Capstone Project - The Battle of the Neighborhoods

Introduction: Business Problem of knowledge of neighborhood to explore venues

Mumbai and Delhi are two metro cities of India. These two cities are crowded and always jam packed with people. These cities are one of the best tourist attractions. So, we will explore these two cities and try to find out which city has more venues to visit.

Nobody can remember or know all venues in Mumbai and Delhi area and so cannot promote all venues and categories which can found through Foursquare API. We would like to provide information near these neighborhoods to tell the tourists and people who are unaware. We would also cluster the similar venues and categorize them to quickly find out which category of venues and areas are unique and have good parks and cafeterias. This could make the difference for tourists who are unaware of the places and it will provide information that can be even crucial when families deciding where they are going to move or buy new home.

Data

Based on definition of our problem, factors that will help :

- All venues of neighborhood
- Top venue categories in neighborhood
- Overall style for example cafes and parks and other places to visit

The following data sources will be needed to generate the required information:

- Data Found from the data.gov.in about the post offices in India
- Extraction of the data about the required cities, Mumbai and Delhi
- And using this data changed the office names as neighborhoods
- All venues or neighborhood area through Foursquare API
- After cleaning the data used the geopy python library
- Geolocator to get coordinates of neighborhoods

We will use the **explore** function to get the most common venue categories in each neighborhood of both cities. We will also cluster neighborhoods to give similarity information to end customer.

Methodology

We are providing characteristic information about two mazor cities neighborhoods combining venue and pricing information and making clusters of neighborhoods.

First phase for project was that:

- We collected all neighborhoods with sub-neighborhoods
- Cleaned it by removing unnecessary fields
- Added coordinates to all neighborhoods

Second phase

- We cluster all neighborhoods and venues correlated
- Then we got that number down to the top 10 unique venues in that neighborhood
- And then down to the top 5 based on the most frequented venues

	pincode	Longitude	Cluster Labels	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	400001	72.862683	0.0	Airport	Airport Lounge	Café	Zoo	Falafel Restaurant	Food	Flower Shop	Flea Market	Fishing Spot	Fish Market
1	400002	72.833389	0.0	Indian Restaurant	Smoke Shop	Asian Restaurant	Juice Bar	Chinese Restaurant	Café	Food	BBQ Joint	Indian Sweet Shop	Market
2	400003	72.818101	0.0	Indian Restaurant	Ice Cream Shop	Juice Bar	Fast Food Restaurant	Pizza Place	Harbor / Marina	Italian Restaurant	Train Station	Breakfast Spot	Sandwich Place
3	400004	72.807068	0.0	Cricket Ground	Ice Cream Shop	Gym	Beach	Garden	Falafel Restaurant	Flower Shop	Flea Market	Fishing Spot	Fish Market
4	400005	72.801253	0.0	Gym	Restaurant	Hotel	Vegetarian / Vegan Restaurant	Convenience Store	Food Truck	Dessert Shop	Electronics Store	Fishing Spot	Fish Market

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63	400081	72.904066	1.0	Café	Zoo	Falafel Restaurant	Food	Flower Shop	Flea Market	Fishing Spot	Fish Market	Field	Fast Food Restaurant
112	401302	72.904066	1.0	Café	Zoo	Falafel Restaurant	Food	Flower Shop	Flea Market	Fishing Spot	Fish Market	Field	Fast Food Restaurant

Similarly, the different clusters are created. According to the venues, the Mumbai city has more food corners and restaurants than Delhi city.

Results and Discussion

In this project, we have attempted to load the dataset for two of India's prime metro cities and have tried to analyze the neighborhood regions in these metro cities based on the type of popular and top venues they have. We have clustered the neighborhoods based on the most common top venues in each of the neighborhood. Our intention with this project was to analyze and understand the difference in the type of life in these metros, which can offer decision points for anybody who is considering to settle in either of the metro cities and can get a peek into what type of experience and facilities he will be provided with.

Given our cluster information for both Mumbai and Delhi, we see that Mumbai and its neighbourhoods are a great place for a foodie. There are a lot of restaurants, cafes, bars, etc in Mumbai neighbourhoods. Also due to the proximity of Mumbai to the seashore, Mumbai neighborhoods offer for harbors, seafood, boat, and ferry rides. On the other hand, we see how dissimilar life in Delhi neighbourhoods would be compared to Mumbai neighbourhoods. Delhi neighborhoods and good for those who like Arts and Crafts, Museums, Water Parks and Pizza places. There is very less in terms of foreign cuisine restaurants in Delhi. Mumbai, on the other hand, is great for international visitors, expats, etc, because of the variety and types of food outlets it has. Delhi is inland and its neighborhoods have proximity to Water Parks, Museums and Arts, and Crafts stores.

Conclusion

Thus, with this project, we have analyzed the kind of life each of these big metro cities has to offer based on the popular venues in their neighborhood.

Mumbai would be the choice if you are a foodie!

Another important aspect the study reveals is that the categories of venues Mumbai offers are far too many compared to Delhi. This means that Delhi becomes restrictive in terms of variety and convenience. With the data, we have studied Mumbai wins this battle of metros!