

Analysis

Ideal Location to Launch an Ice Cream Shop

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A. Introduction: Business Problem

In this project we will be trying to find an optimal place to open a new ice cream shop. We will be focusing on the famous localities of the city of **Bangalore, India** to find the best place.

Our study will be based upon the thumb rule that ice cream is most popular among kids and youngsters compare to other age groups. Considering the same, we will try to find out which locality of Bangalore is the best combination of maximum number of schools and least number of ice cream shops (certainly to avoid the competition and make most profit).

Later part we will also try to find the best match with respect to the land price, and check if the obtained result is also falling in your budget.

This study can be used by any budding business man, who wants to open a new ice cream outlet in the city.

B. Data

Based upon the requirement we will be using below data sources for fetching our data:

- For fetching the location information of Bangalore city and neighborhood areas we will be using **geopy** library
- For fetching the neighborhoods in the city we will be using data from **Citizen Matters** website

- For fetching the number of schools and number of ice cream shops we will be using **Foursquare API**
- For comparing the results with the commercial shop rate we will be using data from **Citizen Matters** website

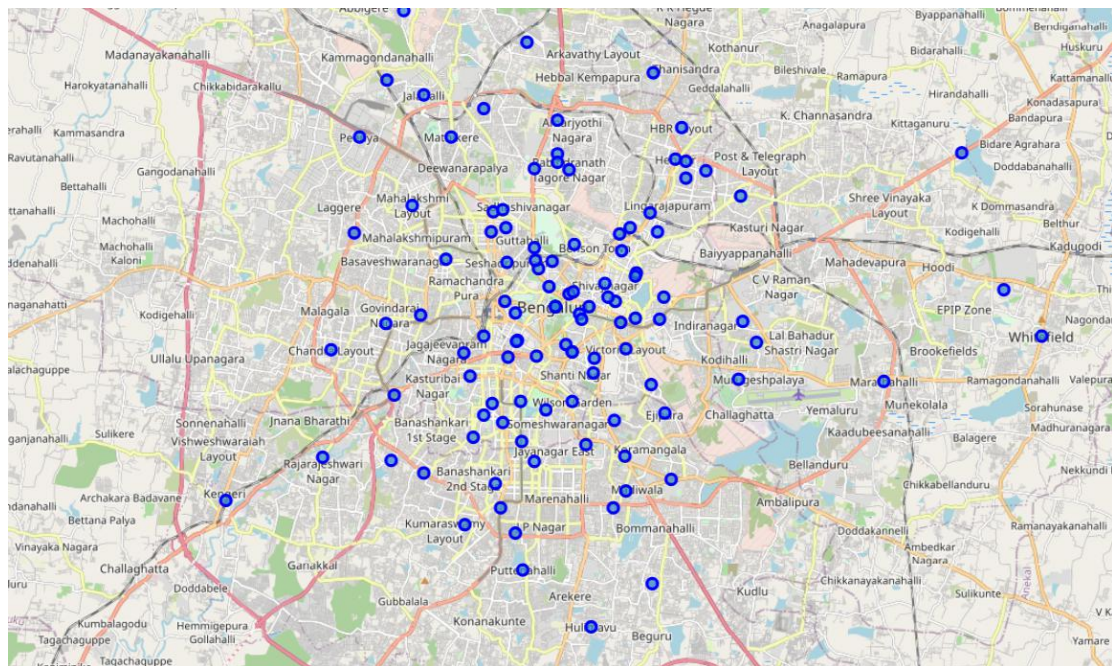
C. Methodology

Data Analysis

List of neighborhood and their real estate prices will be fetched from **Citizen Matters** website. This website contains a table to neighborhood/area and details of their Residential rates and Commercial rates.

The data obtained from this database will be refined for our usage. Proper data cleaning need to be performed for getting the right result.

After, obtaining the neighborhood information, next step is to fetch their location data which can be obtained using **geopy** library. Location of Bangalore city and its neighborhoods will be plot on map to study spread of these regions.



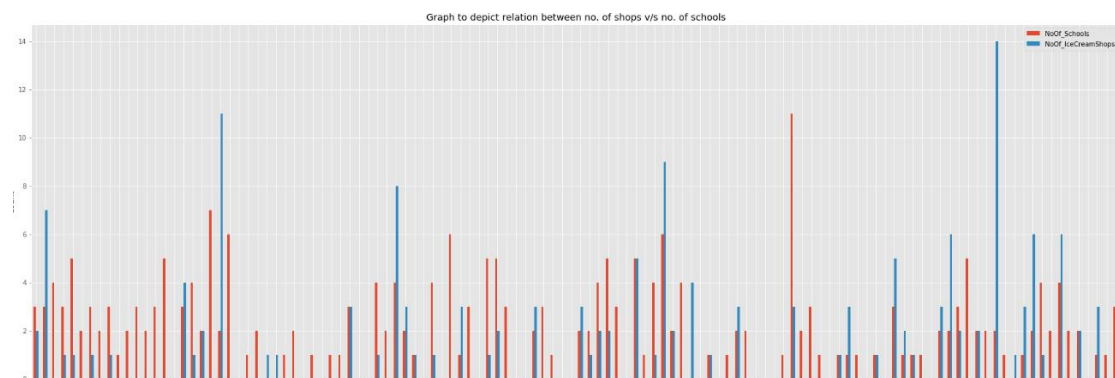
Neighborhood/Area marks plotted on the city of Bangalore

Foursquare

Foursquare data is used to fetch number of schools and number of ice cream shops available in each neighborhood at present. This data is critical for our study to analyze and conclude the best option for our new venture.

Area	Commercial_Rates	Longitude	Latitude	NoOf_Schools	NoOf_IceCreamShops
MG Road	20000.0	77.6124	12.9742	3	2
Kasturba Rd	15000.0	77.5993	12.9767	3	7
Church Street	15000.0	77.6525	12.9743	4	0
Dickenson Rd	12500.0	77.6107	12.9809	3	1
Ashokanagar	5000.0	77.5646	12.9377	5	1

We will be querying the venues in the radius of 500 meters around the location. This value is used considering the tightly packed regions/areas.



D. Analysis

To study the actual relationship, we need to calculate the ratio of Number of Schools with Number of Shops. Let's name it as Opportunity Ratio.

We will be formulating some rules for avoiding complex calculation

1. If number of Schools == 0 then, ratio will be = 0
2. If number of Shops == 0 then, ratio will be = $10 * \text{No. of Schools}$

Area	Commercial_Rates	Longitude	Latitude	NoOf_Schools	NoOf_IceCreamShops	OpportunityRatio
Vittal Mallya Rd	15000.0	77.5948	12.9671	7	0	70
Rajaram Mohan Roy Rd	10000.0	77.5968	12.9648	6	0	60
HMT Layout	4000.0	77.5921	13.0277	6	0	60
Richmond Town	8000.0	77.6042	12.9627	5	0	50
Mission Rd	8000.0	77.5969	12.9646	5	0	50
Church Street	15000.0	77.6525	12.9743	4	0	40
Hennur Rd	3500.0	77.6305	13.0258	4	0	40
Sanjaynagar	5000.0	77.5844	13.023	3	0	30
Millers Rd	10000.0	77.5892	12.9857	3	0	30
Promenade Road	10000.0	77.6178	12.9899	3	0	30

Data Normalization

Finally, any outcome should be affordable thus we need to consider one more factor into consideration

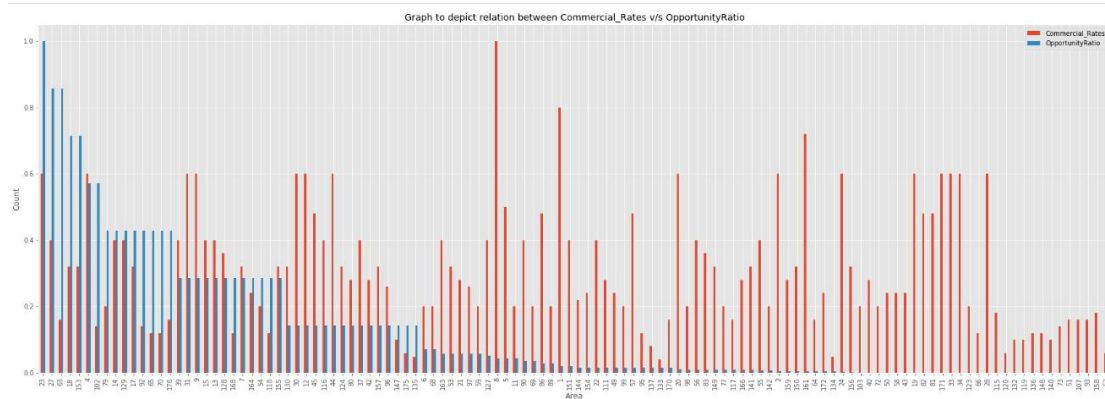
Our final decision of choosing the right Area will be based upon two factors

- Area with high Opportunity Ratio
- Area with low Commercial Rate

For, doing the same we need to normalize both Commercial_Rates and OpportunityRatio so that they are easily comparable.

Normalization is the process of transforming values of several variables into a similar range. Typical in normalizations value ranges from 0 to 1

Area	Commercial_Rates	OpportunityRatio
Vittal Mallya Rd	0.60	1
Rajaram Mohan Roy Rd	0.40	0.857143
HMT Layout	0.16	0.857143
Richmond Town	0.32	0.714286
Mission Rd	0.32	0.714286
...
Chandra Layout	0.16	0
Viveknagar	0.16	0
Kamanahalli	0.16	0
Bannerghatta Rd	0.18	0
Peenya	0.06	0



E. Results and Discussion

We have started with collecting the data of real estate values of most famous area/neighborhoods in the city of Bangalore. Bangalore is a big city having a large number schools and also ice cream outlets. We have focused our study only on most famous areas and avoided other regions. Thought process behind this decision is to avoid those regions where we expect less profit margins and which have less scope of future growth.

Our study is based upon the thumb rule that, kids and youngsters are more attracted towards ice cream compared to other age groups. So opening a store near to a place where the density of this age group is high will help outlet to maximize its consumer base.

Having said that, on analysing the given dataset we have marked the Areas with maximum potential of growth. We have noticed that area **HMT Layout** can be potential candidate for our future venture. As, it possess both the characteristics of high 'Opportunity Ratio' and low industrial cost compare to other areas. There are other options also available for the business person to choose from.

	Area	Commercial_Rates	OpportunityRatio
23	Vittal Mallya Rd	0.60	1
63	HMT Layout	0.16	0.857143
27	Rajaram Mohan Roy Rd	0.40	0.857143
18	Richmond Town	0.32	0.714286
153	Mission Rd	0.32	0.714286
102	Hennur Rd	0.14	0.571429
4	Church Street	0.60	0.571429
65	Jalahalli	0.12	0.428571
70	Sahakarnagar	0.12	0.428571
92	Lingarajpuram	0.14	0.428571

F. Conclusion

It is evident from our study that the combination with maximum opportunity ration (i.e. the Area which has a high number of schools to number of ice cream shops ratio) and least expenditure cost will be an ideal choice for the business person to open a new ice cream outlet.