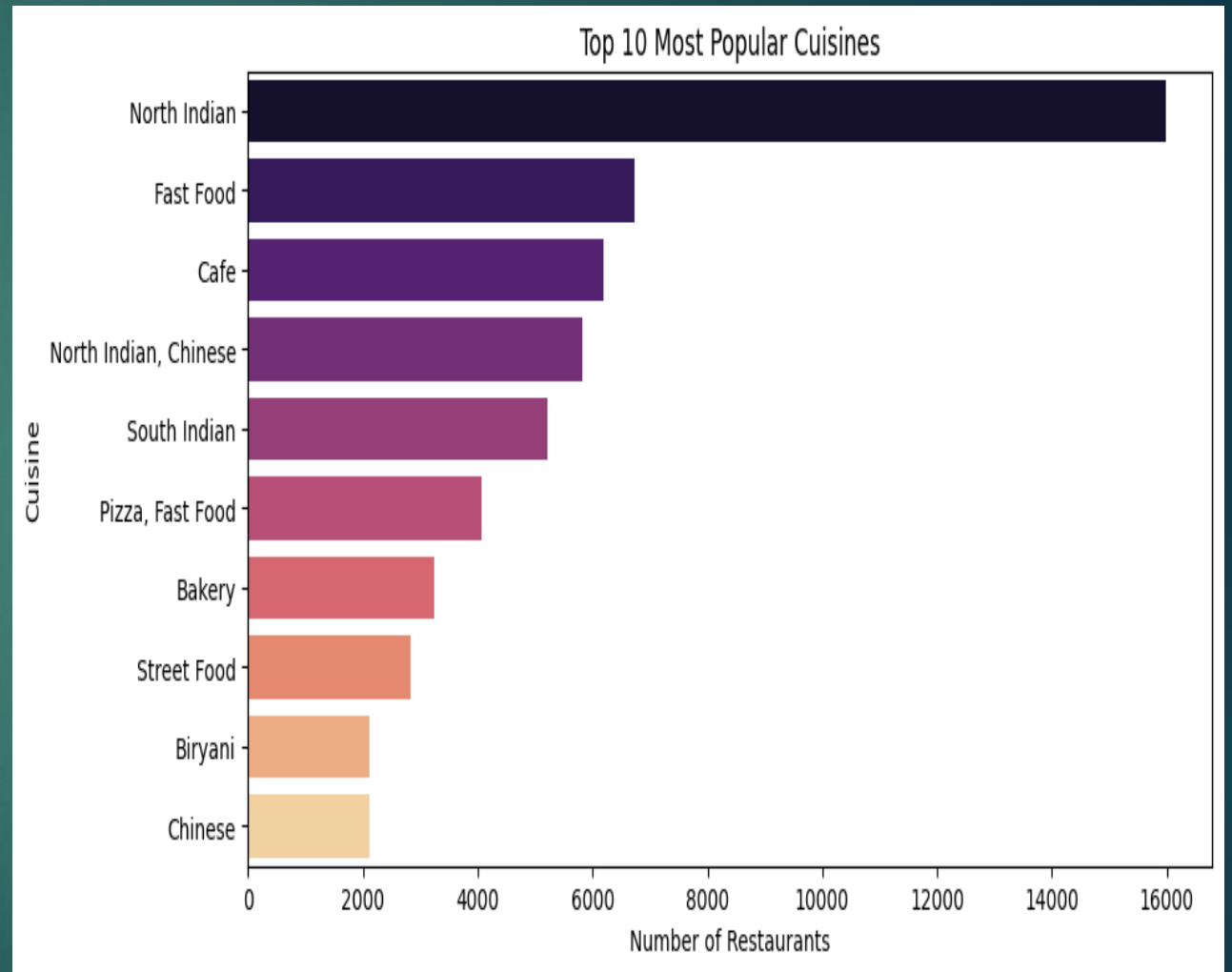
Key Insights
- ❖ Multi-cuisine restaurants score **slightly higher** than single-cuisine ones.
- ❖ Median rating rises from **~3.5 (1 cuisine)** to **~4.0 (6–7 cuisines)**.
- ❖ Some single-cuisine places still achieve **top ratings**.
- ❖ Correlation = **0.24** → weak positive; variety helps, but isn't the main factor.

Price Range and Rating:

Price Range vs Aggregate Rating

Average Cost for Two in Each Price Range
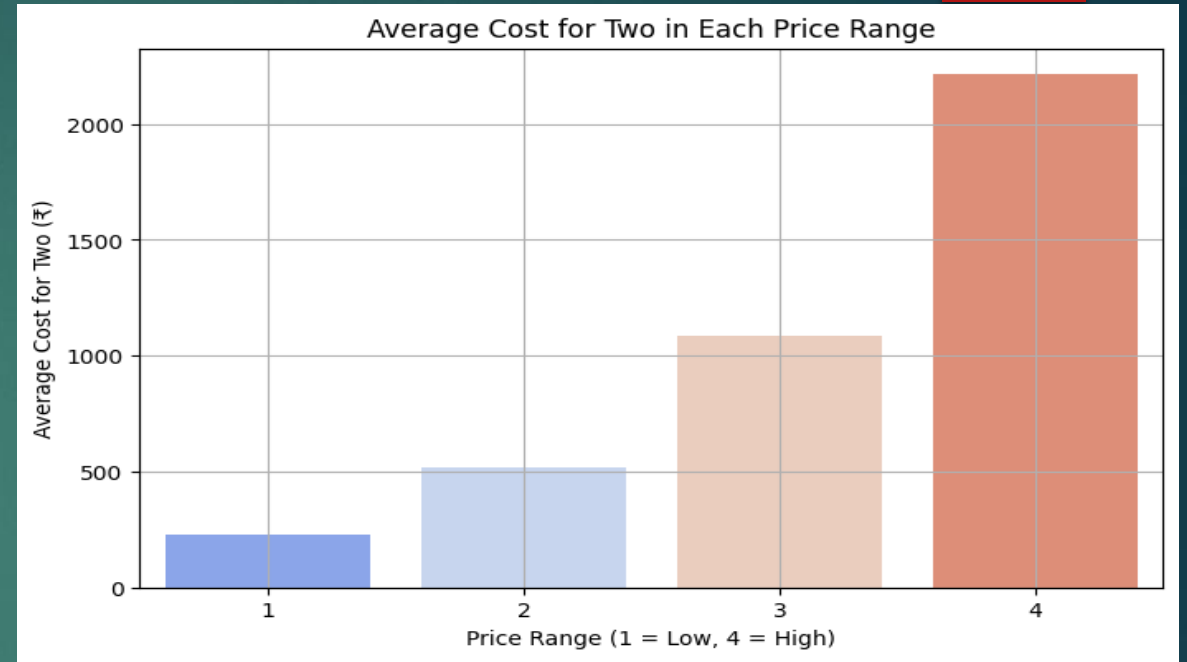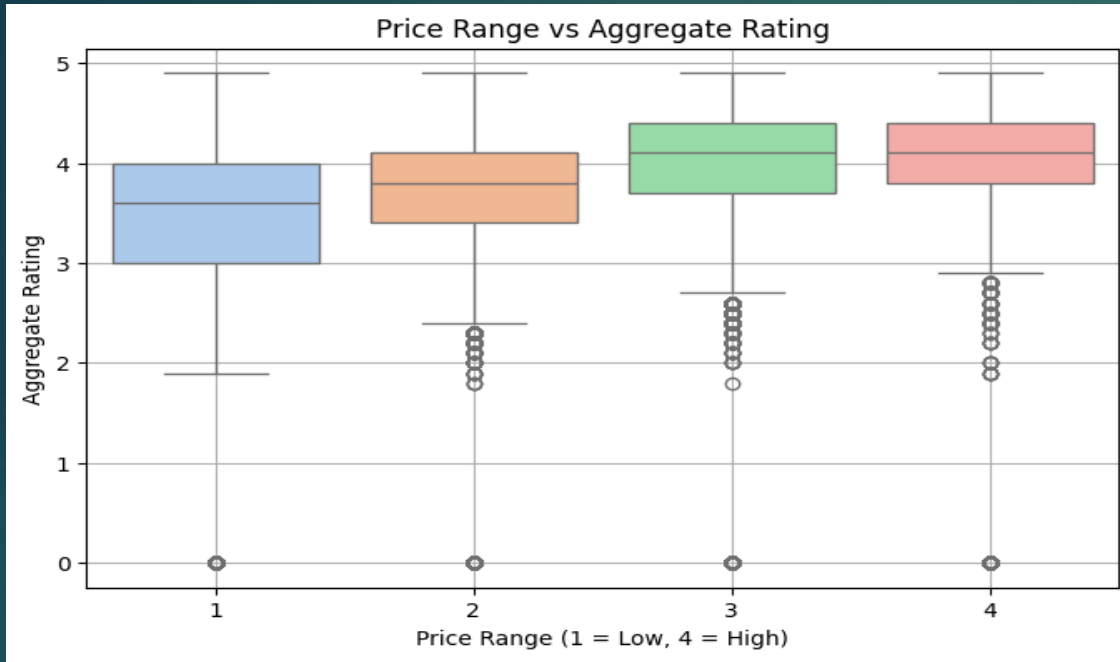
❖ Higher price ranges (3 & 4) generally have higher median ratings than lower ranges.

❖ Lower-priced restaurants (1 & 2) show more variability and more low outliers.

❖ Expensive restaurants tend to receive more consistent positive ratings.

❖ Some low-priced restaurants still achieve high ratings, showing price isn't the only factor.

❖ The average cost for two rises steadily with each price range.

❖ Price Range 1 ≈ ₹250, Range 2 ≈ ₹500, Range 3 ≈ ₹1,100, and Range 4 ≈ ₹2,200.

❖ This confirms that the price range classification is strongly aligned with spending levels.

❖ Customers can clearly differentiate affordability based on price range.

Online Order and Table Booking:

Online Order Availability vs Ratings


Distribution of Restaurants Offering Table Booking
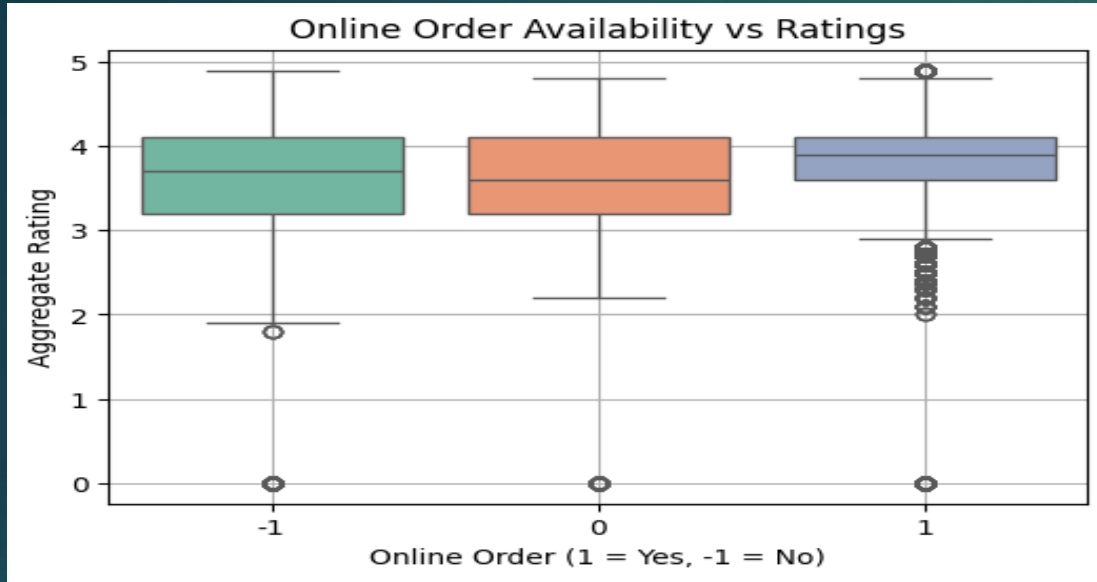
❖ Restaurants that offer online orders (1) generally have slightly higher median ratings compared to those that don't (-1).

❖ Both groups (-1 and 1) show a wide spread, but online-order restaurants have more consistency in ratings.

❖ Outliers with very low ratings (0–2) exist in both categories, though more frequent when online order is available.

❖ Overall, online availability seems to be associated with slightly better customer ratings, but it's not the only factor influencing satisfaction.

❖ A **large majority of restaurants do not offer table booking.**

❖ Only a small fraction (around 15–20%) provide table booking facilities.

❖ This suggests table booking is a premium service, mostly offered by higher-end restaurants.

❖ Customers generally rely on **walk-ins or online ordering** rather than pre-booking tables.

Table Booking Availability vs Ratings

- ❖ Restaurants with table booking have higher and more consistent ratings.
- ❖ No-booking restaurants show lower median ratings and more low outliers.
- ❖ Table booking is linked to premium, better-rated restaurants.

Top Restaurant Chains:

Top 10 Restaurant Chains by Number of Outlets

Average Rating of Top 10 Restaurant Chains
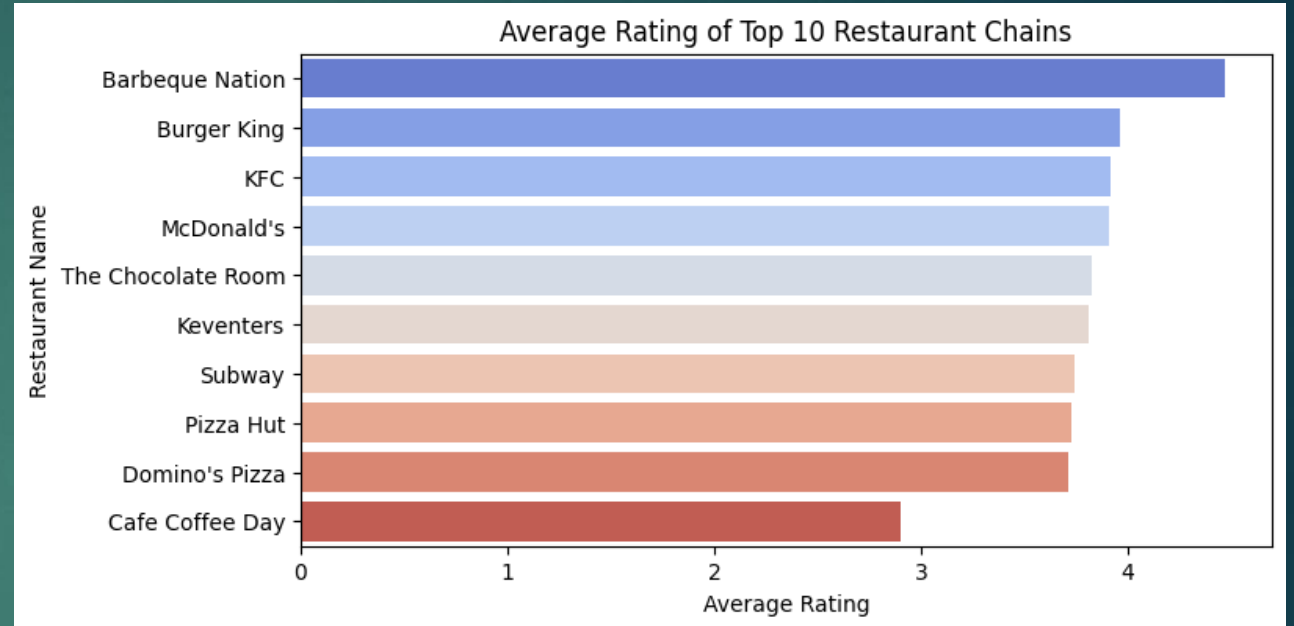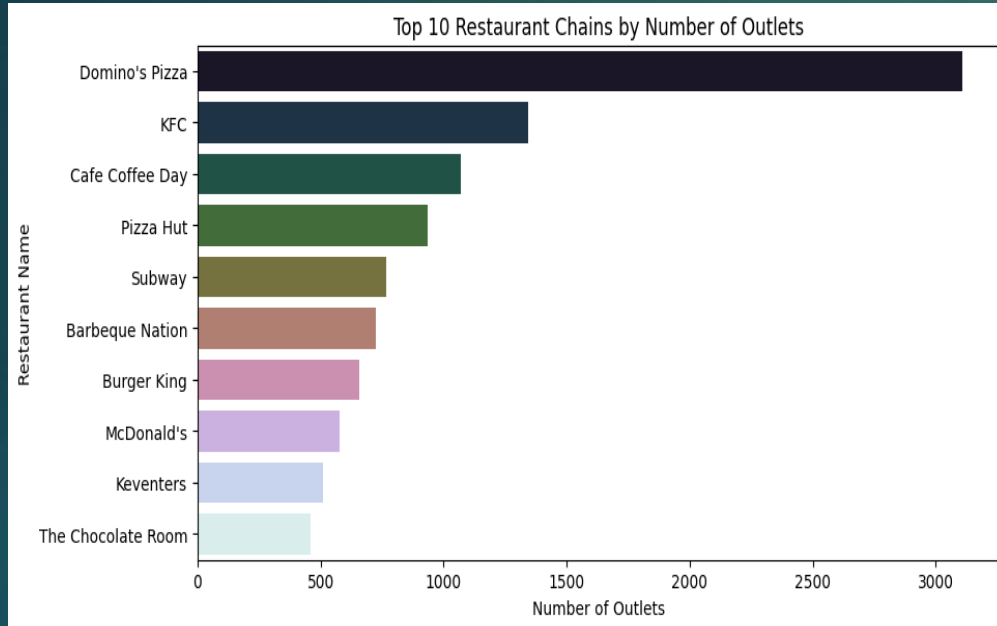
❖ Domino's dominates with 3,000+ outlets, far ahead of competitors.
❖ KFC & Cafe Coffee Day are strong second-tier players (1,000+ outlets).
❖ Other chains like Pizza Hut, Subway, and Burger King have a smaller but steady presence (400–900 outlets).

❖ Barbeque Nation has the highest customer satisfaction with an average rating above 4.4.
❖ Burger King, KFC, and McDonald's maintain strong ratings around 3.9–4.0.
❖ Cafe Coffee Day lags behind with the lowest average rating (below 3.0).

Restaurant Features:

Top 10 Most Common Restaurant Features

Restaurant Ratings: With vs Without 'Wi-Fi'
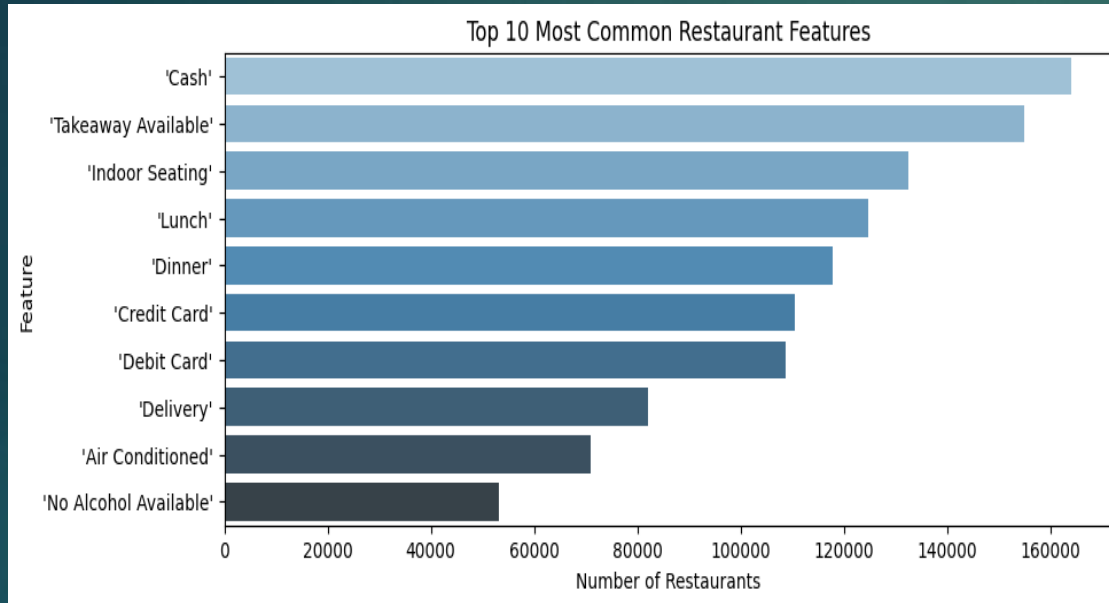
❖ **Cash payment** and **takeaway availability** are the most common restaurant features.

❖ **Indoor seating, lunch,** and **dinner options** are widely offered across restaurants.

❖ **No alcohol availability** is the least common among the top features.
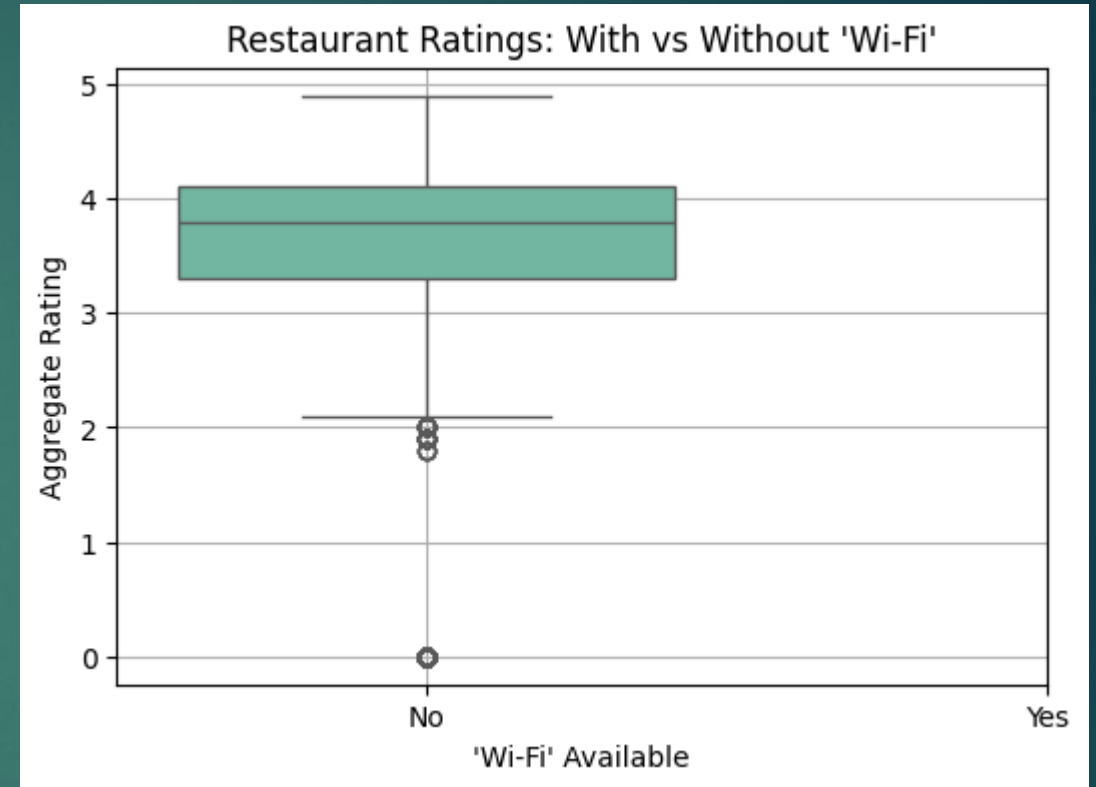
Restaurants **with Wi-Fi** tend to have **slightly higher median ratings** than those without.

Word Cloud for Reviews:

Word Cloud from Rating Text

Customer Sentiment Based on Ratings
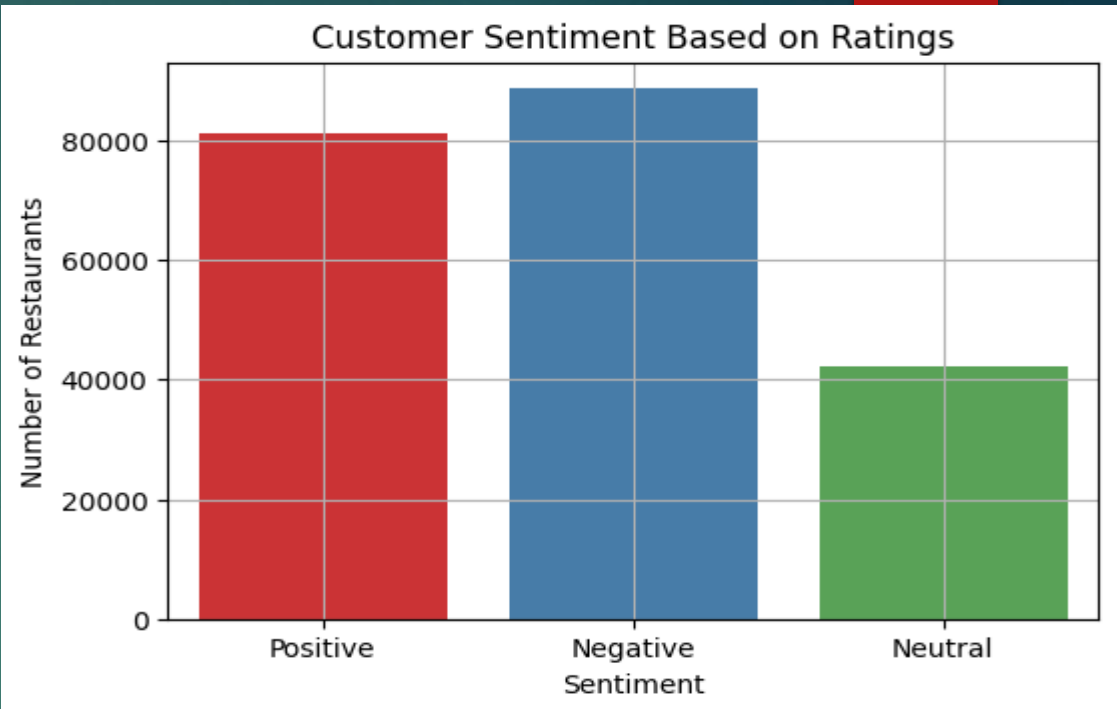
❖ "Good" is the most common rating text, showing most customers rated restaurants positively.

❖ "Average" is the second most frequent, indicating mixed experiences are also common.

❖ "Excellent" appears often but less than "Good," while "Poor" is comparatively rare.

❖ Negative sentiment leads, showing most restaurants received lower ratings.

❖ Positive sentiment is strong, but slightly behind negative.

❖ Neutral sentiment is least common, indicating customers prefer clear opinions.

Conclusion & Recommendations

Final Analysis Summary – Zomato Restaurant Insights

After carefully analyzing restaurant data from Zomato, several interesting trends and insights emerged that could be valuable for both restaurant owners and platform users.

What the Data Tells Us

❖ Most restaurants in the dataset fall in the 3.0 to 4.5 rating range, with the overall average sitting at 3.4. While that may seem modest, it reflects a strong mid-range experience across cities and cuisine types.

❖ When it comes to location, cities like Delhi NCR, Bangalore, and Mumbai dominate in terms of sheer volume. But interestingly, cities like Pune and Ahmedabad show higher average ratings, suggesting they may be offering better food, service, or overall customer experience.

❖ We noticed a clear preference for certain cuisines. North Indian, Chinese, and Fast Food are by far the most frequently offered. What's more, restaurants offering a variety of cuisines — two or more — tend to receive slightly better ratings, likely because they appeal to a broader set of customers.

❖ On the pricing front, restaurants in the higher price brackets (3 & 4) generally enjoy better ratings. It appears that people do associate higher cost with better quality, though good experiences can still be found at lower price points.

❖ When we looked at services, online ordering and table booking stood out as key differentiators. Restaurants that offer these services consistently perform better in terms of ratings. It's clear that convenience and accessibility play a big role in customer satisfaction.

❖ Popular chains like Domino's and McDonald's lead the outlet count, but high volume doesn't always mean high quality — ratings can vary widely even within the same chain. Consistency is clearly a challenge.

❖ Lastly, diving into features like Wi-Fi and alcohol availability, we saw a mild but noticeable trend: restaurants offering these amenities often score a little higher. These small touches can enhance the dining experience and improve customer perception.

Recommendations

For Restaurant Owners:

- Embrace technology: Enable online ordering and table booking — they're not just conveniences; they influence ratings.

- Offer variety: Including multiple cuisines can broaden appeal and attract more diverse customer groups.

- Focus on experience: Small details like Wi-Fi and seating ambiance can make a big difference in how customers rate you.

- Don't rely on brand alone: Chain restaurants need to invest in quality at the outlet level to maintain high customer satisfaction.

For Zomato Users:

- Use rating text wisely — "Very Good" and "Excellent" are solid indicators of consistent quality.

- Look beyond price — higher cost often means better service, but mid-range places can surprise you.

- Trust convenience features — restaurants that offer online ordering and bookings tend to take customer satisfaction seriously.

Google Colaboratory link

https://colab.research.google.com/drive/1nDh9SPWSl30vzh51oWYJgTNPOZARTqt-?authuser=1