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Making Data-Driven Decisions for Investing in Restaurant Business: A Case Study Based on Zomato Dataset

Rachna Shah
Minnesota State University, Mankato

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INVESTING IN RESTAURANT BUSINESS: A CASE
STUDY BASED ON ZOMATO DATASET

Rachna Shah

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MAKING DATA-DRIVEN DECISIONS FOR INVESTING IN RESTAURANT BUSINESS: A CASE STUDY BASED ON ZOMATO DATASET

Rachna Shah

This alternate plan paper has been examined and approved by the following alternate plan paper committee members.

_____

Dr. Naseef Mansoor,
Advisor/Committee Member

_____

Dr. Rajeev Bukralia,
Committee Member

_____

Dr. John Burke,
Committee Member

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ABSTRACT

In today's fast-paced world, where time is a precious commodity, the ability to order a wide array of cuisines from the comfort of your home or office impacts the quality of life. With an increasing number of food delivery services, with just a few taps on the smartphone or clicks on the computer, we can enjoy the food we want. The importance of this convenience cannot be overstated, as it allows people to save time and effort that would otherwise be spent on cooking, grocery shopping, or dining out. As the food delivery system grows and develops, its economic framework is also in flux. The online food delivery industry is getting highly competitive. It includes several major players, such as Uber Eats and DoorDash in the US, Eat Takeway.com in Europe, and Zomato in several countries, but it broadly operates in India. India is a rapidly growing market among these online food markets with the most enormous population. As reported by IMARC marketing research, "The India online food delivery market size reached US$ 36.3 billion in 2023 and expects the market to reach US$ 257.7 billion by 2032, exhibiting a growth rate (CAGR) of 24.32% during 2024-2032". Making the right data-driven investment decision is essential in this rapidly growing food market. To enable this in this project, we delve into finding answers for how demographic features impact the restaurant business, how the location impacts the restaurants' cuisines, whether international restaurant chains are preferred over local cuisine, and whether there is any correlation between cuisine and restaurant rating. Answering these questions allows new investors to understand the local food market and make data-driven decisions. To answer these questions, we use Zomato's restaurant dataset for Bengaluru. From our analysis, we traverse a diverse array of facets, encompassing the identification of prominent restaurant chains, the categorization of restaurant types, the assessment of online ordering and reservation dynamics, and the creation of geographical distribution maps. Furthermore, to assist this decision-making, we have created a dashboard with all the key indicators and visualizations that summarize the restaurant industry in an area.

Keywords: Online Food Industry, Zomato, Cuisine Preferences, Geospatial Analysis, Demographic Impact, Exploratory Data Analysis, Restaurant Industry Trends

CHAPTER ONE

1.1 INTRODUCTION

The restaurant is an important part of our modern society, playing a crucial role for several reasons. First and foremost, it serves as a vital pillar of the economy. Restaurants generate substantial revenue, provide jobs, and stimulate economic growth, contributing significantly to local, national, and global economies. However, during the initial stages of the pandemic, lockdowns and the necessity for maintaining physical distance had a substantial impact on the delivery sector, sparking the emergence of the online food delivery service trend. While this service existed previously, it had not gained widespread recognition or use. It proved to be vital for the restaurant industry, grappling with difficulties[1].

Dining out or ordering food for delivery provides a time-saving alternative to cooking at home. This convenience aligns with modern consumers' changing lifestyles and demands who seek quick, delicious, and diverse dining options. The landscape of the restaurant industry has been significantly reshaped by the advent of online meal delivery services, transforming consumer dining patterns and preferences in the digital era. The way people across the globe dine is undergoing a remarkable transformation. The convenience of ordering food with a few taps on a mobile app has revolutionized the dining experience. It has allowed restaurants to tap into a broader customer base and adapt to changing consumer behavior. Consumers, in turn, have embraced this convenience, seeking quick and hassle-free dining options.

Less than two decades ago, the idea of restaurant-quality food delivery was primarily limited to options like pizza and Chinese cuisine. However, in recent times, the food delivery industry has evolved into a massive global market valued at over \$150 billion, having grown more than threefold since 2017[1]. This transformation can be attributed to the emergence of user-friendly apps, tech-driven delivery networks, and evolving consumer expectations. Now, reviews and rating systems from online services have evolved into a significant resource that prospective or first-time customers rely on when making critical decisions in various facets of their lives. These decisions span a broad spectrum, encompassing investment choices and even selecting a particular dish from a menu[2]. Business proprietors increasingly depend on client reviews as a source of valuable insights to inform their operational decisions. This underscores the growing importance of conducting additional research in electronic reviews[3]. Afterward, food delivery stays as a permanent fixture in the dining landscape.

The primary aim of this study is to evaluate the effectiveness of leveraging Zomato's data for comprehensive insights into Bengaluru's restaurant landscape. Firstly, the paper delves into the crucial factors influencing restaurant success within Bengaluru, exploring elements such as location, target demographics, culinary preferences, and the impact of online platforms. Secondly, it sheds light on the rationale behind the dataset and explicates the research questions that drove this investigation. These questions encompassed inquiries into demographic influences, culinary inclinations, the influence of chain versus independent restaurants, online ordering prevalence, and consumer dining preferences.

Subsequently, the study discusses its findings, unraveling intriguing insights into the dining dynamics of Bengaluru. It reveals trends, such as regional cuisine preferences, clustering of highly-rated establishments, and the dominance of quick-bite eateries compared to delivery-oriented restaurants. Finally, drawing from these findings, the paper culminates in conclusions, emphasizing the significance of understanding regional nuances and consumer preferences in shaping restaurant success within Bengaluru's diverse culinary landscape.

1.2 IMPORTANT FACTORS TO START A RESTAURANT

This transformation has brought about both opportunities and challenges for restaurant owners. Everybody in this race is looking for profitability from their business, which is a complex part that depends on numerous factors. Running a restaurant can be a potentially lucrative venture but comes with substantial risks and challenges. One must consider a few factors that affect restaurant business, such as :

1. Location: The restaurant's location plays a critical role in its success. A prime location with high foot traffic can significantly boost profitability. However, the cost of renting or owning such a location can be substantial, impacting the bottom line.

2. Target Market: It is essential to understand the target market and cater to their preferences. Knowing the demographics, income levels, and dining habits of the local population helps tailor the menu, pricing, and marketing strategies.

3. Concept of standing out in the market: The factor that affects a restaurant's profitability is its concept and ability to differentiate itself in the market. A

unique and innovative concept can attract a loyal customer base, while a generic or over-saturated concept may need help to stand out.

4. Competition: The level of competition in the area can impact profitability. A saturated market may require more aggressive strategies to gain market share.

5. Food and Service: Consistently delivering high-quality food and service is non-negotiable. Positive dining experiences lead to customer loyalty, positive word-of-mouth, and repeat business, contributing to profitability.

6. Customer Experience: This service is not just about serving or delivering food; it is also about providing a seamless customer experience and making an effort to make a memorable moment for them. Factors like delivery time, order accuracy, and the quality of packaging can influence customer satisfaction and repeat business.

7. Data and Analytics: Food platforms generate a wealth of data that can provide insights into customer behavior and preferences. Restaurants can leverage this data to make informed decisions regarding menu offerings, pricing, and marketing strategies.

Success in the industry requires careful planning, attention to detail, and the ability to adapt to changing market conditions. While many restaurants thrive and generate significant profits, others need help to break even. Aspiring restaurateurs should conduct thorough market research, create a solid business plan, and be prepared for the challenges that come with the pursuit of culinary entrepreneurship.

1.3 RESEARCH QUESTIONS GUIDING THROUGH THE CULINARY LANDSCAPE OF BENGALURU

This project equips restaurant owners with data-driven insights that can inform crucial decisions, from choosing the right location and theme to menu offerings and understanding the preferences of the local population by finding answers to the following questions through a careful analysis:

1. What is the Demographic Impact?

   Does the demographic composition of an area significantly influence a restaurant's success in a city like Bengaluru, known for its IT parks and hubs? Are areas with a high concentration of IT offices more likely to be lucrative for restaurants, or do college areas, downtown districts, or residential regions offer better prospects? These demographic factors can impact the restaurant business in this diverse and dynamic urban landscape.

2. Is there a dominance of international culinary inclination?

   In essence, the question explores the balance between traditional, local, or national culinary offerings and the appeal of international cuisine. It aims to reveal whether there is a significant consumer inclination towards one or the other. Understanding this inclination can be valuable for restaurant owners and the food industry in general, as it can help them tailor their menus to cater to the preferences of their target audience, potentially influencing their business strategies and offerings.

3. Chain vs. Independent: Are food chain category restaurants more likely to attract a more extensive customer base than independent establishments?

This research question investigates the competitive advantage of food chain restaurants compared to independently owned restaurants regarding customer attraction. It seeks to understand whether being part of a chain, such as a well-known brand, positively impacts the size of the customer base. The question explores the dynamics between large, established chains and smaller, independent eateries.

4. How many of the restaurants accept online orders?

This research question focuses on the prevalence of online ordering in the restaurant industry. It seeks to determine the proportion of restaurants that offer the convenience of online ordering and food delivery. Understanding this can provide insights into the digital transformation of the restaurant business and the changing preferences of consumers.

5. What are the favorite types of restaurants for consumers, and what are their dining preferences regarding snacking, full meals, cafes, or bars?

This question delves into consumer preferences to understand what types of restaurants consumers favor (e.g., fast food, fine dining, cafes, bars) and their dining preferences (snacks, full meals). This information is valuable for restaurant owners looking to align their offerings with consumer tastes.

Ultimately, this project provides a roadmap for restaurant entrepreneurs to boost their business restaurant sales by aligning with their target market's specific needs and preferences.

1.4 SIGNIFICANCE OF STUDY

One of the paramount significances of this research lies in its potential to optimize business operations. By harnessing insights from this comprehensive study, restaurant entrepreneurs can make more informed and data-driven decisions. As a result, it can enhance its ability to offer the best dining experience to its customers, as its customers are an essential component of its success. They have a deeper understanding of customer behavior and regional culinary landscapes. They can optimize their menu offerings to cater to evolving tastes and preferences, which can improve the rating of the restaurant and the frequency of customer visits.

Food enthusiasts and diners can also gain insights into culinary exploration through this research to make more informed choices on take-out or dine-ins. There is an analysis from the top expensive restaurants to the most affordable ones, and the analysis lists foodie areas. Armed with knowledge about the local food scene, food enthusiasts can embark on a journey of trying new dishes and experiencing the city's rich flavors. This research captures the evolving nature of the sector. As a result, it serves as a valuable case study for understanding the intricate workings of this dynamic industry.

CHAPTER TWO

2.1 LITERATURE REVIEW

The internet has revolutionized the way consumers order and receive food. Online platforms and mobile apps enable customers to browse menus, place orders, and deliver food to their doorsteps, providing convenience and expanding the restaurant's customer base. Restaurants and food businesses can reach a broader audience through online presence. They are not limited to walk-in customers but can attract online users from various locations.

The reviews of products and services have become a cornerstone of the decision-making process, reflecting the value of brands. The internet is now teeming with digital footprints of nearly every product or service, where consumers leave feedback through various mediums, fostering enduring associations. Daily, many reviews are generated online, encompassing products, individuals, and locations [5]. To study this, a notable paper from 2023, Zomato Review Analysis Using Machine Learning, which sheds light on the pivotal role of restaurant reviews and ratings in shaping public perceptions and influencing dining choices was reviewed. This paper delves into the challenges faced by new restaurants in India's highly competitive market, offering valuable insights for restaurant owners. It employs sentimental analysis and exploratory data analysis on Zomato restaurant reviews, focusing on the accuracy of a sentimental model. This model identifies the top three cuisines in a given location, providing invaluable guidance for new restaurants. Additionally, the research conducts a comprehensive data analysis across various dataset parameters, yielding

substantial insights. Notably, the Support Vector Machine (SVM) model employed in this research achieves a high accuracy rate of 92%[4]. This can provide valuable insights into the quality, features, and experiences associated with products or services.

Consumers often rely on reviews to make informed purchase decisions. Positive reviews can boost consumer confidence, while negative reviews deter potential customers. In contrast, recommendation systems analyze user behavior and preferences to suggest products or services that align with individual tastes. Reviews and ratings often influence these suggestions. To investigate this further, a paper by Alamoudi et al. (2021) that delves into online customer evaluations and restaurant recommendations using machine learning was studied. This 2021 study highlights the importance of these factors in shaping customer purchasing decisions. This research examines the functional aspects of various internet platforms for restaurant reviews and recommendations, areas that have previously received limited research attention[6]. The study employs sentimental analysis and natural language processing to create an innovative restaurant recommender system. This system identifies users' food preferences based on their comments and recommends local restaurants aligning with those preferences. The system discerns user opinions on different foods by clustering food names and employing sentimental analysis. The system is context-aware, considering users' location, time, and preferences, boasting a precision rate of 92.8%.[6].

Recommendations enhance personalization, menu optimization, and upselling, while improvements in the customer experience led to increased customer loyalty, streamlined operations, and better service. When effectively integrated, these elements

create a more enjoyable and memorable dining experience, increasing customer retention and business success. An in-depth understanding of another user-friendly web-based application was introduced, enabling users to visualize data and obtain restaurant recommendations based on location and ratings, utilizing techniques like sentimental analysis, data cleaning, conversion, and visualization to improve customer service. The study of Exploratory Data Analysis (EDA) and Data Mining on Yelp Restaurant Review in 2021 exemplified an in-depth exploration of rating systems. This study adopts a methodology centered around EDA and textual feature extraction techniques, using the Yelp dataset to gain insights into restaurant-related aspects[5]. The research delves into textual data processing, encompassing tokenization, lemmatization, and removing uninformative words. Furthermore, the Bag-of-Words (BOW) model extracts frequent words and phrases from positive reviews. The study's findings underscore the diversity of restaurant categories, with fast-food restaurants being popular but often receiving lower ratings, hinting at opportunities for enhancing customer experiences[6]. This shows the significant impact of food and service quality on customer reviews and overall satisfaction. Additionally, it is essential to emphasize that a restaurant's strategic placement and surroundings significantly influence the dining experience for customers.

The paper's primary question illuminates another facet of this research: Are prime-located Restaurants Better for Consumers? This study by Markoshi et al. (2021) conducted a statistical analysis of restaurant properties and attributes to decipher their influence on a restaurant's success. It employs information-based methods and data from TripAdvisor, focusing on London's restaurants. The results unveil multiple

aspects, including restaurant rating distributions, sentiment polarity in textual reviews, geographical visualizations, and correlation analysis[7].

A study by Tayeen et al. (2019) quantifies the impact of location on business reviews and delves into the influence of location on restaurant success, utilizing Yelp data and a location dataset[8]. The study employs correlation metrics such as Spearman's and Kendall's correlation coefficients to evaluate the relationship between location parameters like housing affordability and education and restaurant success metrics such as star ratings and review count. The findings underscore the significant correlation between parameterized location, particularly housing affordability, living standards, and restaurant success[8]. The research also explores the impact of relative location on landmarks and other restaurants, highlighting the positive influence of proximity to famous landmarks on reviews and ratings. In conclusion, the paper emphasizes the pivotal role of location, both parameterized and relative, in determining the success of restaurants.

This literature review provides valuable information on the significance of review and recommendation systems that can enhance restaurant business operations. In addition, this highlights the importance of location-specific factors, proximity, and housing affordability. This literature review can give a better understanding of the challenges faced by new restaurant owners.

CHAPTER THREE

3.1 METHODOLOGY

In this chapter, delves into the methodology used for restaurant geospatial analysis, as depicted in Figure A. However, before examining the individual steps within this methodology, we must first explore the dataset.
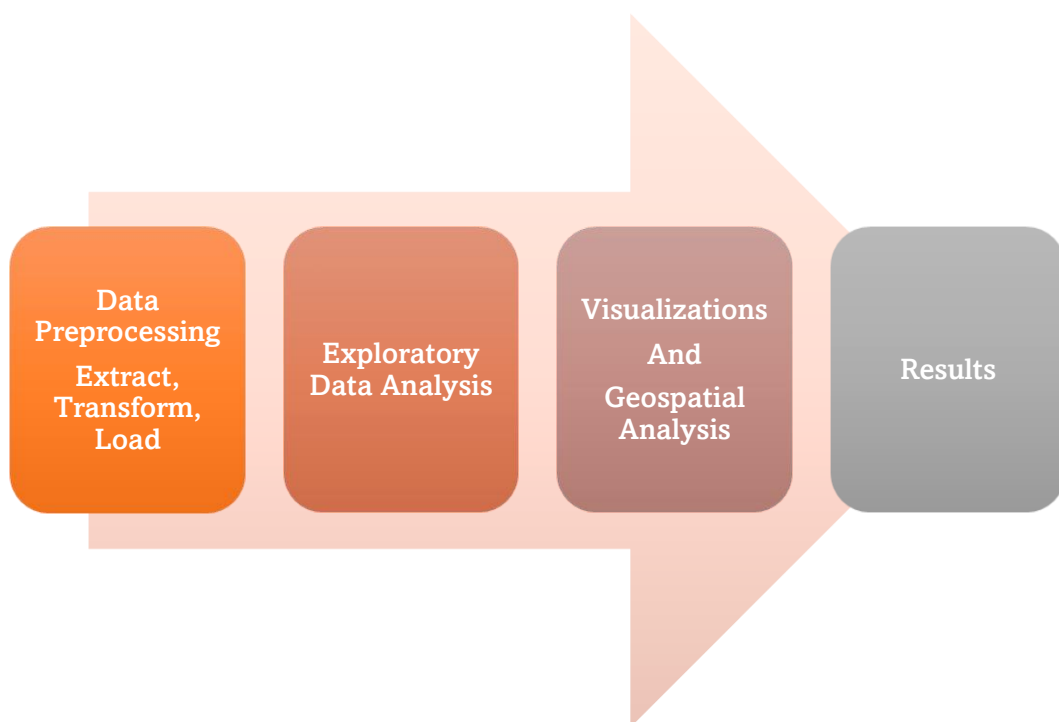

Figure A: Data Processing

3.2 DATASET

This research employed Zomato's 2019 dataset for Bengaluru City, India, which comprised over half a million user experiences recorded across 17 attributes. The primary data sources for this project came from web scraping of the Zomato website,

which was used to collect restaurant data within each area zip code. The second data-related to the trending venues, particularly restaurants in various zip codes, was obtained using the FourSquare API on Kaggle by author Himanshu Poddar. Additional data sources included geographic coordinates gathered via the Geocoder Python package and GeoJson files downloaded from https://github.com/openbangalore.

The data collection procedure was divided into two stages. According to Poddar, only the restaurants' URLs, names, and addresses were extracted in Phase I and stored in CVS to decrease computing loads. Phase II entailed a total of 17 unique variables that were insights into online order availability. The attributes are depicted in Table 1.

Attributes	Description
URL	URL link to the restaurant on Zomato's website
Address	Address of the restaurant in Bengaluru
Name	Name of the restaurant
Online_order	Availability of online ordering in the restaurant
Book_Table	Availability of table booking
Rate	Overall rating of the restaurant out of 5
Votes	Total number of ratings for the restaurant
Phone	Phone number of the restaurant
Location	Neighborhood where the restaurant is situated
Dishes_liked	Dishes that are popular or liked by people in the restaurant
Approx_Cost	Approximate cost for a meal for two people at the restaurant
Review_list	List of reviews, each tuple consisting of rating and percentage
Menu_items	Menu items available at the restaurant
Listed_In	Type of meal listed
Delivery	Availability of delivery service

Listed_In(city)	Neighborhood where the restaurant is listed
cuisine	Different food styles

Table 1. Summary of Attributes

3.3 DEMOGRAPHIC LOCATION:

Every day, new eateries open, demonstrating that the market is still far from overcrowded and that demand is continually rising. Despite this growing appetite, amateurs need help competing with established firms. Utilizing data to address various questions, the core objective is to delve into the determinants influencing the diverse array of restaurants established in various areas of Bengaluru, their aggregate ratings, and the culinary landscape of this bustling city. Bengaluru, home to over 13,000 restaurants serving an array of global cuisines, witnesses the continuous emergence of new dining establishments. Despite increasing demand, this surge in restaurant openings poses a challenge for newcomers as they contend with established eateries often offering similar menus. Given Bengaluru's status as India's Silicon Valley, many residents rely on restaurant dining due to time constraints, making exploring the local demographics crucial.

3.4 DATA CLEANING:

Attributes	Null Values	%	How was it handled?
Rate	7775	15	"NaN"/ "new"/ "-" values with substituted by zero
Phone	1208	2.3	Rectified the irregularities using regex
Loc	21	0.04	Minimum null values were dropped
Rest_Type	227	0.4	Minimum null values were dropped
Dishes_liked	28078	54	Remained untouched as not of much use
Cuisines	45	0.08	Minimum null values were dropped
Approx_Cost	346	0.66	Minimum null values were dropped

Table 2. Summary of Data Cleaning

In this data analysis, we identified seven columns with missing values. Notably, the "rate" column, which had the second-highest percentage of missing data, showed a skew toward average ratings ranging from 3.0 to 4.5. This skewed distribution provided valuable insights into customer preferences and restaurant quality. As for the "rate" attribute, which had good number of null values (7.7k records). A data frame containing the distinct set of values was created, and NaN values with zero were replaced, while any instances of "new" or "-" were also replaced with zero. It was decided not to substitute NaN values in the "rating" attribute with the average rating. This decision was made to ensure the accuracy of the analysis and avoid skewing the data towards higher ratings. Alternative methods like imputation based on statistical measures, machine learning techniques, or domain-specific knowledge cause more bias, and is difficult to maintain the dataset's integrity. Additionally, there were irregularities in the "phone number" column, which should ideally contain only numbers or plus symbols. To rectify this, the study employed regex to correct phone number column errors in Python by importing libraries such as "re" module. For example: A simple regex pattern

to find all sequences of digits (\d+) within a text using Python's re module. In the case of the "locations" and "cuisines" columns, which had minimal null values, it was deemed best to drop them as it would result in a minimum loss of information. Finally, this analysis did not use the "dishes_liked" column and did not handle the missing values.

After reviewing the data, it became clear that combining the "name" and "address" columns might successfully serve as the dataset's primary key as it's presumed that the combination of these two attributes will uniquely identify each restaurant. This uniqueness prevents any confusion or ambiguity in identifying specific records. All duplicate entries in the data using these two columns were discovered and deleted. The primary goal was to identify the types of cuisine more popular or commonly requested in certain Bangalore localities.

3.4 EXPLORATORY DATA ANALYSIS

This project's Exploratory Data Analysis (EDA) process involved a systematic and comprehensive examination of the dataset to gain a deeper understanding of its characteristics, identify patterns, and uncover potential insights. The critical steps in the EDA process were as follows:

1. Data Exploration: The exploration phase began after the data was cleaned and preprocessed. This stage was dedicated to gaining information from the dataset. Key activities included:

> Summary Statistics: Descriptive statistics like mean and median were calculated for numerical attributes to understand their central tendencies and distributions.

> Data Visualization: Utilizing libraries like Plotly, Matplotlib, and Seaborn, various charts and plots were created to visualize the data. Histograms, box plots, and bar charts were employed to explore the data's distribution, trends, and outliers.

> Identification of Trends and Patterns Throughout the EDA process, trends, patterns, and potential insights were continually identified. This included discovering the types of cuisines popular in different areas, understanding customer preferences, and recognizing anomalies or noteworthy observations.

2. Geospatial Analysis: Geospatial analysis in this project involves the examination of location-related data to achieve an in-depth understanding of the culinary landscape of different regions in Bengaluru. It focuses on the spatial distribution of restaurants and explores how various factors, such as the type of cuisine, restaurant popularity, and customer preferences, correlate with different geographical areas. Here is a more detailed breakdown of the geospatial analysis in the project:

> Data Collection: Geospatial analysis relies on location details. In this project, this data is obtained using the 'geopy' package, particularly the Nominatim module, to extract latitude and longitude coordinates for each restaurant based on its name and location. These coordinates were then grouped together based on their similarity, effectively categorizing them

by location. These specific coordinates play a vital role in accurately mapping restaurants across a geographic area.

➤ Mapping and Visualization: Geographic Information System (GIS) tools and libraries such as Folium in Python are employed for mapping and visualization. Folium allows the creation of interactive maps embedded in the project report or dashboards. It provides a simple interface to generate maps and mark locations using latitude and longitude.

➤ Heatmaps: Heatmaps are a valuable tool in geospatial analysis. They can reveal the concentration of restaurants, customer reviews, or other relevant metrics on the map. Using color gradients, they show the density or intensity of data points in different city areas.

➤ Spatial Distribution of Restaurant Types: Geospatial analysis can create maps that display the types of restaurants in different areas. This helps in understanding which cuisines are popular in specific areas. For example, one might discover that one locality has a high concentration of Italian restaurants while another is known for its diverse culinary offerings.

CHAPTER FOUR

4.1 RESULTS AND FINDINGS

Bangalore, called India's Silicon Valley, is a vibrant and culturally rich city. It is a place that celebrates diversity and is renowned for its delicious cuisine. The city is a melting pot of flavors, and one will find a wide range of restaurants here. The culinary landscape will be discussed in this section.

4.1.1 DEMOGRAPHIC IMPACT

In Bengaluru, a city renowned for its diverse and dynamic urban landscape, particularly its thriving IT parks and hubs, restaurant success is greatly influenced by the demographic composition of different areas. The top five areas with the highest restaurant concentrations are Whitefield (634 restaurants), BTM (581), HSR (553), Marathahalli (525), and Electronic City (518), collectively contributing to approximately 25% of the overall restaurant scene. Additionally, areas like Indiranagar, JP Nagar, and Jayanagar, with over 11% contribution, are significant downtown areas with a thriving restaurant population. Lastly, Koramangala 5th block, New BEL Road, and Banashankari are famous among the college-going crowd, making them the third most prominent restaurant industry area.

4.1.2 INTERNATIONAL FOOD DOMINANCE

The top 5 restaurants in Bangalore were not all part of Indian-authentic restaurant franchises. This leads to a question: What are Indian restaurants missing in terms of cuisine and offerings that would be worth exploring in the future? From this analysis, areas like Indiranagar, and NEW BEL Road have a higher concentration of Chinese, Continental, and fast-food restaurants as there are downtown areas researching these localities. In contrast, regions such as Jayanagar and Rajajinagar have a more significant presence in North Indian cuisine, indicating the residents' preferences in those areas.

4.1.3 CHAIN VS. INDEPENDENT

The research also explored whether food chain category restaurants have a competitive advantage in attracting a more extensive customer base than independent establishments. The data reveals a dominance of chain restaurants in the city, with Café Coffee Day having close to 90 outlets, followed by Onesta with 85 outlets and Empire Restaurant with 71. Notably, among the top 20 restaurants, there are no independent establishments like Meghana's Biryani, a local restaurant exclusive to Bangalore.

4.1.4 ONLINE ORDERING

Approximately 65% of restaurants in Bangalore offer online delivery services, reflecting the city's predominantly suggesting working population. Whitefield, known as a software industrial area, stands out as a hub for food enthusiasts, hosting many restaurants. Highly rated restaurants tend to cluster around Central Bengaluru.

4.1.5 CATEGORIZATION OF RESTAURANT

Delving into categorizing restaurants, Quick Bites, Casual Dining, and Cafes emerge as the dominant types. Quick Bites, with establishments, caters to the fast-paced lifestyle of urban Bengaluru, offering a wide range of snacks and smaller meals. Casual Dining establishments follow closely, catering to those seeking a more leisurely dining experience. Numerous Cafes, reflect the city's affinity for relaxed, coffee-infused social outings.

4.2 NOTEWORTHY OBSERVATIONS

- Interestingly, the top 5 restaurants in Bangalore were not all part of Indian-originated restaurant franchises. This leads to a question: What are Indian restaurants missing in terms of cuisine and offerings that would be worth exploring in the future?

- The majority of the highly rated restaurants are clustered around Central Bengaluru.

- Quick bites restaurants outnumber delivery restaurants, which aligns with expectations.

- Furthermore, the regional cuisine preferences vary, with North Indian food being notably popular despite Bangalore's location in South India. This preference may be attributed to significant migration from North India seeking job opportunities. Areas like Koramangala and Whitefield excel in delivery restaurants, while Koramangala and Indira Nagar are hubs for cafes; moreover, restaurants offering a greater variety of cuisines tend to receive higher ratings. While North Indian, South Indian, Ice Cream, Mangalorean Beverages, Street

Food, Cafe, and Indian cuisines are the top choices which was expected for such restaurant types.

4.3 DISCUSSION

The importance of customer reviews and ratings is evident, underscoring the preference for highly rated establishments such as Onesta, Truffles, and Empire Restaurant, which are foreign delicacies. Geospatial analysis unveils culinary hubs across the city, providing valuable insights for food delivery platforms and restaurateurs. Bengaluru's affection for North Indian and Chinese cuisines highlights its multicultural culinary choices, allowing for understanding the preferences of specific localities based on their ordering behavior and the types of restaurants available. A non-vegetarian community locality will likely have more options to order Afghani dishes or biryani frequently. In contrast, a vegetarian community like the Jain area may prefer vegetarian food. These patterns mirror the rich diversity in India. They can be derived from data, providing insights into popular foods and demographics and supporting new restaurants in making informed, data-driven decisions for expanding their sales and understanding their target consumers. The high percentage of restaurants offering online delivery services aligns with the city's predominantly working population. For instance, Whitefield stands out as a culinary hub due to its significant restaurant presence.

CHAPTER FIVE

5.1 CONCLUSION

The city's food scene has evolved beyond its traditional South Indian roots, making it a culinary hub that caters to diverse palates and preferences, regardless of the duration of one's stay in this vibrant metropolis for tourists and residents. This study emphasizes the influential role of demographics, regional culinary preferences, and the dominance of certain restaurant formats in shaping the city's dining landscape. The findings underscore the need for restaurateurs to align with local tastes, leverage demographic insights, and optimize their offerings to thrive in this dynamic market. Overall, the study highlights the importance of data-driven strategies for navigating Bengaluru's diverse and competitive restaurant.

5.2 LIMITATIONS

The project's findings could be more extensive in their applicability, firstly about the unique restaurant landscape of Bengaluru, and generalizing these insights to other cities or regions should be done with caution. Regional variations often lead to distinct dining preferences and trends, making considering local context when interpreting the findings essential. Furthermore, the analysis hinges on certain assumptions, including the stability of restaurant ratings and customer preferences over time, which may not consistently align with real-world dynamics, adding a layer of uncertainty to the results.

5.3 FUTURE SCOPE

The future scope of this project involves several key aspects. Firstly, expanding the analysis to encompass other cities and regions creates a comprehensive database of dining preferences and restaurant trends across diverse locations, offering a more extensive view of the culinary landscape. Additionally, based on historical data, machine learning, and predictive modeling techniques are employed to anticipate future dining trends and the potential success of new restaurants. Furthermore, they foster collaborations with restaurants to deliver data-driven insights for informed menu planning, pricing strategies, and a deeper understanding of customer requirements. These initiatives aim to enhance the project's reach and impact on restaurant analysis and decision-making.

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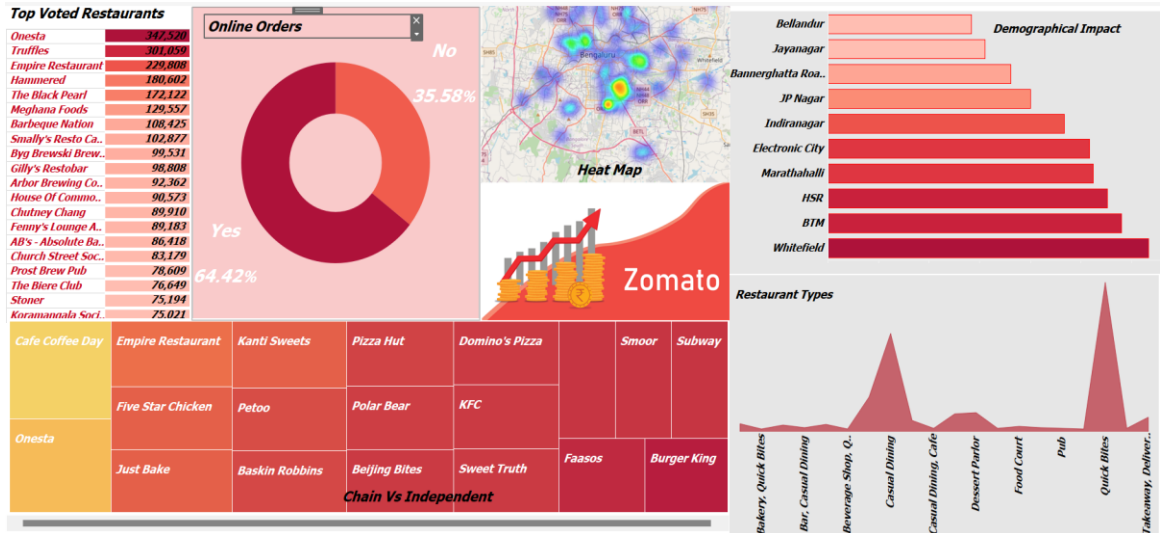
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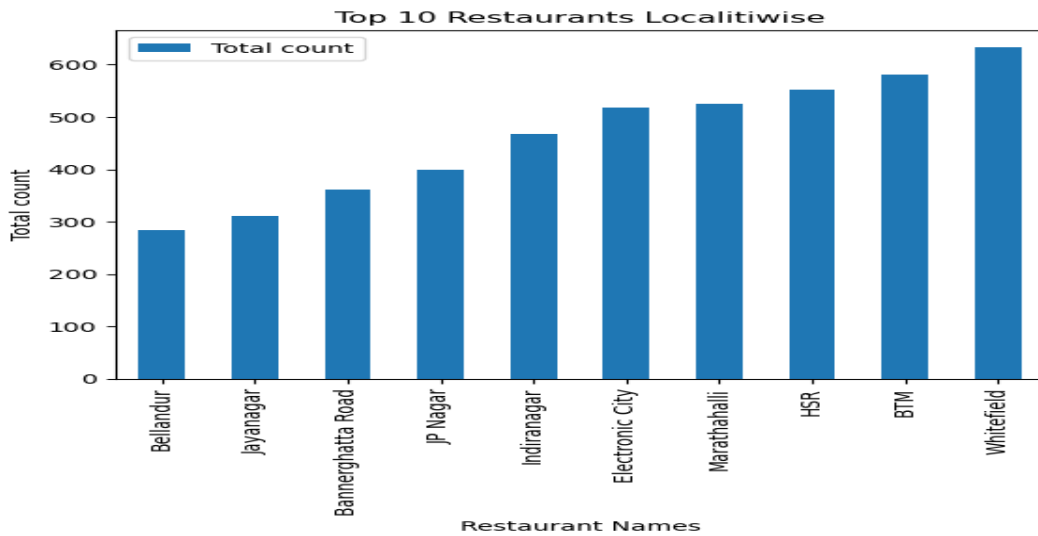
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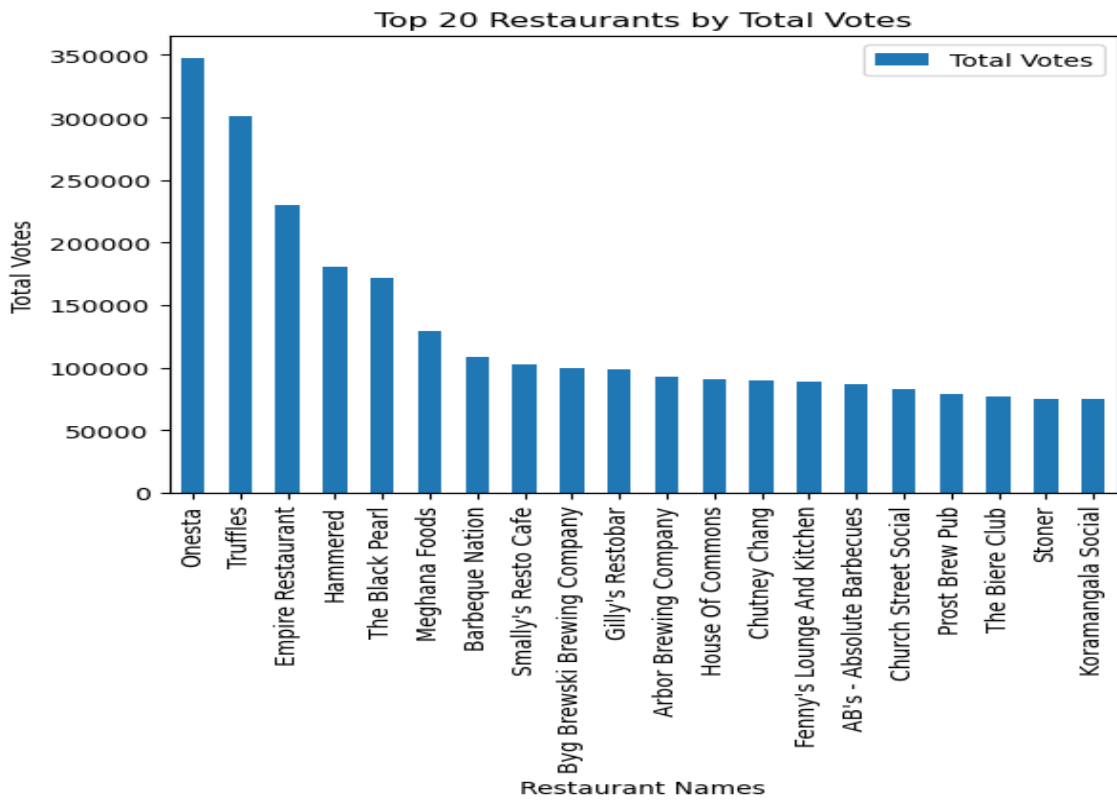
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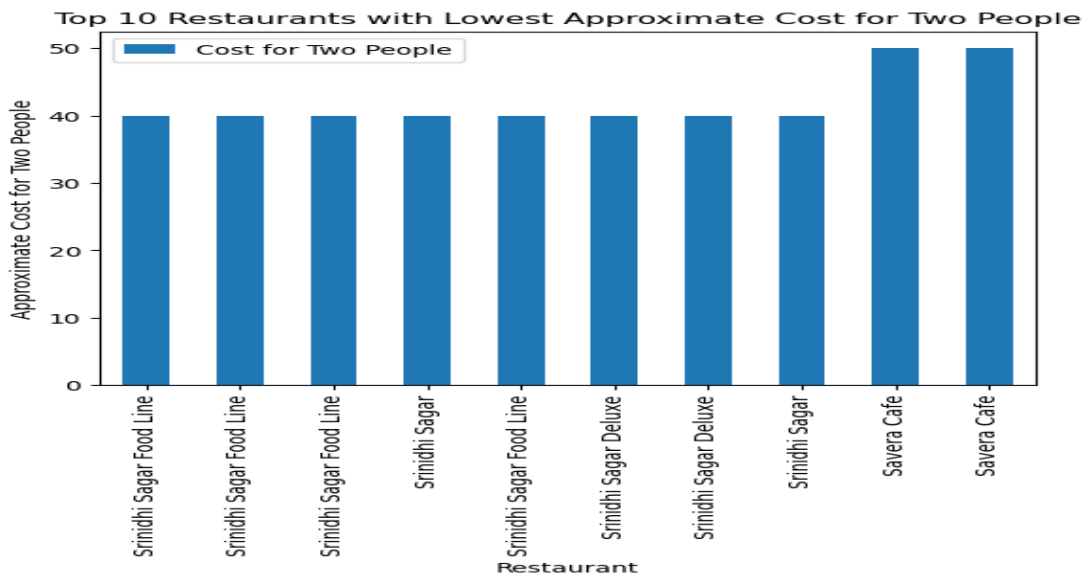
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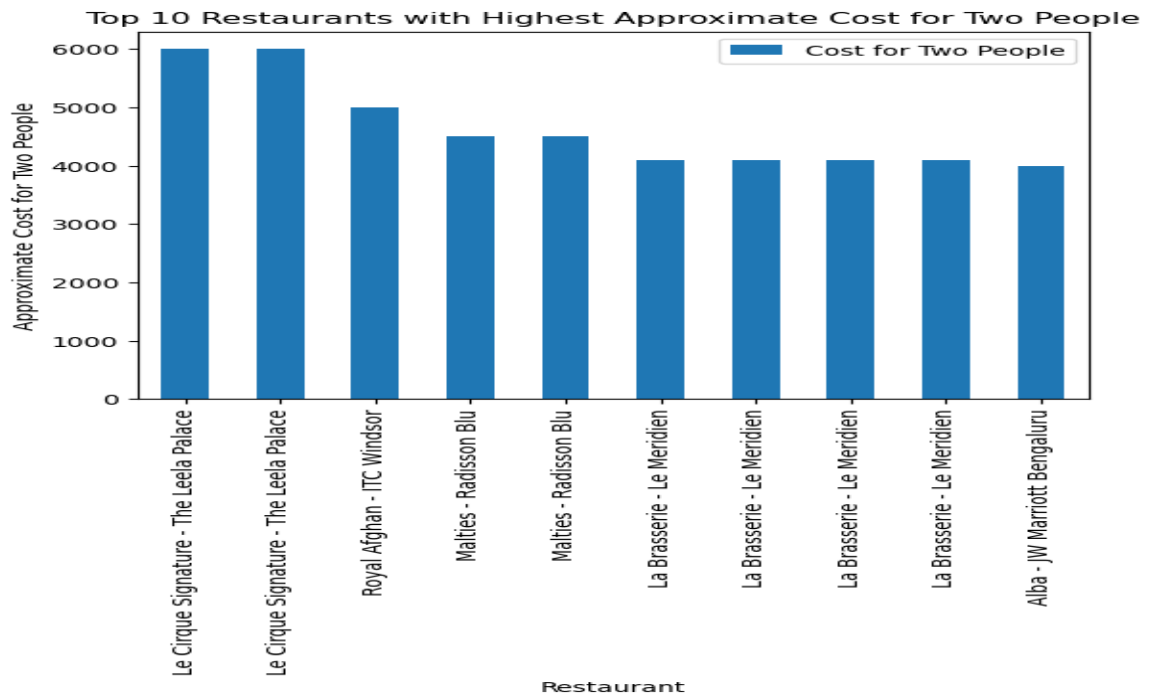
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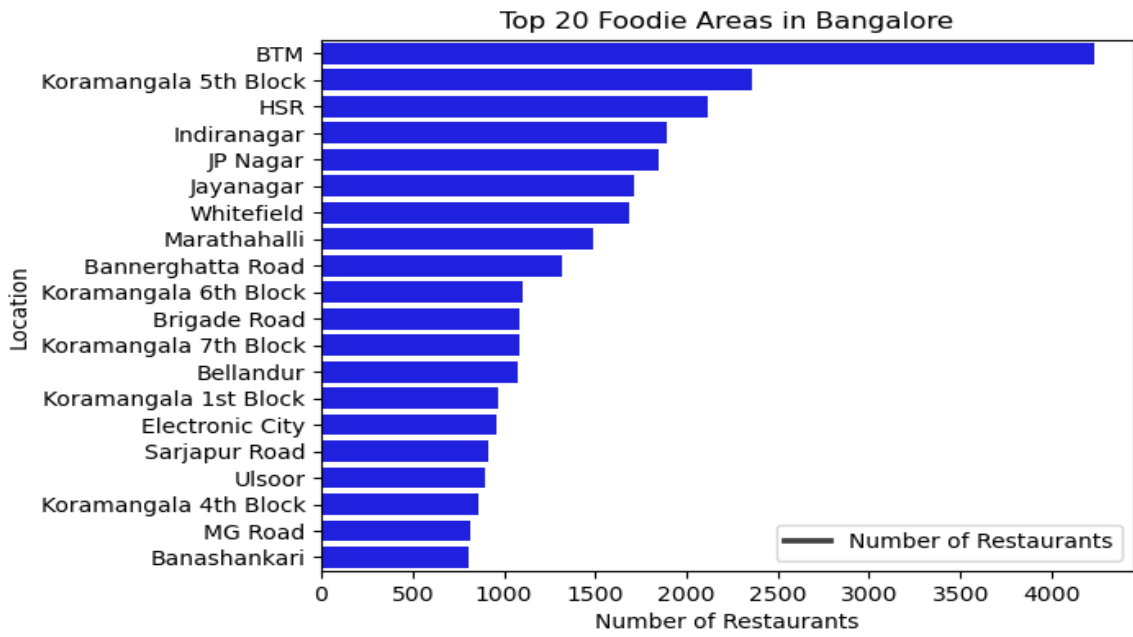*Figure 6. Foodie Areas in Bengaluru*
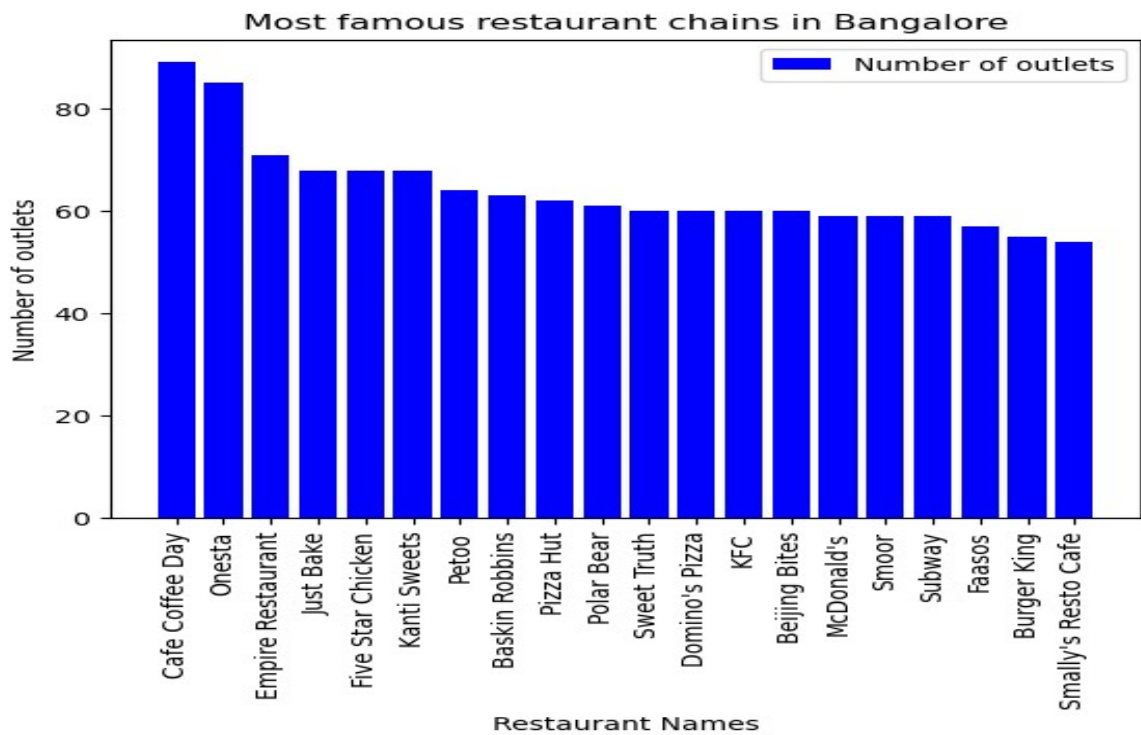
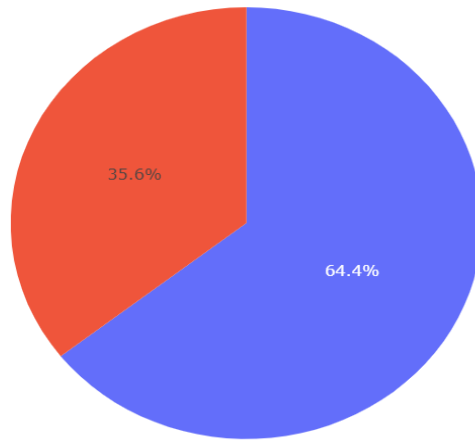*Figure 7. Chain Vs. Independent Restaurant*

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Figure 8. Online Orders

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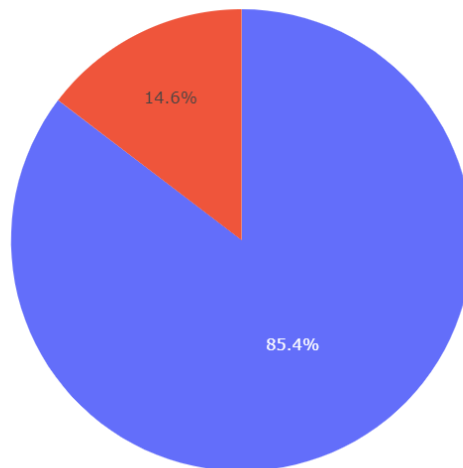
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Figure 10. Top Cuisine

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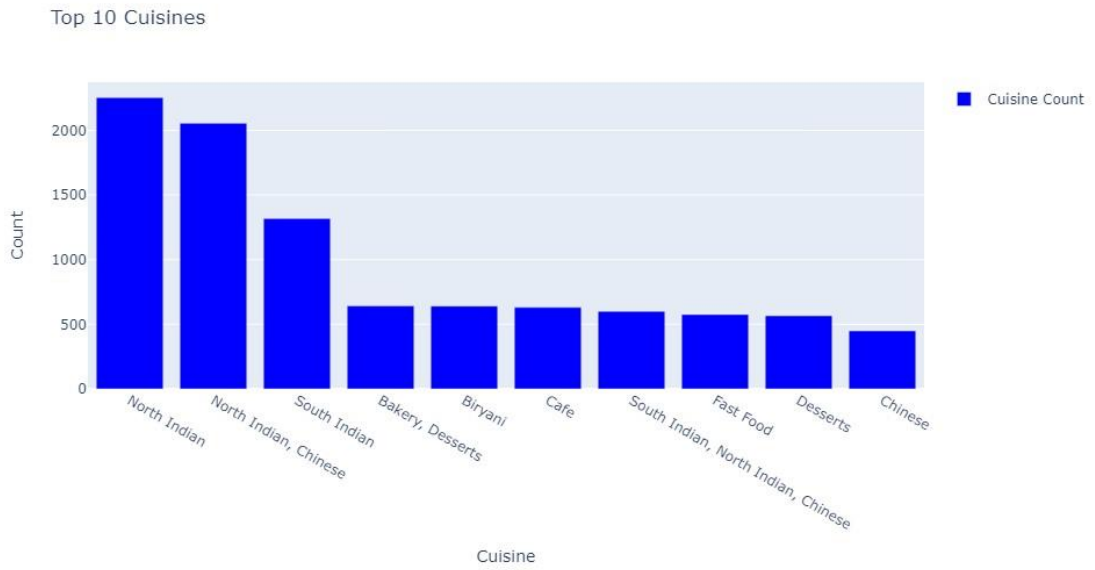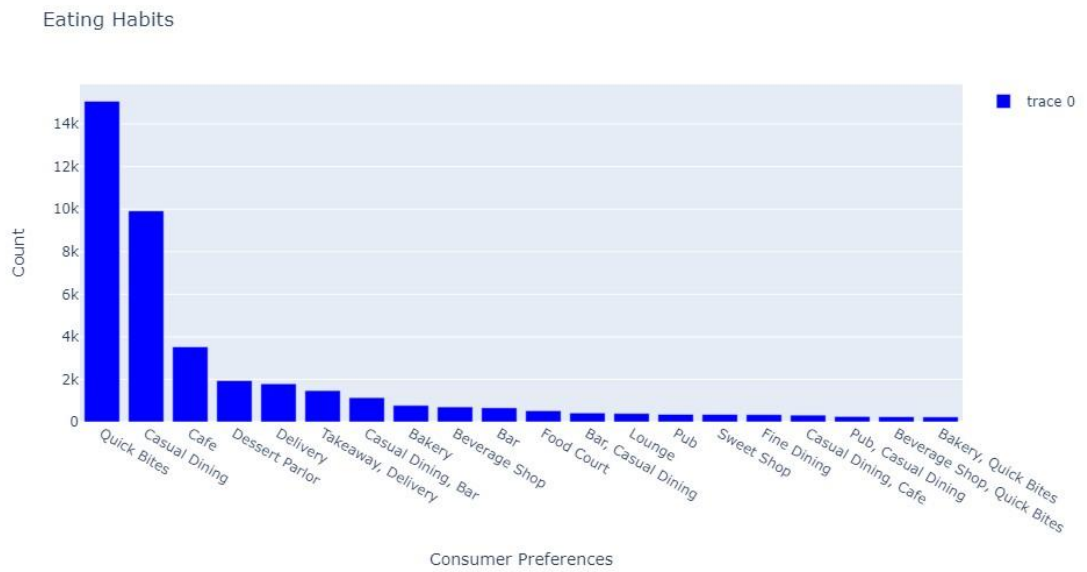
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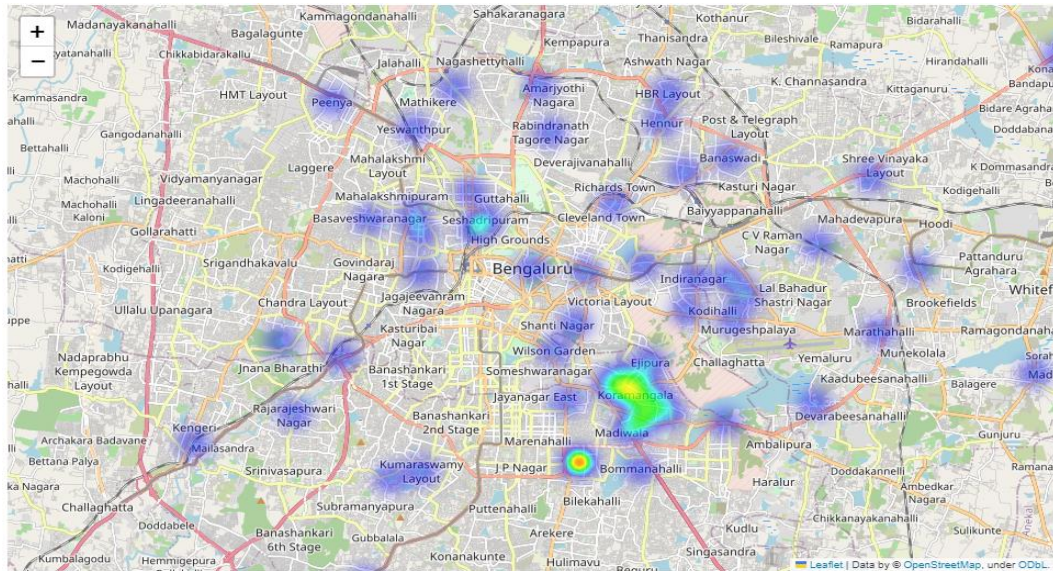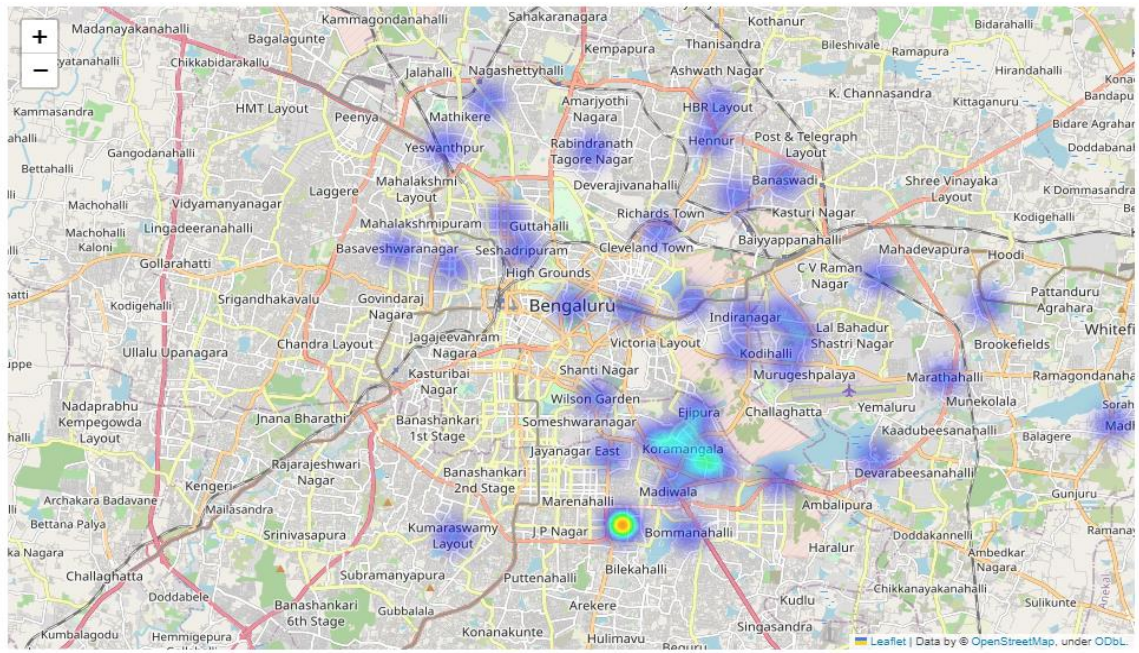
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Figure 12. Heat Map of Restaurants

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