Zomato – Restaurant Analysis – Report

Tables Used

The following tables were used in relation. Menu table was used as an intermediatory table to link Food and Restaurants tables without its data being used for analysis.

1. **Restaurants** - *Id*, Restaurant Name, City, Rating, Rating Count, Cost, Cuisine, License No, Link, Address, Menu
2. **Order** – Order Date, Sales Qty, Sales Amount, Currency, User Id, *R Id*
3. **Food** – *F Id*, Item, Veg_or_Non_Veg
4. **Menu** - will be used as an intermediatory table to join food table to restaurant table – *F Id* from Menu with *F Id* from food table and *R Id* from Menu with *Id* from restaurant table

Overview

Zomato is a multinational restaurant aggregator and food delivery company. This project analyzes the business performance of restaurants from various aspects of the restaurant market.

There are 1,48,455 restaurants listed in the restaurants.csv of the Zomato database. The analysis is done in 3 major categories for the restaurants: Veg and non-Veg Analysis, Sales Analysis, and Cuisine Analysis.

Majority of the analysis is done on the complete population of the restaurants. For some analysis it made sense to have Top X analysis especially in the sales and cuisines analysis.

A lot of fields data in the database is not in a clean format and wasn't possible to clean before use. For example, for the Restaurant Name below, search of the word Domino returns the following. The names of these restaurants have one symbol (– or , or ‘ etc) difference. Whether this is intentional or not is not something an analyst would know. This causes confusion and errors in the analysis. Same is true for other fields.

Restaurant Name
domino pizza
Domino s Pizza Express
Domino’s Express
Domino’s Pizza
Domino’s Pizza Express
Domino’s,KFC, McDonald’s, Papa John’s
domino’z pizza

Food Item
1 Veg and 1 Non-Veg Half - Pizzas [Medium].
1 Veg and 1 Non-Veg Half Pizzas [Medium]
2 Medium Pizzas @ Rs 229 each
2 Medium Pizzas @ Rs 299 each
2 Medium Pizzas @ Rs 399 each
2 Non-Veg Half - Pizzas [Medium].
2 Non-Veg Half Pizzas [Medium]

The addresses of the restaurants are also provided in an inconsistent fashion. A lot of the addresses misses major parts of the address format. This makes it difficult to analyze the data in terms of geographical locations.

Analysis

Veg and Non-Veg Analysis: In the world, the highest population of Vegetarians reside in India. About 20% - 39% of Indian population is vegetarians. Are there vegetarians' restaurants to cater these population? How does the customer feel about the vegetarian food vs non-vegetarian food?

1. *What percentage of restaurants are vegetarian? What percentage of available food items are suitable for vegetarians? What do the sales look like for veg/non-veg restaurants? (KPIs – Veg/non-Veg Restaurants, Veg/non-Veg Food Item, Veg/non-Veg Restaurant Sales)*

   Insights
   Only 1.86% of the restaurants are veg only. 18.1% are veg and non-veg type restaurants. 80% of the restaurants don't have any food/category assigned to them.
   27.3% of food items are categorized as non-vegetarian food and 73.31% are categorized as vegetarian foods.
   Only 2.4% of sales are from restaurants that are veg only. 21.8% are from veg/non-veg restaurants. 75.72% of the sales are from restaurants that aren't categorized as veg/non-veg.

2. *The general concept is that higher cost food is more appealing and of higher quality. Does Zomato customers think the same? Do they find higher cost food item better than lower cost food items? (Cost by Rating - Veg/non-Veg Food Items)*

   Insights
   Large number of foods have prices within ₹100 - ₹300 range. Foods costing the same have ratings that vary largely.
   Generally, higher costing foods have higher ratings but the number of ratings for higher cost foods are low indicating few numbers of people are eating higher cost foods. Lots of low-cost foods (₹50 - ₹400) have good ratings that are > 3.5.

Based on the number of reviews and value of the ratings, Zomato customers find worth in less pricey foods.

3. *What is the rating of Vegetarian cuisines compared to non-Vegetarian cuisines for the cuisines type that are popular? (Rating by Cuisines - Veg/non-Veg Food Items)*

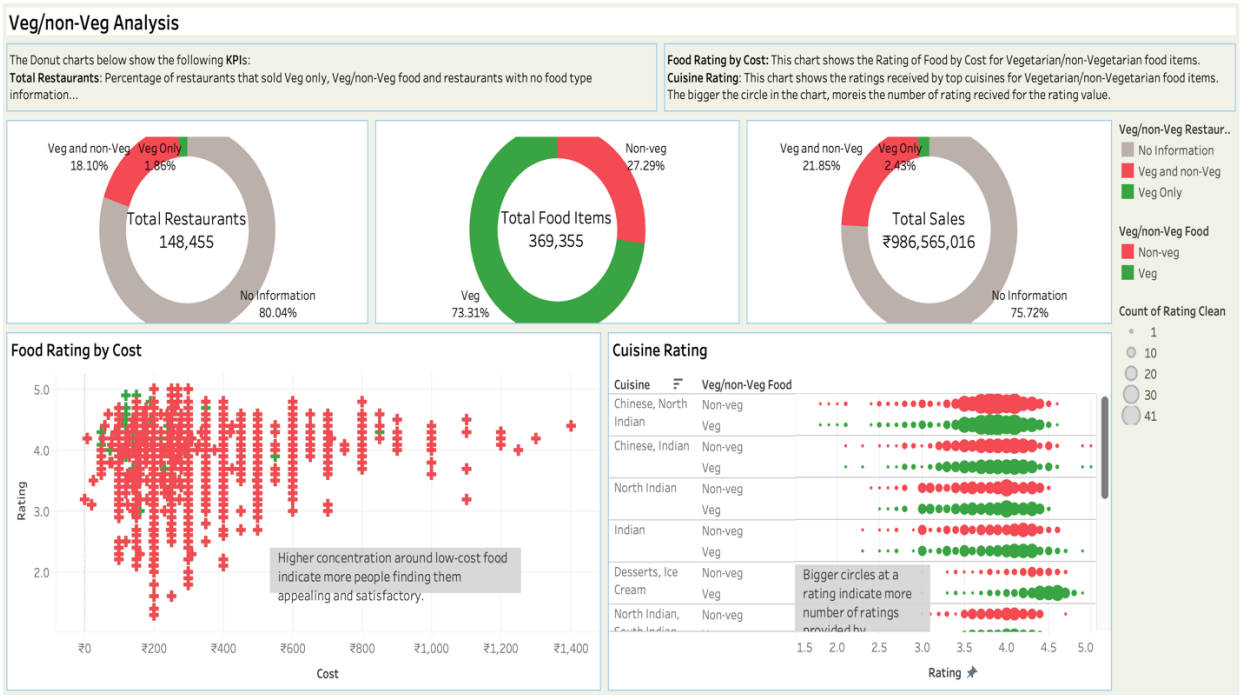
   Insights
   For cuisines that are popular (higher adoption by restaurants), Veg and non-Veg food items have similar popularity among the customers.
   About the same number of customers have rated veg and non-veg food items with the same rating value.

Recommendation
A lot of restaurants do not have the information on food item/veg and non-veg categorization. Providing this information increases visibility and trust of the people, making it easier for customers to order food through various means.

Although a lot of Indian foods are suitable for vegetarian population, the number of restaurants catering only the vegetarian population is very low. There are very low percent of vegetarian restaurant compared to the total vegetarian population in the country. The restaurant community may tap into this deficit by opening “vegetarian only” restaurants to attract this population to their restaurants.

Restaurants should focus on foods that are on the lower cost end than on the higher cost side. They can increase the variety of low-end cost foods in the restaurants. Most customers are eating more of lower cost food and seem satisfied by majority of it.

In total, restaurants have more veg food items than non-veg food items. Having similar number of ratings for these food categories indicate that customers are eating both non-veg food equally despite having less choices. This means that in a non-veg restaurant, owner can increase the variety of non-veg food items to provide more choices to the customers.



Sales Analysis: Which cities have the largest number of restaurants? Does having more restaurants bring more revenue for the cities' restaurants? How does sales look like over time?

1. *Does having large number of restaurants mean more sales for a city? (City by Sales and Number of Restaurants)*

   Insights

   Cities like 'Bikaner', 'Noida-1', 'Indirapuram, Delhi' have the largest numbers of restaurants. Bikaner has 1666 restaurants with ₹11M in sales.

   'Electronic City, Bangalore' has the largest cumulative sales of ₹29M with only 1039 restaurants.

   The number of cities and sales don't have direct relationship, it is important to understand the population, demographics and prevalence of offices in the cities to get a better picture on this topic.

2. *Which Restaurants have the highest sales? What is the per location sales since there are multiple locations of the same restaurant? (Restaurant by Total Sales and Sales per locations)*

   Insights

   India has lots of chain restaurants. Domino's Pizza has 442 locations with total sales of ₹5M. Kouzina Kafe – The Food Court has 47 locations with ₹2M in sales. Multiple other restaurants have multiple locations. Restaurants with multiple locations have larger cumulative sales.

Restaurants with just a single location or very few locations see large sales per restaurants compared to restaurant chains. Janta Snacks has 1 location with ₹1.5M sales. Happy Brew Café, Jaysika DDN Fast Food and Cafe Yummy all have only 1 location with higher per store sales. Whereas, Domino's Pizza has ₹11K sales per location.
Having more restaurant locations doesn't mean more sales for each location which in turn may not mean more profit as well.

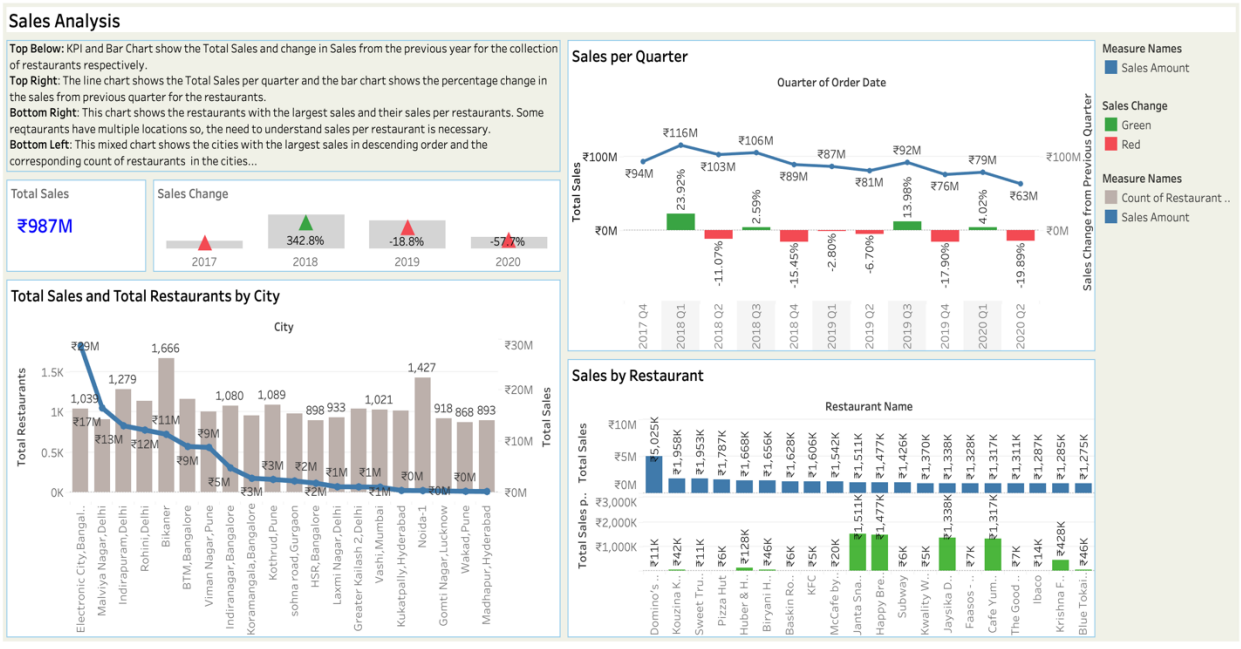
3. *What is the Per quarter Sales for the restaurants? (Total Sales by Order Date and Change from Previous Quarter)*

Insights
Sales of the restaurants is in a declining trend from Q4 2017 to Q2 2020. Most quarters have seen sales decline from the previous quarter.
Covid may be responsible for the declines in 2020 but the reasons for the declines in previous years need more study.

Recommendation

Restaurants could have more sales in cities like 'Electronic City, Bangalore', 'Malviya Nagar, Delhi' etc. But, looking at the sales figure of the cities without other information, it is difficult to provide recommendation to the restaurant owners. More study on demographics, socio-economic aspect of the cities is warranted to understand the sales in the cities.

Judging just by the sales, it is more appealing to have 1 or few location restaurants than multi location restaurants. From the management perspective as well, managing a smaller number of people and location could be beneficial. It could save on remuneration, cost of running the business, owners could be more in touch with the customers. This in turn can increase profit of the restaurants and bring more traffic to the store.



Cuisine Analysis: Are Restaurants more inclined to have Indian cuisines on their menu? Is there influence from other parts of the world on Indian restaurant industry?

1. *What type of cuisines (restaurant type) are popular? What's their total sales? (Cuisine, Number of Restaurants, Total Sales)*

   Insights

   Among the 15 most adopted cuisines by the restaurants, 8759 restaurants are branded as "Chinese, North Indian", the cuisine adopted by the largest number of restaurants. "Chinese, Indian" and "Indian" are respectively adopted by 6682 and 6414 restaurants making them 2nd and 3rd popular cuisine types.

   Looking at the name of the top cuisines, Indian restaurant industry is influenced by neighboring country China.

   Lots of restaurant's cuisines are a fusion of cuisines from around the world for example, 'Chinese, North Indian', 'Continental, Pizzas', 'Italian, Mexican'.

   Other food like Bakery, Desserts, Ice-creams, Pizzas, Fast Food, Beverages also seem to have captured Indian customers.

2. *Which restaurants are more in numbers? How do the customers think about these restaurants? (Restaurant - Count of restaurants - Rating)*

   Insights

   Multiple chain restaurants like Domino's Pizza, Pizza Hut, KFC etc have larger number of restaurants under their belts.

   The presence of these restaurants along with Baskin Robins, Subway, McDonald's to name some is an indication that Indian restaurant market is influence by western foods/restaurants.

   The ratings for these chain restaurants seem to be more or less similar with an average of 3.7.

Recommendation

Indian customers are receptive of foods from other parts of the world. Bringing food from around the world to test the Indian market could be a good starting approach for someone in the culinary market. Indian food with a fusion of Chinese food seems to have large sales, so including these foods in the restaurants may not go wrong.

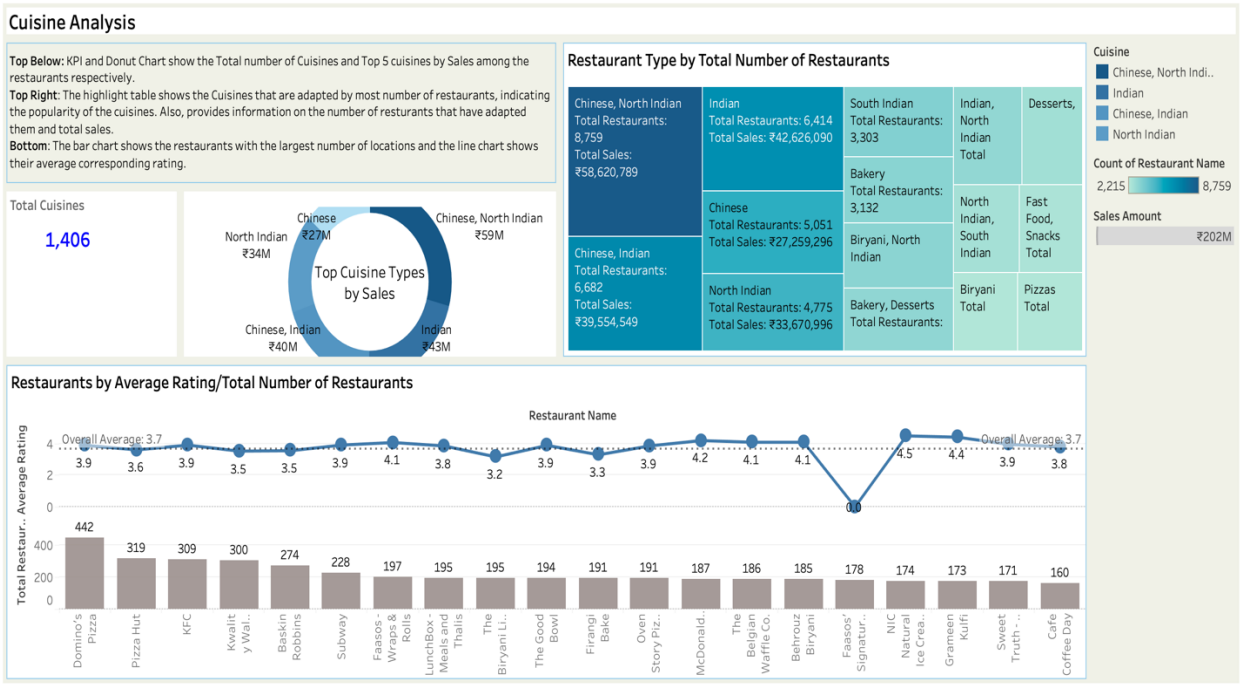


Tableau Visualization

Each question above has a separate worksheet. Each section has a Dashboard. These Dashboards are combined in a Story.

Veg and Non-Veg story also provides the information of the total Veg/non-Veg restaurants, total Veg/non-Veg food items and total Veg/non-Veg sales in donut chart as KPI information.

Sales story also provides the total sales of the restaurants and the Sales changes over the years as KPI information.

Cuisines story also provides the total number of distinct cuisines available and the top 5 cuisines with their sales as KPI information.

Data Cleaning and Preparation

1. Cuisine information (String type) is provided in a random way. For example, “Pizzas, Beverages” are cuisines of some restaurants while “Beverages, Pizzas” are for others. They are the same but written differently. So, the words in the cuisines are separated, sorted and combined alphabetically.
2. Rating is in String type data, to make it usable this data is converted to float and ‘--' is assigned 0.0. New column Rating Clean is created to store this data.
3. Cost from restaurant table is in text format, it needs to be converted to real after removing the Indian Rupee symbol (character ₹).
4. Restaurant is characterized as ‘Veg Only’ and ‘Veg and non-Veg’ based on whether the restaurant sold only veg food or both veg and non-veg food.

Assumptions

1. The Cost (Cost Real) in the Restaurant table is considered the average cost of food item in the restaurant.
2. Restaurant type is determined by the Cuisine type of the restaurant. For example, “Chinese, Indian”, “Desserts, Ice Cream” etc
3. Ratings of the customers is a reflection of their perception/satisfaction level of the food item.
4. The Veg/non-Veg categorization of the restaurants are done based on the kind of foods each restaurant is selling. If the restaurant is selling vegetarian foods only, the restaurant is considered vegetarian restaurant. If it is selling both veg and non-veg food the restaurant is considered non-veg.

Limitation

1. The addresses of the restaurants are provided in an inconsistent format. Zipcodes, city, states, or country are provided to some and not to others. Eg:
    a. Singh Hut, CIRCULAR ROAD NEAR NEHRU PARK ABOHAR
    b. CHAWLA SAAB THE JUICE MASTER, SAHITYA SADAN MARKET, ABOHAR , Abohar (M Cl) , Fazilka 1(Abohar), Fazilka, Punjab-152116
    c. The Momo corner, F-318 Kamla Nagar Agra

    So, use of these data for geographical representation or Geocoding is not possible.
2. Demographics studies within a city could provide more information on the restaurant types, number and provide explanation on the sales. Demographics isn’t going to be studied in this analysis.
3. Some text fields in the database are not in a clean format. For example, search of the word Domino in the Restaurant name returns multiple data with one symbol variation (– or , or ‘ etc). This causes confusion and errors in the analysis. Same is true for other fields.