Capstone Project

Italian Restaurant for Bangalore

Poornachandra Upadhya

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1. Introduction

1.1 Background

My audience is a reputed Hotel group based out of Italy.

1.2 Problem Statement

The Italian Hotel Group is currently considering opening an Italian Restaurant in Bangalore, KA, India. The group wants to find out suitable locations in Bangalore for establishing the restaurant. It also wants to find out nearby restaurants that may offer competition to them with respect to Italian cuisine. In addition, the group would like to know the strengths of their main local competitor.

2. Data Section

2.1 Data Sources

I will be using two sources for the data:

1. **Zomato**: Data obtained from Indian multinational restaurant aggregator and food delivery company Zomato. Since Zomato has restricted API access recently, I will be using Zomato.csv obtained from the following link 'https://www.kaggle.com/shrutimehta/zomato-restaurants-data?select=zomato.csv'. This data would be used to identify top locations with restaurants within Bangalore. We will also utilize K-Means clustering to plot the restaurant clusters. Further, the top locations would be analyzed using bar plots and wordcloud to identify the location best suited for establishing Italian Restaurant and the current best Italian restaurant in the locality.
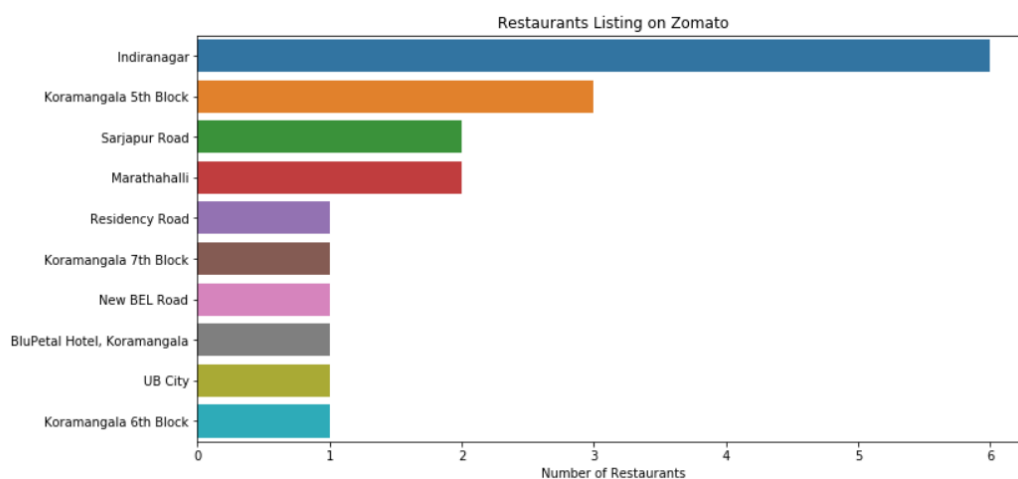
2. **Foursquare**: Next, I will be using Foursquare data to identify the reasons why the current best Italian restaurant in the locality is best known for. Some analysis will also be done on the Top tip contributor to further validate his/her credentials. The Foursquare location data will also be used to identify any other competition in terms of Italian cuisine and plotted on a map using Folium.
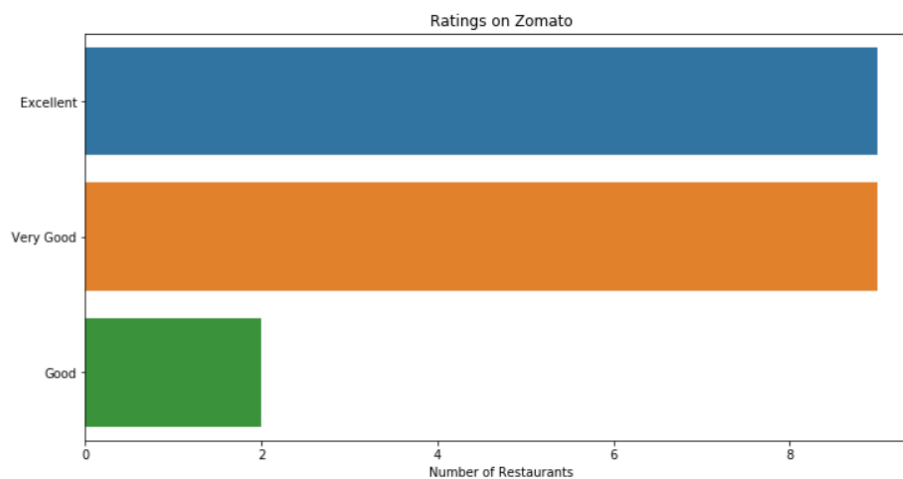
3. Data Analysis

3.1 Exploratory Analysis

The Zomato database has 9551 rows and 21 columns. This database had data pertaining to multiple countries and their cities. From this database, we extracted rows belonging to Bangalore city and converted that to a table. This table had 20 rows and 21 columns. No null values were noted in the Bangalore dataframe.
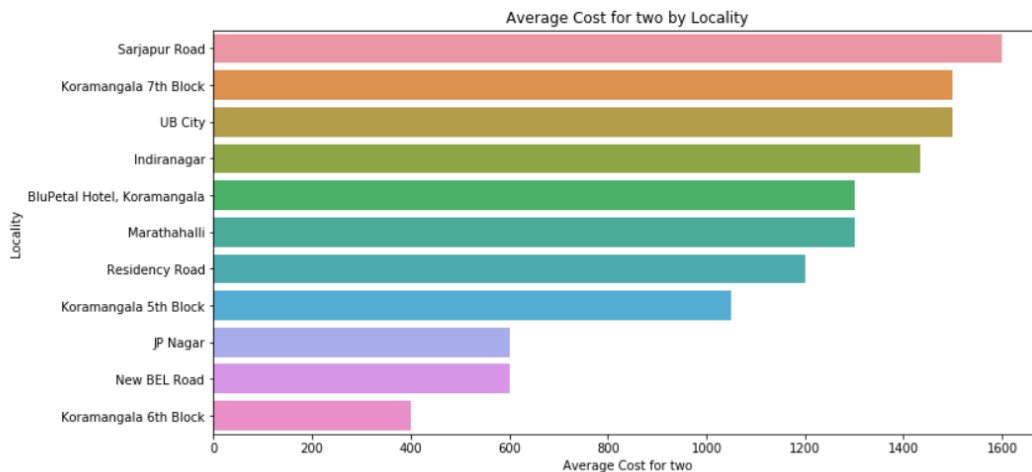
3.2 Analysis of Restaurants in Bangalore

It is observed in the above analysis that Indiranagar has 6 restaurants followed by Koramangala 5th Block with 3, and then Sarjapur Road and Marathahalli coming a joint third with 2 restaurants each.

Nine restaurants have an Excellent Rating.

Nine restaurants have a Very Good Rating.

Two restaurants have a Good rating.

As can be seen in the above two analysis, Sarjapur Road has the costliest Average Cost for Two, followed by Koramangala 7th Block and UB City; however, the above 3 locations have hardly 1 or 2 restaurants. Whereas Indiranagar locality which had 6 restaurants stands at a commendable 4th position. Hence, I would state that Indiranagar location is clearly a foodie's delight and customers appear to be okay to pay a premium of the overall food experience.

I will now have to check if Indiranagar locality prefers Italian cuisine.

It can be seen in the above wordcloud that Pizza, italian are standing out. So clearly the customers of Indiranagar have a palate for Italian cuisine.

Now lets explore Indiranagar locality a bit further.

3.3 Analysis of Competition

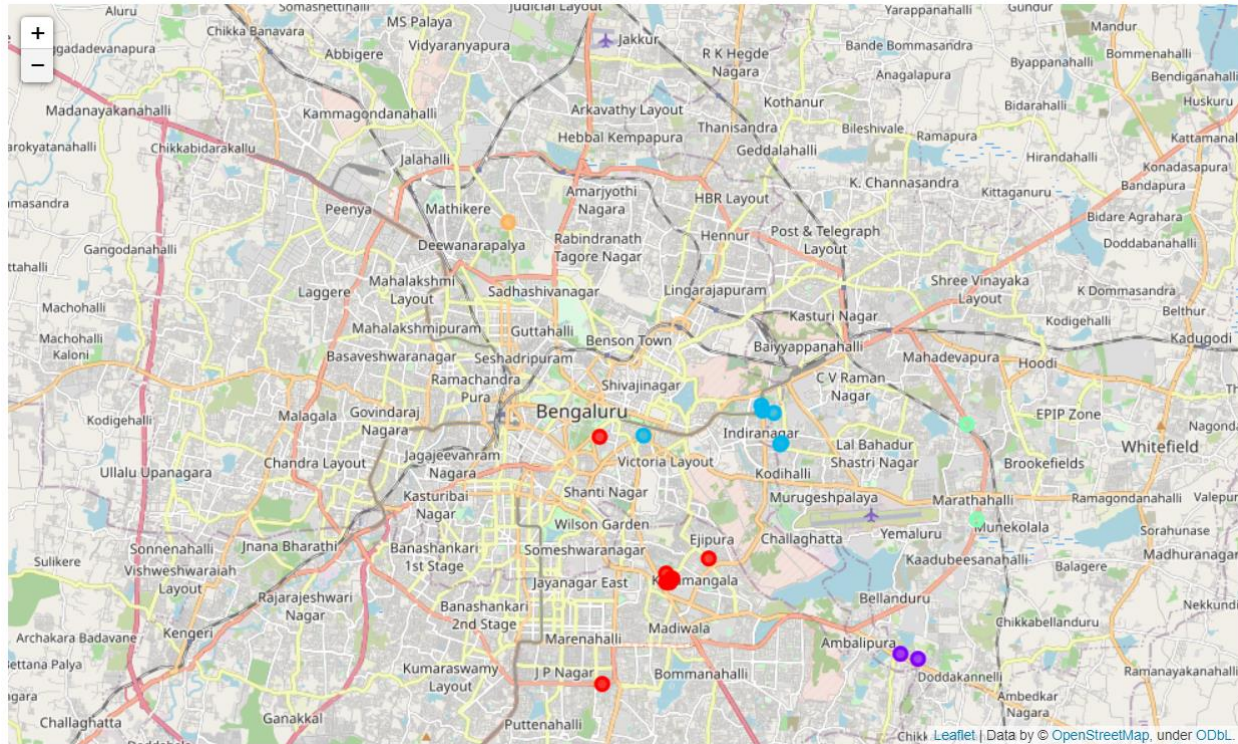|	index	Cuisines
0	Asian	1
1	Bakery, Desserts, Cafe	1
2	Pizza, Cafe, Italian	1
3	Modern Indian	1
4	Italian, American, Pizza	1

It is seen that there are at least two restaurants that serve Italian food.

Let us have a lcoser look at the restaurants of Indiranagar.

	Restaurant Name	Address	Longitude	Latitude	Cuisines	Average Cost for two	Aggregate rating	Rating text
727	The Fatty Bao - Asian Gastro Bar	610, 3rd Floor, 12th Main, Off 80 Feet Road, Indiranagar, Bangalore	77.645396	12.970221	Asian	2400	4.7	Excellent
728	Toit	298, Namma Metro Pillar 62, 100 Feet Road, Indiranagar, Bangalore	77.640709	12.979166	Italian, American, Pizza	2000	4.8	Excellent
729	Three Dots & A Dash	840/1,100 Feet Road, Metro Pillar 56-57, Indiranagar, Bangalore	77.640489	12.980410	European, Continental	1300	3.9	Good
730	Bombay Brasserie	2989/B, 12th Main Road, HAL 2nd Stage, Indiranagar, Bangalore	77.645748	12.970324	Modern Indian	1500	4.2	Very Good
731	Glen's Bakehouse	297, 100 Feet Road, Indiranagar, Bangalore	77.640625	12.979096	Bakery, Desserts, Cafe	800	4.0	Very Good
732	Onesta	501, Binnamangala Extension, 1st stage, C.M.H Road, Indiranagar, Bangalore	77.643685	12.978453	Pizza, Cafe, Italian	600	4.3	Very Good

It can be see that the restaurant **Toit** is the best Italian restaurant with Aggregate rating of 4.8 and Average Cost for two at 2000 rupeees.

I will now use K-Means algorithm to divide restaurants of Bangalore into 5 clusters
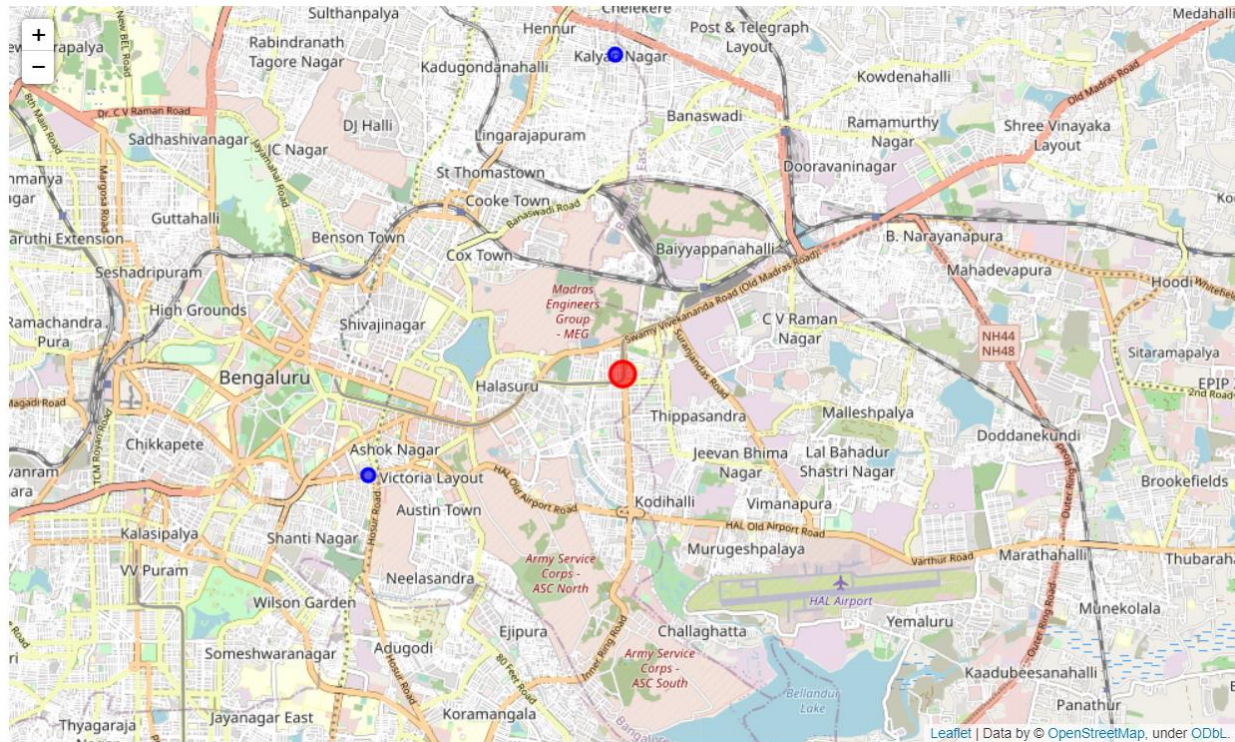
For checking other Italian restaurants around **Toit** and Indiranagar in particular, to guage competition with respect to Italian cuisine, I used my **Foursquare** credentials.

I validated Longitude and Latitude of Toit on Foursquare to see if it manages that shown in Zomato.

I then performed my search query on **Foursquare** to check for other Italian restaurants in and around Indiranagar locality. I performed the search for a range of 5 kilometers or 5000 meters around **Toit**, which is situated in Indiranagar.

I then transformed the venues to a dataframe. The expanded search yielded 13 rows and 15 columns.

All in all, 3 Italian restaurants were observed in Indiranagar. I tried visualizing them on a map of Bangalore.

In the above map, the red dot represents our reference Italian restaurant **Toit**. The blue dots represent other Italian restaurants. It can be seen that both the restaurants are 4-5 kms away from **Toit**.

Again using Foursquare, I got rating of Troit. Troit had an excellent rating of 8.3. Next, I checked how many tips (reviews) Troit had got.

Troit had gotten 344 trips(reviews) so far. Let us see the review of Troit on Foursquare, with maximum agrees.

From the review it was clear that the restaurant is always packed, and the cuisine is well appreciated by patrons.

3.4 Validation of the user

Using the user id provided, I fetched the user's profile picture from Foursquare. I then went through other tips(reviews) provided by the user.

0	Apart from the usual, chicken puff pastry and hot chocolate	0	0	5746215a498e3657594481cf
1	Not to be missed.	0	0	574620fb498e072f7a32fc98
2	Authentic experience. Amazingly talented guitarist, singer and flamenco dancer.	1	0	574620b1498e8f330beb2148
3	Great service and advice by Azjit	0	0	57462025498e56b79fd66640
4	Chicken and Prawn Sukka are both fantastic	4	0	534cfbd0498e7b69ab1a8f95
5	Tried a few dishes and liked the veg club sandwich in terms of both taste and portion.	1	0	53021d50498e2b04bcb651e0
6	Drinks + food + ambience + service = excellent. Also the kind of place where you can leave it all up to the bartender. Tried & loved the Foghorn & chicken skewers. Great live music on some nights too	9	0	53021c8a498ec085e405da4c
7	The place has a cozy ambience & seems to have a varied menu covering Nepalese, Tibetan & Bhutanese cuisines. Everything we tried was delicious - especially loved the momos and dry chilli chicken.	6	0	53021aa4498ec085e405cdf4
8	Can't go wrong with a slice of double decadence.	2	0	5301e45e498eb13ce1e85ff5
9	Bar with a gorgeous beach view. Great service and average food.	2	0	5299cc8c11d221b95e49f02f
10	Ask for Aliza - she's straightforward about cuts/colors/styles and great with haircuts. The place is slightly tricky to find & parking depends on whether its your lucky day or not :) Reasonable prices	0	0	528decf1498e1a6fcf83b0bf
11	Quiz nights on Tuesdays are a lot of fun. The place also offers free WIFI. Service is just about OK.	2	0	528bc3d9498e587278e1eec7
12	Come in for the quiz on Monday nights. It's tough, fun and all contestants get a 30% off the total bill.	3	0	5265506f11d2eea3991f9832
13	The grilled chicken stuffed with sausage and scamorza was superb! Banofee pie to die for.	1	0	520b5ad811d213cc7c57fd22
14	Artist/Owner Bijoy's superbly talented and comes up with some amazing designs - his own and around your tattoo ideas as well. He's patient, friendly, does good work and charges reasonably.	2	0	51bc4753498e44f44ee934b0

The tip(review) in row with index 6, has 9 agreements from other users. I explored that restaurant for which the user had given the review on Foursquare. This will help us validate if the user indeed has exquisite taste in cuisine.

The restaurant turned out to be one **"Fábrica dos Pastéis de Belém"** based out of Lisbon, Portugal. Let us check it's overall ratings on Foursquare.

The restaurant **"Fábrica dos Pastéis de Belém"** had an excellent rating of 8.6.
Clearly, the user had an exquisite taste in European cuisine and her assessment/reviews could be definitely relied upon.

4. Results Section

In this section, we will answer all questions posted by our audience, **"The Italian Hotel Group"**, in the problem section 1, i.e Introduction / Business Problem.

1. What are the suitable locations in Bangalore for establishing an Italian Restaurant ?
As shown in section 3.e.3 Average Cost for Two by Locality, Sarjpur Road has the costliest Average Cost for Two, followed by Koramangala 7th Block and UB City; however, as seen in section 3.e.1, the above 3 locations have hardly 1 or 2 restaurants. Whereas Indiranagar locality which had 6 restaurants stands at a commendable 4th position. Hence, I would state that **Indiranagar** location is clearly a foodie's delight and customers appear to be okay to pay a premium of the overall food experience.

2. What are those nearby Italian restaurants that may offer competition to "The Italian Hotel Group" with respect to Italian cuisine ?

The Italian restaurant Troit, at Indiranagar, has an excellent rating of 8.3.

There are other 2 restaurants shown as blue dots in the map, which are considerably far off from Troit, shown as the big red dot in the map, at 4-5 Kms distance, which practically indicates that those restaurants are outside the limits of Indiranagar.

Hence, if the Italian Hotel Group were to establish their Italian restaurant at Indiranagar, Troit would be their only competition.

3. What are the strengths of the main competitor in the suggested location ?

As answered in the previous, Troit is the only main competitor.

The strengths of Troit are that the restaurant is always packed, and the cuisine is well appreciated by patrons. The tip(review) highlighting these strengths has infact received 26 agrees from other customers as well.

5. Discussion Section

As can seen in the previous section, all queries posed by the intended audience has been answered. In this section, I shall discuss other points that merit our attention.

You may have noted that we relied on Zomato as a data source. Unfortunately, Zomato has of late restricted API access to its data. Hence, we had to rely on the Zomato data obtained from the Kaggle link shared in the Data Section. Though the data seems a bit dated, considering the fact that the world has seen covid for nearly 1.5 years now, it is unlikely that there may have been significant change in the data in terms of increase of restaurants as the Hotel Industry has been badly hit by covid. Will the situation remain the same post covid is something to be analyzed another day in future. It may also help Zomato if they lifted the current API restrictions, that way it could be a win-win situation for all concerned

In the data analysis section, I have explained the logic why Indiranagar was chosen to be the location based on the cost and number of restaurants. Indiranagar, as such, is a trendy area frequented by the young, bold and beautiful of Bangalore. However, Sarjapur and some blocks of Koramangala are growing very fast. Hence, it would also be good if someone validates the

hypothesis that Sarjapur and Koramangala are the best bets, say, 5-10 years from now.

While all the queries posed by the audience have been answered, it would also be worth analyzing in detail if Italian Restaurants can remain profitable in the long term, and also what cuisine customization, based on local tastes, needs to be done to attract more footfalls into the restaurant.

6. Conclusions

In conclusion, it can be said that, based on the data available currently, The Italian Hotel Group may consider opening their Italian Restaurant at Indiranagar, Bangalore. Indiranagar definitely has a steady stream of trendy crowd who love Italian cuisine and wouldn't mind paying even a premium. There is not a lot of competition in that locality. The lone competitor in that location, "Troit", is currently minting money due to excellent service, and given the demand, it is unlikely that Troit would impact profits of Italian Hotel Group should they decide to open a restaurant in Indiranagar.