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## Coursera Capstone Project

### 1. Introduction

Leisure industries were usually considered as stable industries because people travel. Irrespective of their age sex or religion but now a days there is high uncertainty in it. Few years back people used to travel in groups live in hotels usually used to pay high for services but now because of new technologies we have started renting private properties. Most of the private properties are equipped with security Camera, Digital check-ins which eases legal problems to rent them out and also provide safety to the visitors and property care takers. They are Cost effective, equipped with privacy and get a chance to tourists to learn the culture of visiting country or city.

### 2. Problem

Since, people are saving money on costly hotel services, Group guides but they need some recommendation on how to explore the city, What are the most visited places or things in area of cities or most importantly where to stay.

### 3. Business Model

Renting apartment, villa, House is becoming more and more common in developing countries. It is already common in developed countries even experts believe they are hampering almost 20-30% of hotel business and they have to be regulated strictly in future. They are easy to maintain, generate more income as compare to long term paying guests (NOT IN ALL CASES).

So, our business model is B2C is based on recommending most visit venues near neighborhoods or suggesting neighborhood on based upon venues. Even the big renting companies like 'Airbnb' have started the same thing on one hand it gives tourist personal touch without doing hole in their pockets and it also makes business earn money by charging commissions with locals.

Although this business model is B2C it can also be used by B2B if number of tourists increases, they can share some venues which will decrease the tourist expenses, increase

the company's revenue per hour. Since, it could be hard to manage such things so a contract can be given to other companies for city experience in return of commission.

#### 4. Data

We have taken Data for this problem from Wikipedia page consisting of Delhi this this problem from Wikipedia page consisting of Districts of Delhi and its headquarters by using beautiful soup and by adding latitudes and longitudes get the table below:-

District	Headquarters	Latitude	Longitude
New Delhi	Connaught Place	28.614179	77.202266
North West Delhi	Narela	28.614179	77.202266
North Delhi	Kanjhawala	28.614179	77.202266
West Delhi	Rajouri Garden	28.647952	77.085565
South West Delhi	Dwarka	28.586448	76.979153
South Delhi	Saket	28.485169	77.196380
South East Delhi	Defence Colony	28.544441	77.272873
Central Delhi	Daryaganj	28.698548	77.219391
North East Delhi	Seelampur	28.723308	77.266857
Shahdara	Shahdara	28.673333	77.289025
East Delhi	Preet Vihar	28.620477	77.309181

#### 5. Use of Data to Solve the problem

To solve the problem what we must do is to find the most visiting venues in each district

To make the clusters of venues so that people can choose district according to venues and if they like those venues they can explore different venues with similar characteristics and if they don't like those venues they can move to different cluster of cities by this way they can choose which district to stay and which district to explore which is what every exploring tourist want to know.

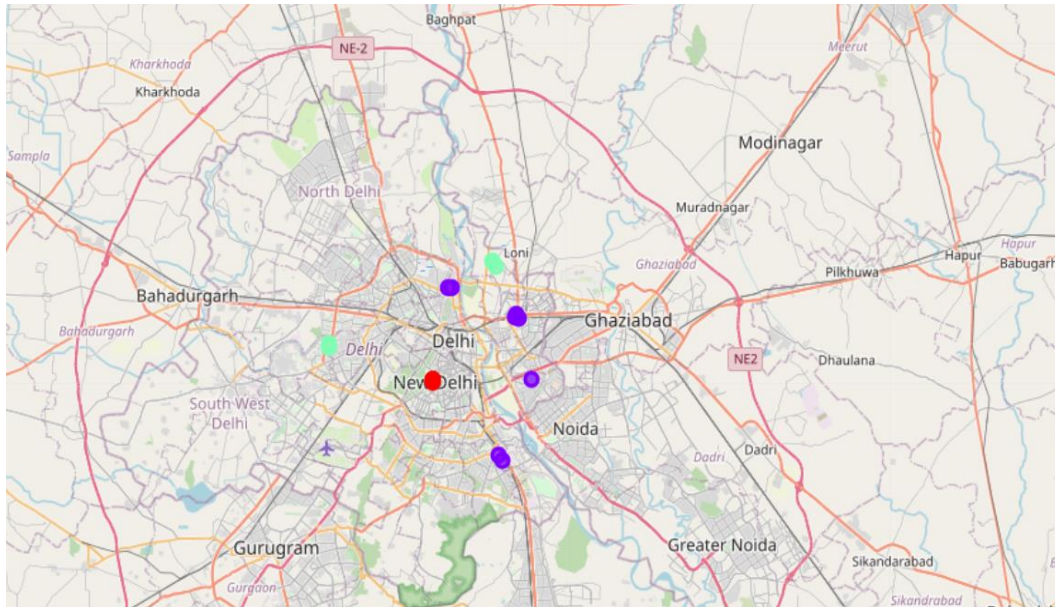
#### 6. Target Customers

City is not only consisting of its culture or historical importance but it also tells the story about people who belongs to that and tourists who wants to find out who belongs to this city will find out by living like the member of that city.

## 7. Data Exploration and visualization

Folium is use for data visualization so we will use folium code to visualize the districts of Delhi on Delhi map. first, we explore the city with the help of Foursquare api .

It is used to find the information about venues we can also find pictures, tips and recommendations. Now we see the clustered map of districts.



Also, we can see the most usable venues in Delhi arranged according to their respective district

	District	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	Central Delhi	Park	Cosmetics Shop	Vegetarian / Vegan Restaurant	Platform	Museum	Light Rail Station	Gym	Gift Shop	Garden	Bakery
1	East Delhi	Gym	Vegetarian / Vegan Restaurant	Platform	Park	Museum	Light Rail Station	Gift Shop	Garden	Cosmetics Shop	Bakery
2	New Delhi	Museum	Garden	Vegetarian / Vegan Restaurant	Platform	Park	Light Rail Station	Gym	Gift Shop	Cosmetics Shop	Bakery
3	North Delhi	Museum	Garden	Vegetarian / Vegan Restaurant	Platform	Park	Light Rail Station	Gym	Gift Shop	Cosmetics Shop	Bakery
4	North East Delhi	ATM	Vegetarian / Vegan Restaurant	Platform	Park	Museum	Light Rail Station	Gym	Gift Shop	Garden	Cosmetics Shop
5	North West Delhi	Museum	Garden	Vegetarian / Vegan Restaurant	Platform	Park	Light Rail Station	Gym	Gift Shop	Cosmetics Shop	Bakery
6	Shahdara	Vegetarian / Vegan Restaurant	Platform	Light Rail Station	Gift Shop	Park	Museum	Gym	Garden	Cosmetics Shop	Bakery
7	South East Delhi	Light Rail Station	Auto Workshop	Vegetarian / Vegan Restaurant	Platform	Park	Museum	Gym	Gift Shop	Garden	Cosmetics Shop
8	West Delhi	Bakery	ATM	Vegetarian / Vegan Restaurant	Platform	Park	Museum	Light Rail Station	Gym	Gift Shop	Garden

## 8. Result

### Cluster: -1

The most Common venues in cluster –1 is Vegetarian restaurant, Train platform station and cosmetics people who have plans to visit different cities apart from Delhi will be best fit into cluster 1 as it gives access to local cuisine, railways and markets, Bakery and museum.

	District Latitude	Venue Longitude	Venue Category	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
8	28.544441	77.275562	Light Rail Station	1	Light Rail Station	Auto Workshop	Vegetarian / Vegan Restaurant	Platform	Park	Museum	Gym	Gift Shop	Garden	Cosmetics Shop
9	28.544441	77.271178	Auto Workshop	1	Light Rail Station	Auto Workshop	Vegetarian / Vegan Restaurant	Platform	Park	Museum	Gym	Gift Shop	Garden	Cosmetics Shop
10	28.698548	77.220394	Park	1	Park	Cosmetics Shop	Vegetarian / Vegan Restaurant	Platform	Museum	Light Rail Station	Gym	Gift Shop	Garden	Bakery
11	28.698548	77.216670	Cosmetics Shop	1	Park	Cosmetics Shop	Vegetarian / Vegan Restaurant	Platform	Museum	Light Rail Station	Gym	Gift Shop	Garden	Bakery
15	28.673333	77.289011	Light Rail Station	1	Vegetarian / Vegan Restaurant	Platform	Light Rail Station	Gift Shop	Park	Museum	Gym	Garden	Cosmetics Shop	Bakery
16	28.673333	77.288999	Gift Shop	1	Vegetarian / Vegan Restaurant	Platform	Light Rail Station	Gift Shop	Park	Museum	Gym	Garden	Cosmetics Shop	Bakery
17	28.673333	77.290126	Vegetarian / Vegan Restaurant	1	Vegetarian / Vegan Restaurant	Platform	Light Rail Station	Gift Shop	Park	Museum	Gym	Garden	Cosmetics Shop	Bakery
18	28.673333	77.292520	Platform	1	Vegetarian / Vegan Restaurant	Platform	Light Rail Station	Gift Shop	Park	Museum	Gym	Garden	Cosmetics Shop	Bakery

### Cluster: -2

As it can be seen the most common venue of this cluster is gym and if we see other venues, we will find that it does not have any venue to attracts tourists.

	District Latitude	Venue Longitude	Venue Category	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
19	28.620477	77.306951	Gym	2	Gym	Vegetarian / Vegan Restaurant	Platform	Park	Museum	Light Rail Station	Gift Shop	Garden	Cosmetics Shop	Bakery

## Cluster: -3

Now, Cluster 3 have mostly atm that is it shows lot of markets so best place for tourist to explore the city.

	District Latitude	Venue Longitude	Venue Category	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
6	28.647952	77.08696	Bakery	3	Bakery	ATM	Vegetarian / Vegan Restaurant	Platform	Park	Museum	Light Rail Station	Gym	Gift Shop	Garden
7	28.647952	77.08704	ATM	3	Bakery	ATM	Vegetarian / Vegan Restaurant	Platform	Park	Museum	Light Rail Station	Gym	Gift Shop	Garden
12	28.723308	77.26387	ATM	3	ATM	Vegetarian / Vegan Restaurant	Platform	Park	Museum	Light Rail Station	Gym	Gift Shop	Garden	Cosmetics Shop
13	28.723308	77.26387	ATM	3	ATM	Vegetarian / Vegan Restaurant	Platform	Park	Museum	Light Rail Station	Gym	Gift Shop	Garden	Cosmetics Shop
14	28.723308	77.26780	ATM	3	ATM	Vegetarian / Vegan Restaurant	Platform	Park	Museum	Light Rail Station	Gym	Gift Shop	Garden	Cosmetics Shop

## Final Suggestion: -

Based up on the above clusters I will suggest districts to visit for Tourists

1. North East Delhi
2. Shahdara
3. Central Delhi
4. South East Delhi

**THANK YOU**