Exploratory Data Analysis Report: Zomato Restaurant Data

Objective

This report aims to explore and analyze the Zomato restaurant data to uncover key insights and trends. The analysis covers various aspects, including geographical distribution, restaurant performance, price categories, and customer satisfaction.

About the data

Zomato is a leading global restaurant aggregator that connects customers with diverse dining options. It facilitates online food ordering, streamlining the process from browsing menus and comparing prices to payment and delivery. This analysis utilizes a Zomato dataset encompassing detailed information on restaurants, including unique identifiers, locations, cuisines, pricing, and operational features. Customer-centric data, such as aggregate ratings, rating descriptions, and vote counts, are also included within the dataset.

Column Name	Description
Restaurant ID	A unique identifier for each restaurant.
Restaurant Name	The name of the restaurant.
Country Code	The code represents the country where the restaurant is located.
City	The city where the restaurant is located.
Address	The physical address of the restaurant.
Locality	The specific area or neighborhood where the restaurant is located within the city.
Locality Verbose	A more detailed description of the restaurant's location, includes both the locality and the city.
Longitude	The longitudinal coordinate of the restaurant's location.
Latitude	The latitudinal coordinate of the restaurant's location.

Cuisines	The types of cuisine offered by the restaurant.
Average Cost for two	The average cost for two people to eat at the restaurant.
Currency	The currency in which the restaurant's prices are listed.
Has Table booking	Indicates whether the restaurant allows table reservations (Yes/No).
Has Online delivery	Indicates whether the restaurant offers online food delivery (Yes/No).
Is delivering now	Indicates whether the restaurant is currently delivering food (Yes/No).
Switch to order menu	Indicates whether the feature that allows customers to switch to an order menu is available.
Price range	The range of prices for the restaurant's offerings is represented as a number (1 - Low, 2 - Medium, 3 - High, 4 - Very High).
Aggregate Rating	The restaurant's overall rating, calculated from customer reviews.
Rating color	A color-coded representation of the restaurant's rating. Colors are 'Dark Green' (Excellent), 'Green' (Very Good), 'Yellow' (Good), 'Orange' (Average), 'White' (Not Rated), 'Red' (Poor).
Rating text	A text description of the restaurant's rating (e.g., Excellent, Good, Average, Poor).
Votes	The number of votes the restaurant has received from customers.
Country	The country where the restaurant is located.

Geographical Analysis

This section delves into the geographical distribution of restaurants within the Zomato dataset, examining the concentration of restaurants across countries and analyzing the variation in average restaurant ratings to identify key markets and areas of high-quality dining experiences.

Number of Restaurants and Percentage by Country

Objective: Identify key markets with the highest concentration of restaurants.
Key Insights:

- India: Dominates the dataset with 90.8% of the total restaurants.
- United States: Follows with 4.45% of the total.
- Other Countries: Include Australia, Canada, Brazil, and more.

Average Overall Rating of Restaurants by Country

Objective: Compare restaurant quality across different countries based on average ratings.
Key Insights:

- Philippines: Highest average rating with 54.5% of restaurants rated as excellent.
- Indonesia, New Zealand, Turkey: Also show high average ratings.
- India: Lowest average rating but the highest number of top-rated restaurants due to sheer volume.

Restaurant Performance Analysis (India)

This section delves into the performance of restaurants within the Indian market, given its dominance in the dataset (90.8%), providing a more reliable foundation for analyzing relationships between price range, customer satisfaction (as measured by average ratings), and restaurant popularity (as measured by vote counts), as well as investigating the impact of price variability on customer satisfaction among leading restaurant chains.

Top Indian Cities with the Most Successful Restaurants

Objective: Identify Indian cities with the highest percentage of successful restaurants (ratings ≥ 3.6 and votes ≥ 100).
Key Insights:

- Top Cities: Chennai, Bangalore, and Pune each have a 100% success rate.
- Other Notable Cities: Ahmedabad, Kochi, Kolkata, Goa, Mumbai, Hyderabad, and Jaipur all show high success rates above 90%.

Restaurant Popularity and Customer Satisfaction by Price Category(India)

Objective: Investigate the relationship between price range, customer satisfaction (as measured by average ratings), and restaurant popularity (as measured by vote counts) within the Zomato online delivery and restaurant aggregator platform.
Key Insights:

- **Higher Price, Higher Satisfaction:** Restaurants in the Very High and High price ranges generally have higher customer satisfaction.
- **Higher Price, Lower Popularity:** Despite high satisfaction, Very High and High-priced restaurants often have fewer votes, indicating they may be less accessible due to cost or perceived value.
- **Mid-Range Dilemma:** Mid-range restaurants are highly popular but have moderate satisfaction, suggesting that high foot traffic doesn't always translate to high customer delight.
- **Low-End Struggles:** Low-priced restaurants face a double whammy of low popularity and low satisfaction, potentially due to quality issues.
- **Price Variability Increases:** As price range increases, the variability in prices within that range also increases, suggesting a wider range of options and potentially greater customization at higher price points.

Relationship between Price Variability and Customer Satisfaction (India)

Objective: Analyze how price variability affects customer satisfaction among top restaurant chains in India.
Key Insights:

- Positive Correlation: Higher price variability correlates with higher average ratings.
- Successful Chains: Barbeque Nation and Pizza Hut exhibit high price variability and good customer ratings.
- Stable Chains: Cafe Coffee Day, Giani, Keventers, Green Chick Chop, Domino's Pizza, and Subway show stable pricing and satisfactory ratings.
- Baskin Robbins: Low price variability but relatively low ratings, suggesting consistency alone may not ensure higher satisfaction.

Conclusion and Recommendations

Based on the exploratory data analysis of Zomato's restaurant dataset, we observed that India is the key market with a dominant share of restaurants. The performance of restaurants in India shows that higher-priced establishments tend to have higher customer satisfaction but lower popularity perhaps due to accessibility concerns. The mid-range restaurants, although popular, have moderate satisfaction, indicating a need for quality improvement. Low-priced restaurants struggle with both popularity and satisfaction. Additionally, higher price variability (more menu items) correlates with higher customer ratings.

Key Takeaways

- **India Dominates**: 90.8% of the total restaurants in the dataset are from India.
- **Top Cities in India**: Chennai, Bangalore, and Pune boast the highest success rates for restaurants.
- **Price vs. Satisfaction**:
    - Higher-priced restaurants: Higher satisfaction but lower popularity.
    - Mid-range restaurants: High popularity but moderate satisfaction.
    - Low-priced restaurants: Low popularity and satisfaction.
- **Price Variability**: Greater price variability is associated with higher average ratings, suggesting that customers value diverse options.

Recommendations

1. **Focus on Mid-Range Quality**: Improve the quality of mid-range restaurants to increase customer satisfaction without sacrificing popularity.
2. **Accessibility of High-End Options**: Explore strategies to make high-end restaurants more accessible, possibly through targeted promotions or loyalty programs.
3. **Enhance Low-End Offerings**: Address quality issues in low-priced restaurants to improve both satisfaction and popularity.
4. **Leverage Price Variability**: Encourage restaurants to offer a range of pricing options to cater to diverse customer preferences, increasing overall satisfaction.

Global Expansion Strategy

Considering the insights from the Indian market, Zomato can use the following strategies to gain more business in other countries:

- **Target Key Markets**: Focus on countries with high restaurant density and high average ratings, such as the Philippines, Indonesia, New Zealand, and Turkey.
- **Quality Improvement Programs**: Implement quality improvement initiatives, particularly in countries where Zomato is less established, to boost average ratings and customer satisfaction.
- **Cultural Customization**: Adapt offerings to cater to local tastes and preferences in each country, enhancing the appeal of Zomato's services.
- **Marketing and Promotions**: Increase visibility and attract more restaurants and customers through targeted marketing campaigns in key international markets.
- **Learning from India:** Use the Indian market as a benchmark for understanding customer preferences and restaurant dynamics, and apply these insights to tailor strategies for other countries. Focus on improving restaurant quality, offering diverse pricing options, and making high-end dining more accessible.

By leveraging these strategies, Zomato can effectively expand its footprint and gain more business in countries outside India, attracting a larger customer base and enhancing the overall dining experience for users globally.