

# **Analysis of the Popular Restuarants in Bangalore based on its Location and Mode of Delivery**

**Dr.Suneetha T B**

## **1. Introduction**

### **1.1 Background**

Bangalore is the capital and largest city of the Indian state of Karnataka. It is famous for traffic 24/7. With a population of over 13 million (as of 2020), Bangalore is the sixth largest city in India and the fastest changing city in the world. The diversity of the cuisine available is reflective of the social and economic diversity of Bangalore. Roadside vendors, tea stalls, South Indian, North Indian, Arabic food, Chinese and Western fast food are all very popular in the city. It also houses one of the largest vegetarian eating population. So as part of this project, I attempt to list down the various localities and the popular places in those localities. An attempt also will be made to indicate the demographic distribution in those localities as it could affect the choice of food, delivery and the ambience the local population would prefer. This analysis will be useful for connoisseur of food who are living elsewhere or intend to shift to Bangalore for their Livelihood and will be able to decide the locality they can explore basis their food preferences. The insights obtained from this analysis will also be relevant to existing restaurant owners and to the people planning for a new venture about the population that they are likely to cater along with their food preferences. This will help them to calculate the ROI (Return on Investment) and make informed business decisions

### **1.2 Problem**

The project aims to list and visualize all major localities of Bangalore City. This analysis will be useful for working professions, food lovers to choose the restaurant serving food of their choice and the mode of delivery. The ratings of people who visited will be a key component in deciding the quality of the food offered apart from the distance, the ambience and mode of delivery. The report also looks to the key parameters that entrepreneur who

intend to put up a restaurant would look for in a location

### **1.3 Questions addressed using this analysis**

- How popular is online ordering in Bangalore? Is there a relationship between ratings and online ordering option in restaurants?
- How many restaurants have option to book a table online? Is there a relationship between ratings and online booking table option in restaurants?
- Which restaurants have maximum number of venues across the city?
- Top 10 costliest restaurants in city and top 10 cheapest restaurants in city.
- Which location in Bangalore has the highest rated restaurants?
- Which type of restaurants is most popular in Bangalore?
- Maximum restaurants of which type are present in each location.
- Which location in city has maximum and minimum number of restaurants across the city?
- Top venues in each neighborhood/locality
- Which locations in Bangalore are similar in terms of nearby venues?

## **2. Data acquisition and cleaning**

### **2.1 Data sources**

For this project we used the following data:

- Bangalore Restaurants data that contains list Neighborhood, Restaurant name, Rating along with their latitude and longitude.  
Data source: [Kaggle Dataset](#)  
Description: This data set contains the required information. And we will use this data set to explore various locality of Bangalore city.
- Nearby places in each locality of Bangalore city.  
Data source: [Foursquare API](#)  
Description: By using this API, we will get all the venues in each neighborhood.
- Neighborhood coordinates of each locality of Bangalore city.  
Data source: Geocoder python

## **2.2 Feature selection**

After data cleaning, there were 51,717 samples and 17 features in the data. The data is obtained from the website of a provider. Upon examining, there were 30 different neighborhoods across the city and 6884 unique restaurants which have been analyzed in the project. The columns that have been chosen for analysis are: name, online\_order, book\_table, rate, location, cuisines, approx\_cost(for two people), listed\_in(type), listed\_in(city), rest\_type.

## **3. Exploratory Data Analysis**

### **3.1 Calculation of percentage of restaurants with feature of online ordering**

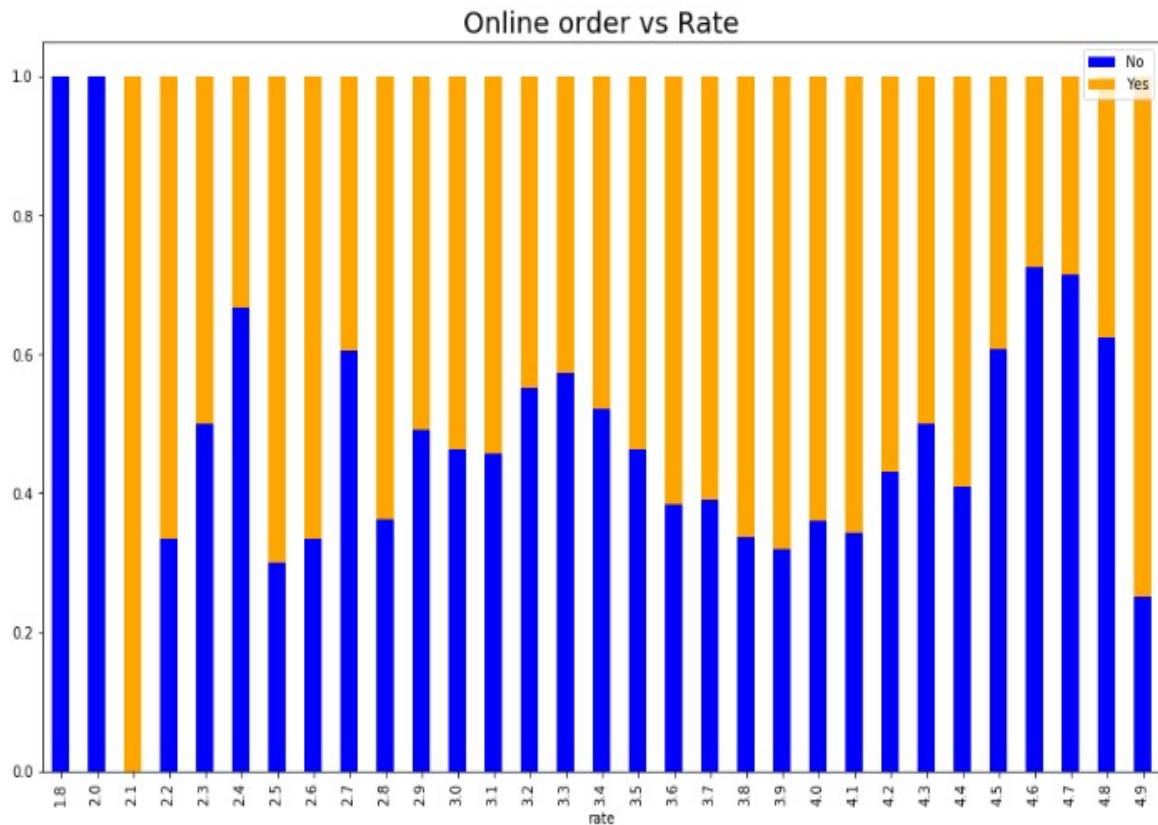
In these times where time is critical, the young and old prefer the online delivery of the food to the places of work or stay. Online service providers like Zomato and Swiggy only look at the delivery; however the choice of restaurant lies with the customer. However if the restaurant ties up with online food providers it will be an added advantage.



**Figure 1:** This concluded that 48 % of restaurants have Online ordering option available.

### **3.2 Relationship between online ordering and restaurant rating**

The general hypothesis is that online ordering option should positively affect rating of the restaurant positively. This gives the customer more options and the burden of the timely delivery (if the restaurant has a service provider) is significantly reduced on the restaurant owner.



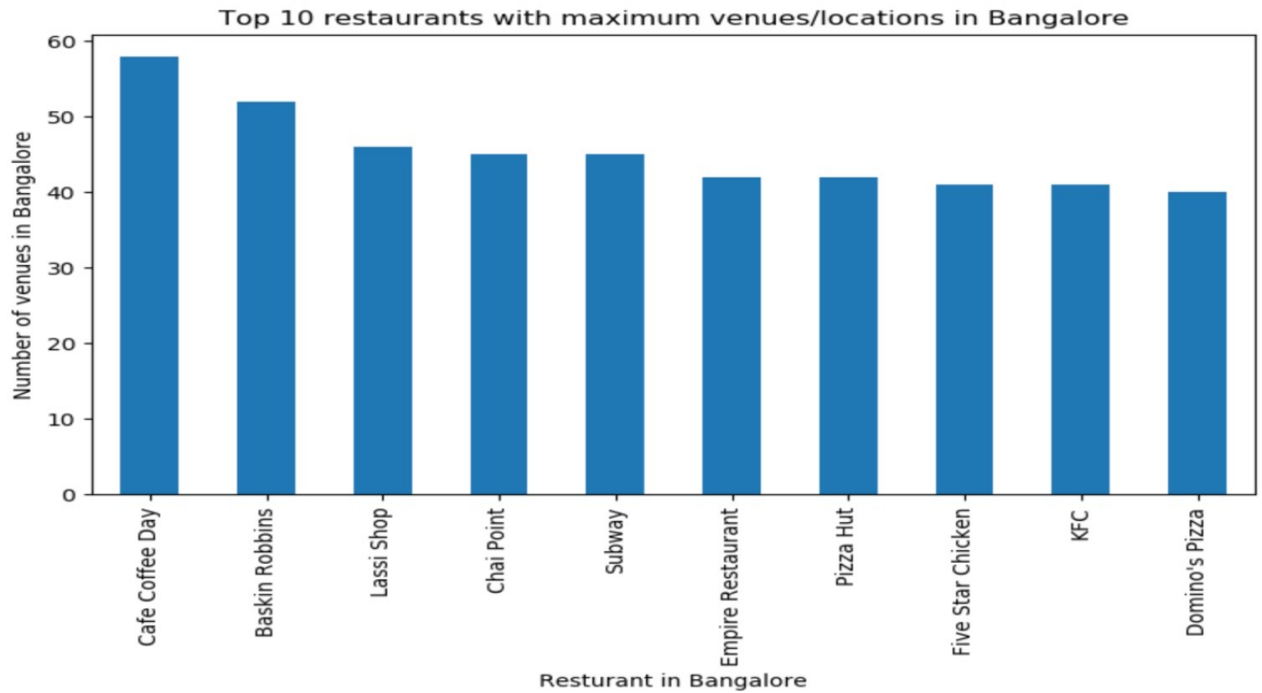
**Figure 2: Stacked bar chart showing Rating vs Online ordering**

From the plot (Figure 2), it is examined that the restaurant is likely to receive higher positive rating if it has online ordering option available.

### 3.3 Calculation of percentage of restaurants with feature of booking option

It was concluded that only 9.2% of restaurants have booking option available. Online booking option is supposed to make the customer experience better with reduced waiting time.

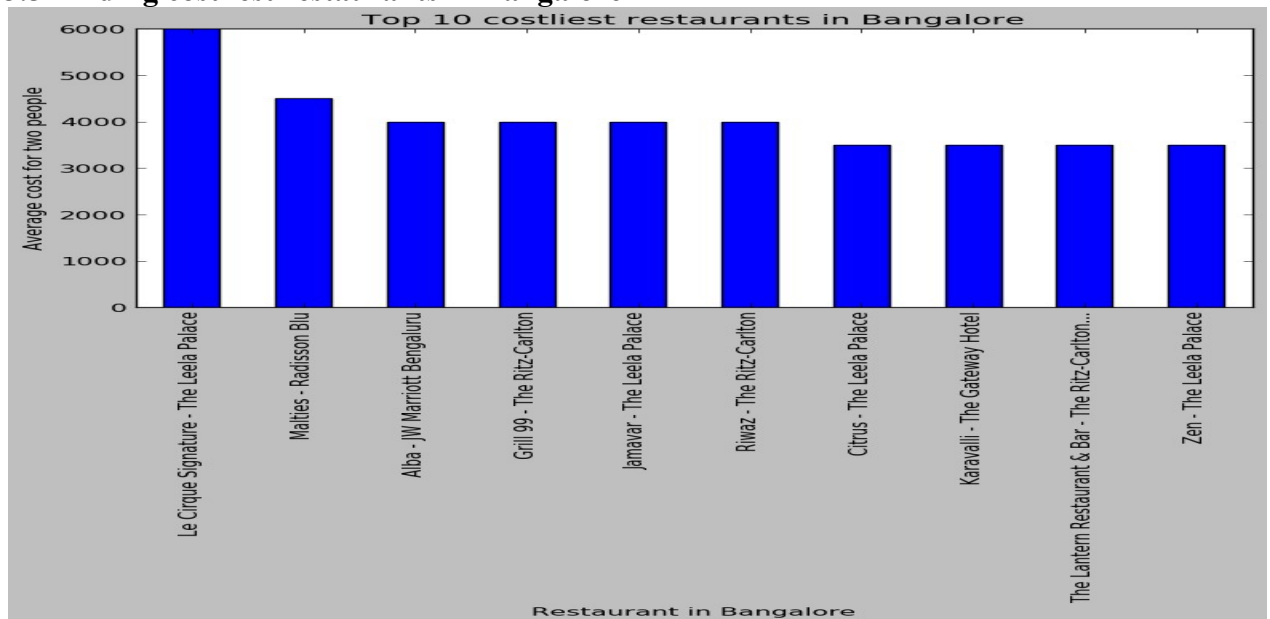
### 3.4 Finding most popular restaurants in Bangalore



**Figure 3: Topmost popular restaurants in Bangalore**

It can be concluded from Figure 5 that “**Café Coffee Day**” is most popular with more than 60 venues across the city followed by “**Baskin Robbins**. This also shows how an ambience helps in determining the popularity of the restaurant. Both the top restaurants not only offers eateries but also promotes meetings both professional and personal in nature

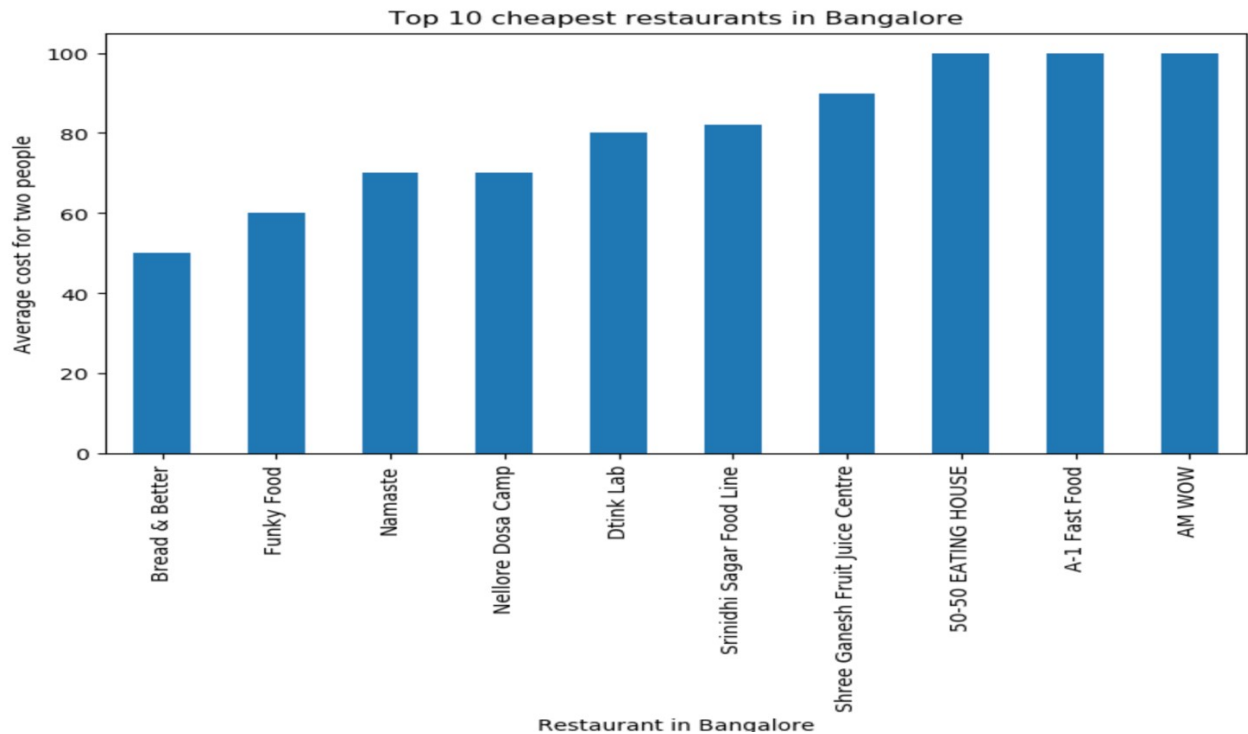
### 3.5 Finding costliest restaurants in Bangalore



**Figure 4: Topmost costliest restaurants in Bangalore**

It can be concluded from Figure 4 that “**The Leela Palace**” is costliest with more than 6000 cost across the city followed by “**Radisson Blue**”. Given the locality and the nature of visitors and the purpose they serve this is a well recognized feature

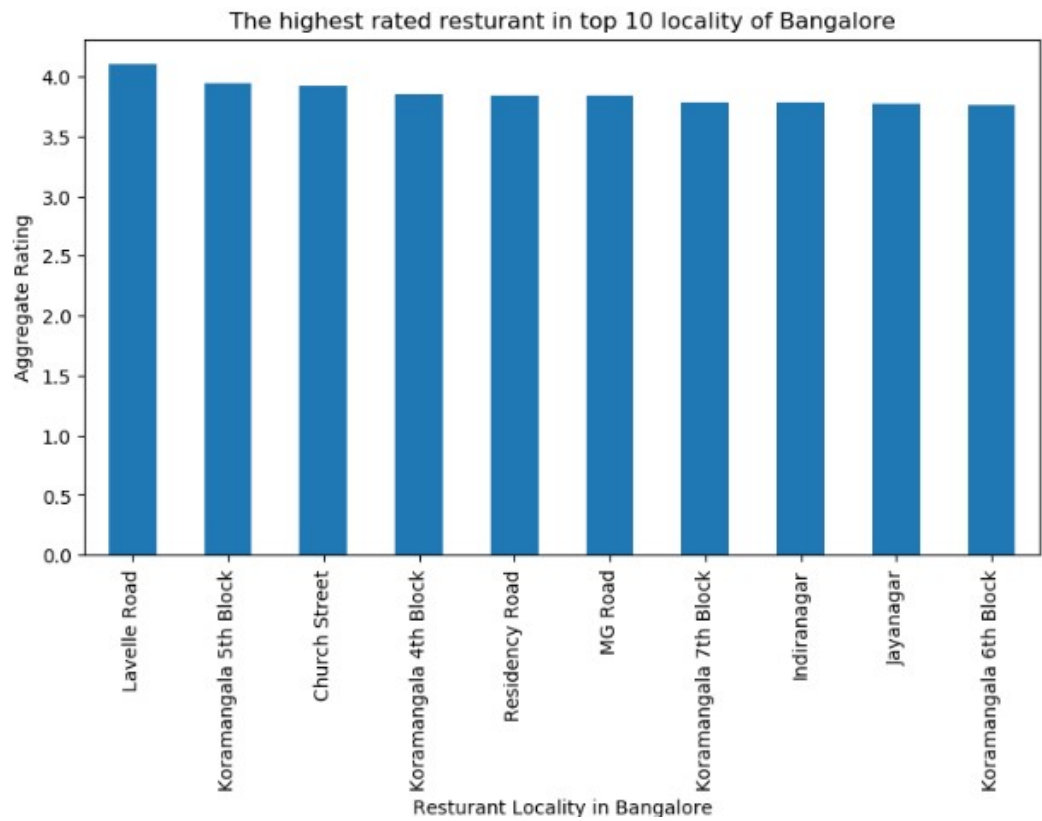
### 3.6 Finding cheapest restaurants in Bangalore



**Figure 5: Topmost cheapest restaurants in Bangalore**

It can be concluded from Figure 5 that “**Bread & Better**” is cheapest across the city followed by “**Funky Food**”. However, there is a difference of 30% percent in cost between Bread and Better and Funky Food. This could be an important input for Funky Food as they would be eyeing for similar kind of food

### 3.6 Finding the locality with highest rated restaurants in Bangalore

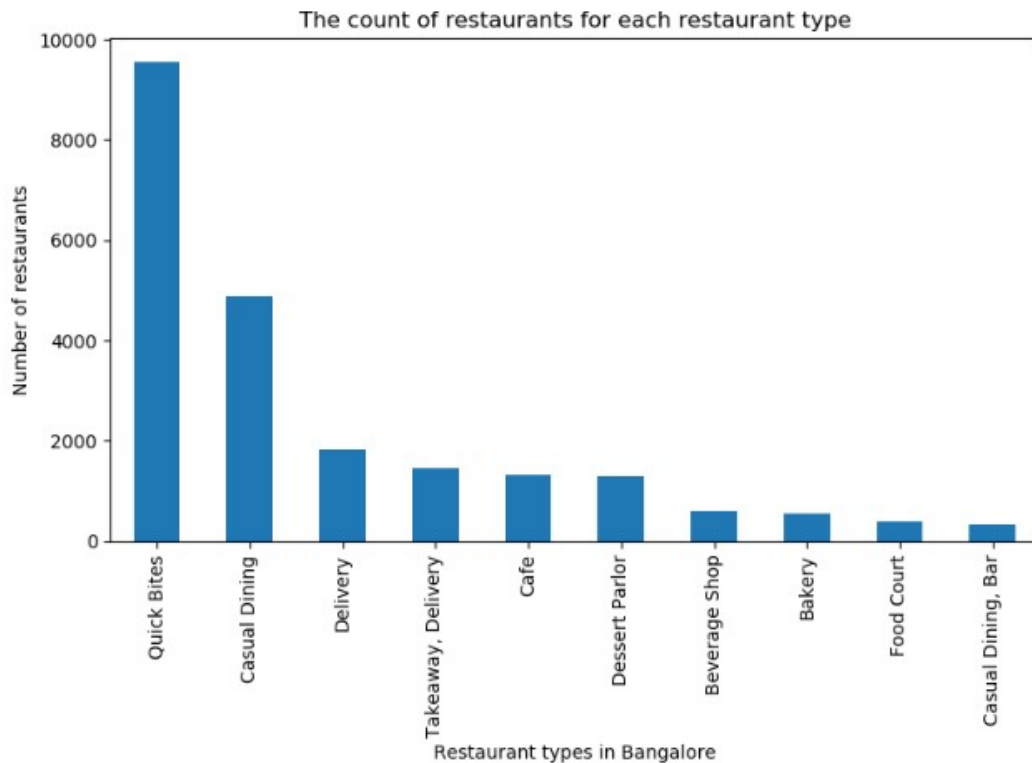


**Figure 6: Localities with the highest rated restaurants in Bangalore.**

It can be concluded from Figure 6 that “**Lavelle Road**” has highest rated restaurants across city.

### **3.7 Finding the most popular restaurant type in Bangalore**

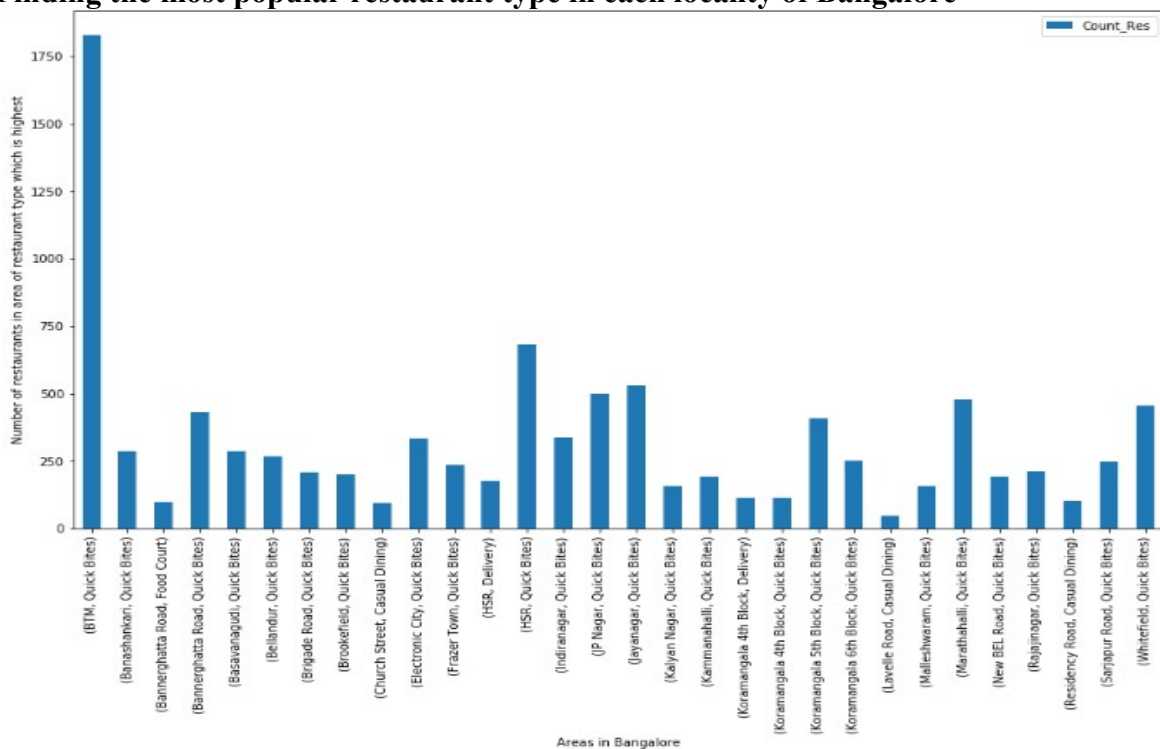




**Figure 7: Restaurant types in Bangalore**

It can be concluded from Figure 7 that “**Quick Bites**” type of restaurants is the most popular followed by “**Casual Dining**”. Also “**Desert Serving**” places are more than “**Bars**” in the city.

### 3.8 Finding the most popular restaurant type in each locality of Bangalore



**Figure 8: Popular Restaurant types across locations in Bangalore**

The results are quite evident “BTM Layout” has most number of restaurants. Given the demographics of business, software parks and popular colleges the business on offer is higher and hence u find a large count of restaurants.

### 3 Segmentation and Clustering

Clustering methods are used to identify groups of similar objects in a multivariate data set. We use partitioning segmentation technique by using k means clustering to divide similar neighborhoods and create clusters.

Using Foursquare API, we find the nearby venues for each location/neighborhood. We get the common venues around each locality and top 10 venues for each locality.

	Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
0	BTM	Bakery	Snack Place	Indian Restaurant	Ice Cream Shop	Chinese Restaurant	Department Store	Café	Shopping Mall	Fast Food Restaurant	Coffee Shop
1	Banashankari	Indian Restaurant	Liquor Store	Metro Station	Southern / Soul Food Restaurant	Hookah Bar	Gym / Fitness Center	Cosmetics Shop	Cricket Ground	Cupcake Shop	Deli / Bodega
2	Basavanagudi	Indian Restaurant	Restaurant	Tea Room	Café	Snack Place	Mediterranean Restaurant	Metro Station	Convenience Store	Athletics & Sports	Hookah Bar
3	Bellandur	Indian Restaurant	Sandwich Place	Capitol Building	Restaurant	Park	Hotel	Gym / Fitness Center	Gym	Convenience Store	Cosmetics Shop
4	Brigade Road	Indian Restaurant	Café	Pub	Lounge	Bar	Chinese Restaurant	Coffee Shop	Hotel	Bookstore	Clothing Store
5	Brookefield	Indian Restaurant	Fast Food Restaurant	Bakery	Ice Cream Shop	Department Store	Dessert Shop	Multiplex	Salon / Barbershop	Burger Joint	Breakfast Spot
6	Church Street	Indian Restaurant	Fast Food Restaurant	Food Truck	Grocery Store	Dessert Shop	Karnataka Restaurant	Cupcake Shop	Deli / Bodega	Department Store	Cricket Ground
7	Electronic City	Indian Restaurant	Sandwich Place	Capitol Building	Restaurant	Park	Hotel	Gym / Fitness Center	Gym	Convenience Store	Cosmetics Shop
8	Frazer Town	Indian Restaurant	Ice Cream Shop	Middle Eastern Restaurant	Tea Room	Fast Food Restaurant	Pizza Place	Seafood Restaurant	Snack Place	Chinese Restaurant	BBQ Joint
9	HSR	Indian Restaurant	Café	Snack Place	Burger Joint	Seafood Restaurant	Bus Station	Maharashtrian Restaurant	Liquor Store	South Indian Restaurant	Pub
10	Indiranagar	Pub	Lounge	Indian Restaurant	Cupcake Shop	Café	Cocktail Bar	Bakery	Restaurant	Italian Restaurant	Ice Cream Shop
11	JP Nagar	Department Store	Indian Restaurant	Fast Food Restaurant	Boarding House	Bakery	Brewery	Dessert Shop	Diner	Financial or Legal	Deli / Bodega

**Figure 9 Top venues around each neighborhood:**

We run k means clustering to identify different localities which have similar venues nearby which are visualized in the below Figure 9. No surprises that BTM has a diversified venue list owing to the population in the said locality.





## Cluster 1

Diners are the most recommended venues near these locations.

	Clus_km	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
14	1	Food Truck	Women's Store	Fast Food Restaurant	Convenience Store	Cosmetics Shop	Cricket Ground	Cupcake Shop	Deli / Bodega	Department Store	Dessert Shop

## Cluster 2

	Clus_km	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
24	2	Gastropub	Park	Spa	Bookstore	Dessert Shop	Eastern European Restaurant	Dumpling Restaurant	Donut Shop	Diner	Women's Store

Cafes are the most recommended venues near these locations.

## Cluster 3

Sports Bar are the most recommended venues near these locations

	Clus_km	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
0	3	Bakery	Snack Place	Indian Restaurant	Ice Cream Shop	Chinese Restaurant	Department Store	Café	Shopping Mall	Fast Food Restaurant	Coffee Shop
4	3	Indian Restaurant	Café	Pub	Lounge	Bar	Chinese Restaurant	Coffee Shop	Hotel	Bookstore	Clothing Store
10	3	Pub	Lounge	Indian Restaurant	Cupcake Shop	Café	Cocktail Bar	Bakery	Restaurant	Italian Restaurant	Ice Cream Shop
13	3	Indian Restaurant	Fast Food Restaurant	BBQ Joint	Ice Cream Shop	Café	Korean Restaurant	Restaurant	Coffee Shop	Electronics Store	Lounge
15	3	Indian Restaurant	Clothing Store	Italian Restaurant	Café	Bar	Coffee Shop	Chinese Restaurant	Pizza Place	Hyderabadi Restaurant	Ice Cream Shop
16	3	Ice Cream Shop	Indian Restaurant	Plaza	Pub	Breakfast Spot	Art Gallery	Brewery	Bubble Tea Shop	Burger Joint	Chinese Restaurant
25	3	Bakery	Eastern European Restaurant	Hotel Bar	Hotel	Kerala Restaurant	Gym / Fitness Center	Café	Department Store	Diner	Dumpling Restaurant

On close watch these areas the most happening places in Bangalore which include Brigade and MG Road. These areas see lot of public movement especially during the weekend or in the late evenings .The crowd probably would belong to techies, businessmen and the urban rich who would prefer some fitness along with cold beverages. Hence Sports Bar finds a great utility in these areas. However there are good number of such outlets located in these areas

## Cluster 4

		1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
3	4	Indian Restaurant	Sandwich Place	Capitol Building	Restaurant	Park	Hotel	Gym / Fitness Center	Gym	Convenience Store	Cosmetics Shop
7	4	Indian Restaurant	Sandwich Place	Capitol Building	Restaurant	Park	Hotel	Gym / Fitness Center	Gym	Convenience Store	Cosmetics Shop

Indian Restaurants and Cafes are the most recommended venues near these locations

## 4 Results and Discussions

Our analysis shows that there are huge number of restaurants in Bangalore and food culture is very prominent across different locations/neighborhoods of Bangalore. Analysing the online ordering option availabilty for restaurants across Bangalore, we realised that there are 48% restaurants which have online delivery available through Zomato. Next, we decided to seek a relationship between the availability of delivery option and rating of the restaurant. It was observed that the restaurant with online delivery option is likely to get a higher user rating.

Next, analysing the booking table option through Zomato app, we found that 9.2% out of total have a booking option available. Further, there is a positive correlation between the booking option and the restaurant rating. This insight can be utilised by the restaurant owners that if they keep the booking table option on the app, they will get better ratings due to better customer experience with reduced waiting time.

Next, we analyzed the restaurant chains with maximum venues across Bangalore. Out of which Cafe Coffee Day had close to 60 venues across the city being the highest, followed by Baskin Robbins. Further it was seen that there are three strata's of distribution. Then three restaurant chain Lassi Corner, Subway, Chai Point have similar number of venues. Also they are similar kind of centers which houses similar kind of gathering and also serve more on the chat side. This could be important information when any investor would like to set up a restaurant. This insight can be utilized by people who want to invest and open a currently established food chain and see the popularity.

Next, cost for two people was analyzed across the restaurants. The Lela Palace was the costliest with cost of around 6000 Rupees for two people, followed by Raddison Blue with 5500 and JW Marriott with 4000 cost. The cheapest were analyzed with the lowest being Bread and Better and Funky Food .However there is a difference of 30% percent in cost between Bread and Better and Funky Food. This could be an important input for Funky Food as they would be eying for similar kind of food

Next, analysis was done to identify neighborhoods with the highest rated restaurants in the city. Lavelle Road topped the list having highest rated restaurants in Bangalore and can be a go-to option for foodies to explore the highest rated restaurants. This is understandable as this locality lies in the heart of the city and is surrounded by an Urban Population with Higher income. Also many government offices and Corporate offices lies around this place and hence it is makes sense to own restaurants in this location to serve offline and online

Next, analysis was done to identify the restaurant type which is most popular across Bangalore. Quick Bites types of restaurants were most in number, followed by casual dining. Also Desert serving places were more than bars across the city.

Next, analysis was done for all neighborhoods to identify the most popular restaurant type in each area. It was found out that Korma gala have maximum delivery options available compared to other restaurants in the area. This is a useful insight for foodies for them to decide their living place basis the popularity of restaurant types available nearby.

Also, it was found out the places with the maximum restaurants in the city which was BTM Layout. This is expected as BTM is majorly occupied by bachelors and primarily are techies serving across Electronic City and Marathalliand hence the largest number of eating joints. On the other hand, minimum restaurants in city were in Lavelle Road.

After this, the city was divided into clusters basis the nearby venues in the locality/neighborhood through k-means clustering. We found that there were similar neighborhoods which could be clustered together basis the nearby venues. The result was that the city was divided into five clusters. Cluster 0 as Indian Restaurants and Gym/fitness centers. The areas in this cluster are Banashankari and Basvangudi. These localities have given us some of the most prolific sportsmen and women which include cricketers, swimmers etc. Also this area houses some of the most traditional South Indian restaurants in Bangalore.

Cluster 1 and Cluster 2 doesn't not any valuable insight, Cluster 3 indicates that the sports bar would be the most popular in these areas. On close watch these areas the most happening places in Bangalore which include Brigade and MG Road. These areas see lot of public movement especially during the weekend or in the late evening's .The crowd probably would

belong to techies, businessmen and the urban rich who would prefer some fitness along with cold beverages. Hence Sports Bar finds a great utility in these areas. However, there are good numbers of such outlets located in these areas. Cluster 4 has Cafes and Indian Restaurants in areas like Bellandur and Electronic City. The number of software companies located in these areas is on the higher side and hence the distribution across these areas makes a lot of sense.

## **5 Conclusion**

Purpose of this project was to analyse the restaurants in different neighborhoods across the city. This analysis is useful for foodies to decide the places they can visit based on their budget and preferences, locations where there are highest rated restaurants, locations with popular online delivery options and so on. The relationship between online ordering and booking table options on Zomato app with the restaurant ratings was identified and can be utilised by restaurant owners for better customer experience. The clustering exercise done in the project is useful for the foodies who are living or shifting to Bangalore to decide the neighborhoods to explore and also to the stakeholders who want to open a new restaurant chain or invest in an established food chain based on their popularity.

The report also gives a lot of insights into the type of population distribution of the people who prefer to eat at restaurants or spend quality time in these popular eateries not only for the purpose of consuming food but also for social gatherings.

Also, this report gives a brief idea for people who are willing to invest in hotels and restaurants. The kind of population who visit the restaurants will give them the idea of the preferences of food and mode of delivery.