

Capstone Project – Battle of Neighborhoods

1. Problem statement

A major food chain firm, **Food and More** is looking at opening its first brewery in New Year. Assumption is that **Food and More** does not have much budget constraint and is looking at entering the market. The investment is majorly driven by the demand and customer preferences.

Thus, it is of essence to analyze the location with an opportunity to open a brewery.

Food and More is expecting to look at the common venues in the neighborhoods to see the crowd preference and a neighborhood with no existing brewery.

2. Data source and EDA

- Postcode with latitude and longitude from <https://data.gov.in/resources/all-india-pincode-directory-contact-details-along-latitude-and-longitude>
- Venues data from Foursquare API.

2.1 Retrieving Post code

Some of the rows below which was imported.

Out[3]:

| | PostalCode | Neighbourhood | Longitude | Latitude |
|---|------------|-----------------------------|-----------|----------|
| 0 | 560045 | Arabic College | 77.6206 | 13.0291 |
| 1 | 560103 | Bellandur | 77.6760 | 12.9298 |
| 2 | 560071 | Domlur | 77.6359 | 12.9611 |
| 3 | 560077 | Dr. Shivarama Karanth Nagar | 77.6293 | 13.0681 |
| 4 | 560005 | Fraser Town | 77.6164 | 13.0005 |
| 5 | 560065 | G.K.V.K. | 77.5784 | 13.0781 |
| 6 | 560008 | H.A.L II Stage H.O | 77.6427 | 12.9686 |
| 7 | 560001 | HighCourt | 77.5915 | 12.9773 |
| 8 | 560038 | Indiranagar (Bangalore) | 77.6410 | 12.9815 |

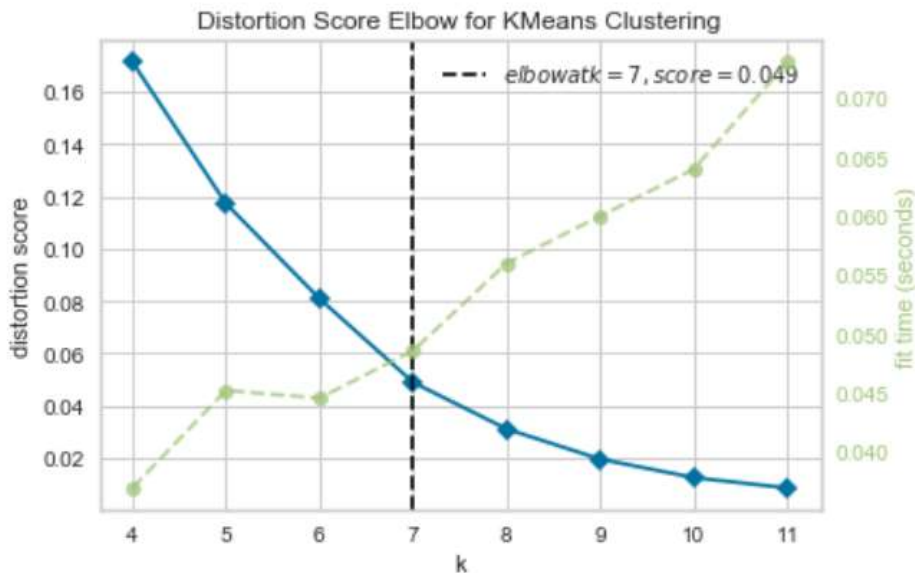
2.2 Neighborhood (with no brewery) common venues to analyze spending trend

Out[119]:

| | Neighbourhood | 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 | Bommasandra Industrial Estate | Hotel | Indian Restaurant | Café | Coffee Shop | Fast Food Restaurant | Pizza Place | Food Court | Vegetarian / Vegan Restaurant | Train Station | Market |
| 1 | Chandapura | Hotel | Pizza Place | Coffee Shop | Train Station | Sporting Goods Shop | Indian Restaurant | Fast Food Restaurant | Dive Bar | Falafel Restaurant | Electronics Store |
| 2 | Channapatna H.O | Coffee Shop | Train Station | Indian Restaurant | Bus Station | Diner | Farmers Market | Falafel Restaurant | Electronics Store | Eastern European Restaurant | Dumpling Restaurant |
| 3 | Electronics City | Hotel | Coffee Shop | Indian Restaurant | Pizza Place | Café | Fast Food Restaurant | Department Store | Food Court | Asian Restaurant | Juice Bar |
| 4 | Gayathrinagar | Indian Restaurant | Hotel | Ice Cream Shop | Coffee Shop | Multiplex | Fast Food Restaurant | Chinese Restaurant | Clothing Store | Bowling Alley | Italian Restaurant |
| 5 | Gottigere | Indian Restaurant | Pizza Place | Café | Fast Food Restaurant | Resort | Italian Restaurant | Chinese Restaurant | Department Store | Multiplex | Clothing Store |
| 6 | Iloor Ramangaram | Indian Restaurant | Performing Arts Venue | Bus Station | South Indian Restaurant | Breakfast Spot | Train Station | Falafel Restaurant | Electronics Store | Eastern European Restaurant | Dumpling Restaurant |
| 7 | Jalahalli East | Coffee Shop | Indian Restaurant | Hotel | Ice Cream Shop | Pizza Place | Plaza | Restaurant | Italian Restaurant | Park | Train Station |

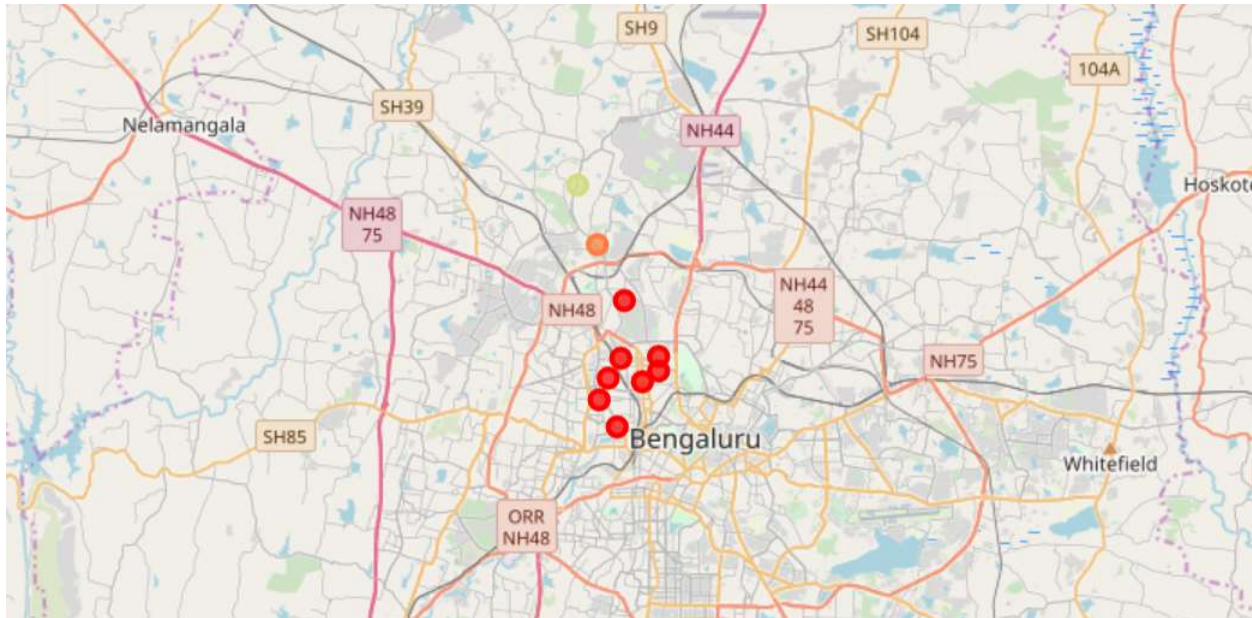
3. Clustering

a. Find k from elbow method.



- Neighborhoods were divided into 7 clusters, k=7 we got from elbow method.

- Clusters plotted on a folium map.



4. Conclusion

From basic initial analysis cluster=0 shows Pub as one of the most common venue in some neighborhood, this neighborhood can further be analyzed based on income, age group, near by work location to get a more refine view of neighborhood to open a new Brewery.

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In [139]: bangalore_merged.loc[bangalore_merged['Cluster Labels'] == 0, bangalore_merged.columns[[1] + list(range(5, bangalore_merged.shape[1]))]]
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Out[139]:

| | Neighbourhood | 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 |
|----|------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|------------------------|
| 15 | Sadashivanagar | Indian Restaurant | Ice Cream Shop | Coffee Shop | Hotel | Fast Food Restaurant | Bakery | Pub | Chinese Restaurant | Multiplex | Bowling Alley |
| 42 | Gayathrinagar | Indian Restaurant | Hotel | Ice Cream Shop | Coffee Shop | Multiplex | Fast Food Restaurant | Chinese Restaurant | Clothing Store | Bowling Alley | Italian Restaurant |
| 46 | Malleswaram | Indian Restaurant | Hotel | Ice Cream Shop | Coffee Shop | Multiplex | Bowling Alley | Pub | Italian Restaurant | Bakery | Fast Food Restaurant |
| 47 | Malleswaram West | Indian Restaurant | Ice Cream Shop | Hotel | Coffee Shop | Bakery | Bowling Alley | Italian Restaurant | Multiplex | Fast Food Restaurant | Department Store |
| 49 | Msrit | Indian Restaurant | Ice Cream Shop | Italian Restaurant | Pizza Place | Chinese Restaurant | Fast Food Restaurant | Coffee Shop | Hotel | Bowling Alley | Café |
| 51 | Rajajinagar H.O | Indian Restaurant | Multiplex | Coffee Shop | Hotel | Café | Chinese Restaurant | Bowling Alley | Clothing Store | Department Store | Bakery |
| 52 | Rajajinagar IVth Block | Indian Restaurant | Hotel | Coffee Shop | Lounge | Bakery | Multiplex | Ice Cream Shop | Fast Food Restaurant | Clothing Store | Shopping Mall |
| 55 | Vyalikaval Extn | Indian Restaurant | Hotel | Coffee Shop | Ice Cream Shop | Multiplex | Pub | Fast Food Restaurant | Bakery | Department Store | Gym |